Xakwa Base Metals (Pty) Limited

Mooiplaats 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. 326) (EIA Regulations, 2014) and submitted as contemplated in Regulation 19 of Chapter 4 of the EIA Regulations, 2014
For
An application for an Environmental Authorization in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Amended Environmental Impact Assessment Regulations 2014, Government Notice R327 - Listing Notice 1 of 2014

DMRE Reference No.: KZN 30/5/1/1/2/ 11161 PR

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Report Type: Draft BAR/EMPr

Project Title: Mooiplaats Prospecting Project

Compiled for: Xakwa Base Metals (Pty) Limited

Compiled by: P. Mthimunye, BSc. Of (Earth Sciences in Mining and Environmental Geology)

Reviewed by: T. Shakwane, B.Sc. Hons. (Pr.Sci.Nat and Registered EAP)

Version: Revised

Date: January 2022

Disclaimer:

The results and conclusions of this report are limited to the Scope of Work agreed between Geovicon Environmental (Pty) Limited and Xakwa Base Metals (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.

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.

_____

(Electronic signature)

P. P. Mthimunye, BSc. Of Earth Sciences in Mining and Environmental Geology)

This report was reviewed by:

_____

(Electronic signature)

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

EXECUTIVE SUMMARY

Xakwa Base Metals (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). Xakwa Base Metals (Pty) Limited proposes to prospect for Aluminium Ore, Gibbsite and Titanium on the remaining extent of the farms Isihlengeni No. 857 HU, Isihlengeni No. 689 HU, Negenuur No. 769 HU, Tygerskloof No. 173 HU., Mountain View No. 106 HU, Magdalena No. 856 HU, Mooiplaats 17852, Zaagkuil No. 777 HU, a portion of the remaining extent of the farm Kambi No. 17518 HU and Portions 3 and the remaining extent of the farm Magdalena No. 376 HU as well as portions 3, 5 and 6 of the farm Mooiplaats 537 HU, situated in the Magisterial District of Zululand in the province of Kwazulu-Natal.

Mooiplaats 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 Mooiplaats prospecting project will results 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, Xakwa Base Metals (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 Mooiplaats prospecting project. An application for an environmental authorisation for the proposed Mooiplaats prospecting project was submitted to the Department of Mineral Resources and Energy, KwaZulu-Natal Regional Office (Competent Authority) for their consideration. The application has ever since been received 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 (draft BAR and EMPr), which concerns assessment of environmental impacts and a programme for management of the impacts for the proposed activities at the Mooiplaats prospecting area, was compiled in terms of the 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 desktop assessments for surface water, geohydrology, topographical landscape, soils , natural vegetation, wetlands and geological conditions and the socio-economic aspects. Weather data was acquired from the South African Weather Service. 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 proposed Mooiplaats 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. **See attached Appendix A for the Regulation 2(2) plan.**

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

Company: Geovicon Environmental (Pty) Limited

Postal Address:

P.O. Box 4050

MIDDELBURG, 1050

Tel: (013) 243 5842

Fax: (086) 632 4936

Cell No.: 082 498 1847

Email: tshepo@geovicon.co.za

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 work 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 Mooiplaats prospecting project as an environmental assessment practitioner.

Mr Shakwane is the environmental assessment practitioner for the environmental impact assessment for the proposed Mooiplaats prospecting project.

He is registered with the Environmental Assessment Practitioners Association of South Africa and South African Council for Natural Scientific Professions as an Environmental Assessment Practitioner and a Professional Natural Scientist in terms of section 24H of the National Environmental Management Act, (Act 107 of 1998) and section 20(3) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003), respectively. He is also a member of the International Association for Impact Assessment (IAIASA), South Africa and serves under the IAIASA Mpumalanga Regional Committe.

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 proposed Mooiplaats prospecting project basic assessment process. **See Appendix B for the EAPs Curriculum Vitaes.**

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), Kwazulu-Natal 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, Kwa-Zulu Natal Regional Office (Competent Authority).
- KwaZulu-Natal Department of Agriculture and Rural Development (Commenting Authority).
- South African Heritage Resources Agency (Commenting Authority). as well as the National
- Department of Forestry's, Fisheries and the Environment (DFFE).
- Ezemvelo KwaZulu-Natal Wildlife

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

Xakwa Base Metals (Pty) Limited.

1.3.2. Name of the Project

Mooiplaats prospecting project

1.3.3. Postal Address of Applicant

Xakwa Base Metals (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 Mooiplaats prospecting project is situated within the Zululand Magisterial District approximately 20 km south east of Louwsburg and approximately 58 km east of Vryheid, access to the area is via the R618, provincial road that passes through a southern part of the prospecting area See Table 1 for the distance and directions of towns around the Mooiplaats prospecting area

1.4.2. Physical Address and Farm Name of the prospecting Area

Mooiplaats prospecting project is situated on the remaining extent of the farms Isihlengeni No. 857 HU, Isihlengeni No. 689 HU, Negenuur No. 769 HU, Tygerskloof No. 173 HU., Mountain View No. 106 HU, Magdalena No. 856 HU, Mooiplaats 17852, Zaagkuil No. 777 HU, a portion of the remaining extent of the farm Kambi No. 17518 HU and Portions 3 and the remaining extent of the farm Magdalena No. 376 HU as well as portions 3,5 and 6 of the farm Mooiplaats 537 HU, in the magisterial district of Zululand , Kwazulu - Natal, province.

1.4.3. Magisterial District & Regional Services Council

- Magisterial District: Zululand Magisterial District, Kwa- Zulu Natal
- District Municipality: Zululand District Municipality
- Local Municipality: Abaqulusi Local Municipality

1.4.4. Direction and Distance to Nearest Towns

Table 1: Direction and Distance to Nearest Towns.

TOWN	DIRECTION	DISTANCE (KM)
Louwsburg	North West	20 km
Nongoma	South East	24 km
Vryheid	West	58 km

1.4.5. Locality Plan

Refer to Figure 1 for the locality plan of the Mooiplaats prospecting area.

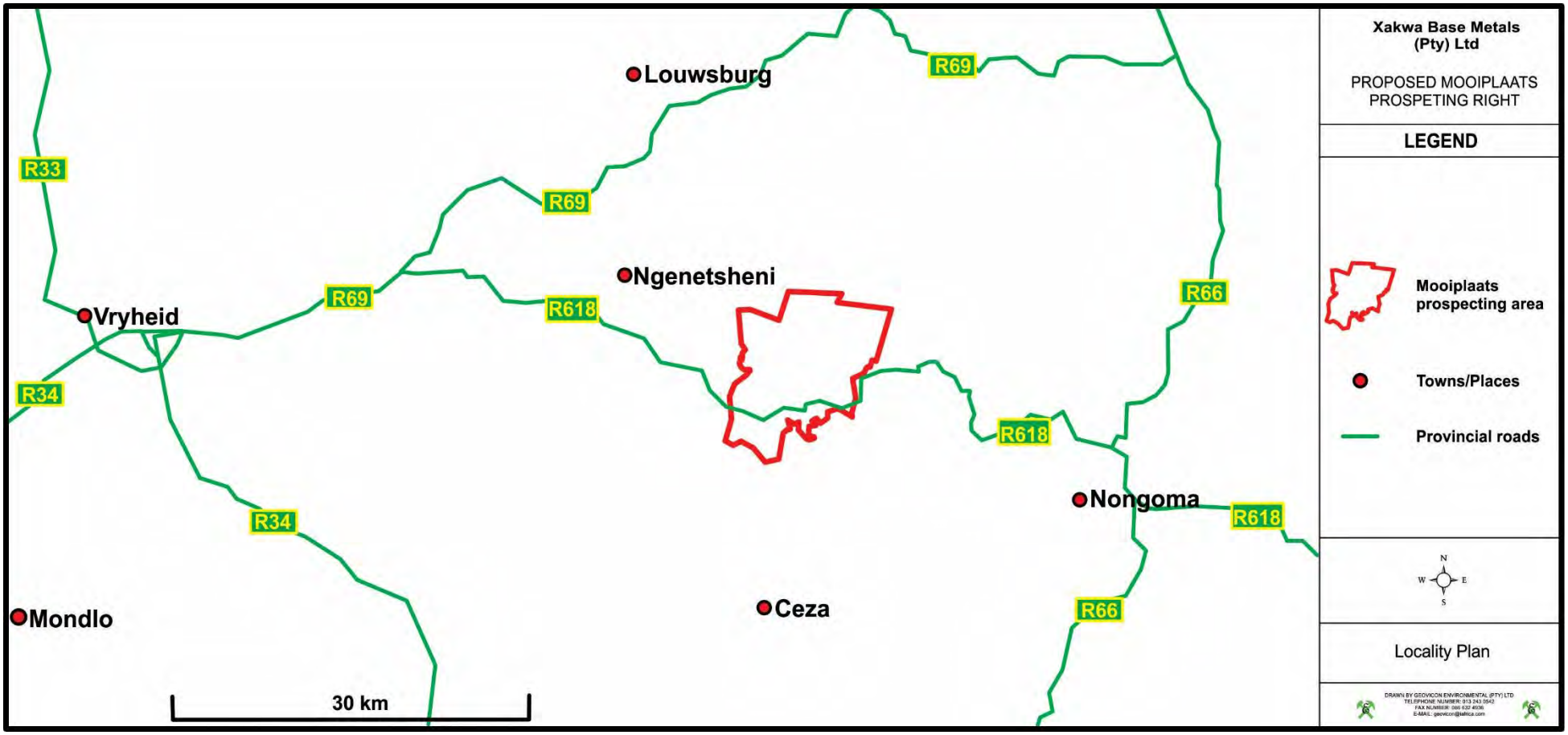


Figure 1: Locality Plan for the proposed Mooiplaats prospecting project

1.4.6. Land Tenure and Use of Immediate and Adjacent Land

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

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

FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB-DIVISION	SURFACE OWNER
Direct Surface Owners			
Isihlengeni No. 857 HU	N0HU00000000085700000	Remaining Extent*	FREEWHEEL TRADE & INVESTMENTS 7 PTY LTD
Isihlengeni No 689 HU	N0HU00000000068900000	Remaining Extent*	ESIHLENGENI TRUST-TRUSTEES
Negenuur No. 769 HU	N0HU00000000076900000	Remaining Extent*	SIHLENGENI PLASE EIENDOMS BEPERK
Tygerskloof No. 173	N0HU00000000017300000	Remaining Extent*	IMPUMELELO COMMUNITY TRUST-TRUSTEES
Kambi No. 17518 HU	N0HU00000001751800000	Portion of the Remaining Extent*	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Mountain View No. 106 HU	N0HU00000000010600000	Remaining Extent*	SALVATION ARMY PROPERTY CO
Magdalena No. 376 HU	N0HU00000000037600000	Remaining Extent*	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Magdalena No. 376 HU	N0HU00000000037600003	Portion 3*	SIHLENGENI PLASE PTY LTD
Magdalena No. 856 HU	N0HU00000000085600000	Remaining Extent*	SIHLENGENI PLASE EIENDOMS BEPERK
Mooiplaats No. 537 HU	N0HU00000000053700003	Portion 3*	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Mooiplaats No. 537 HU	N0HU00000000053700005	Portion 5*	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Mooiplaats No. 537 HU	N0HU00000000053700006	Portion 6*	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE

Mooiplaats No. 17852 HU	N0HU00000001785200000	Remaining Extent*	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Zaagkuil No. 777 HU	N0HU00000000077700000	Remaining Extent*	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Adjacent Surface Owners			
Voordag No. 251 HU	N0HU00000000025100001	Portion 1	ISINAMUVA COMMUNITY TRUST-TRUSTEES
Voordag No. 251 HU	N0HU00000000025100003	Portion 3	ISINAMUVA COMMUNITY TRUST-TRUSTEES
Uitval No. 828 HU	N0HU00000000082800000	Remaining Extent	ISINAMUVA COMMUNITY TRUST-TRUSTEES
Mpsini No. 17756 HU	N0HU00000001775600000	Remaining Extent	PHONDWANE COMMUNAL PROPERTY ASSOCIATION
Waterval No. 423 HU	N0HU00000000042300002	Portion 2	Cornelia Dorethea Beukes
Waterval No. 423 HU	N0HU00000000042300006	Portion 6	HLALAKAMUNANDI TRUST-TRUSTEES
Morgenzon No. 390 HU	N0HU00000000039000003	Portion 3	Louisa Aletta Eybers
Morgenzon No.390 HU	N0HU00000000039000004	Portion 4	Louisa Aletta Eybers
Mooiplaats No. 537 HU	N0HU00000000053700004	Portion 4	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Mooiplaats No. 537 HU	N0HU00000000053700007	Portion 7	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Cetewayo's Refuge No. 661 HU	N0HU00000000066100000	Remaining Extent	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Ngomi No. 729 HU	N0HU00000000072900000	Remaining Extent	NGOMI TIMBERS CC
Squebez No. 702 HU	N0HU00000000070200000	Remaining Extent	TO BE DETERMINED, NO INFORMATION AVAILABLE ON WINDEED DATABASE
Wonderfontein No. 560 HU	N0HU00000000056000004	Portion 4	MAHLABANENI COMMUNAL PROPERTY ASSOCIATION
Demoina No. 830 HU	N0HU00000000083000000	Remaining Extent	IMPUMELELO COMMUNITY TRUST-TRUSTEES
Tierkloof No. 829 HU	N0HU00000000082900000	Remaining Extent	IMPUMELELO COMMUNITY TRUST-TRUSTEES

Tygerskloof No. 173 HU	N0HU00000000017300002	Portion 2	IMPUMELELO COMMUNITY TRUST-TRUSTEES
Spitzkop No.70 HU	N0HU00000000007000012	Portion 12	NCT FORESTRY CO-OPERATIVE LIMITED
Toovenaarsrust No. 518 HU	N0HU00000000051800000	Remaining Extent	IMPUMELELO COMMUNITY TRUST-TRUSTEES
Toovenaarsrust No. 518 HU	N0HU00000000051800003	Portion 3	OGWINI COMMUNITY TRUST-TRUSTEES
Toovenaarsrust No. 518 HU	N0HU00000000051800004	Portion 4	PEREZ FARMING PTY LTD
Toovenaarsrust No. 518 HU	N0HU00000000051800005	Portion 5	IMPUMELELO COMMUNITY TRUST
Uitzicht No. 73 HU	N0HU00000000007300005	Portion 5	OGWINI COMMUNITY TRUST-TRUSTEES
Legerplaats No. 634 HU	N0HU00000000063400000	Remaining Extent	REPUBLIC OF SOUTH AFRICA
Legerplaats No. 634 HU	N0HU00000000063400002	Portion 2	REPUBLIC OF SOUTH AFRICA

*Portion on which the prospecting area is applied for, also refer to the attached **Appendix C** as Windeed list of direct farm owners.

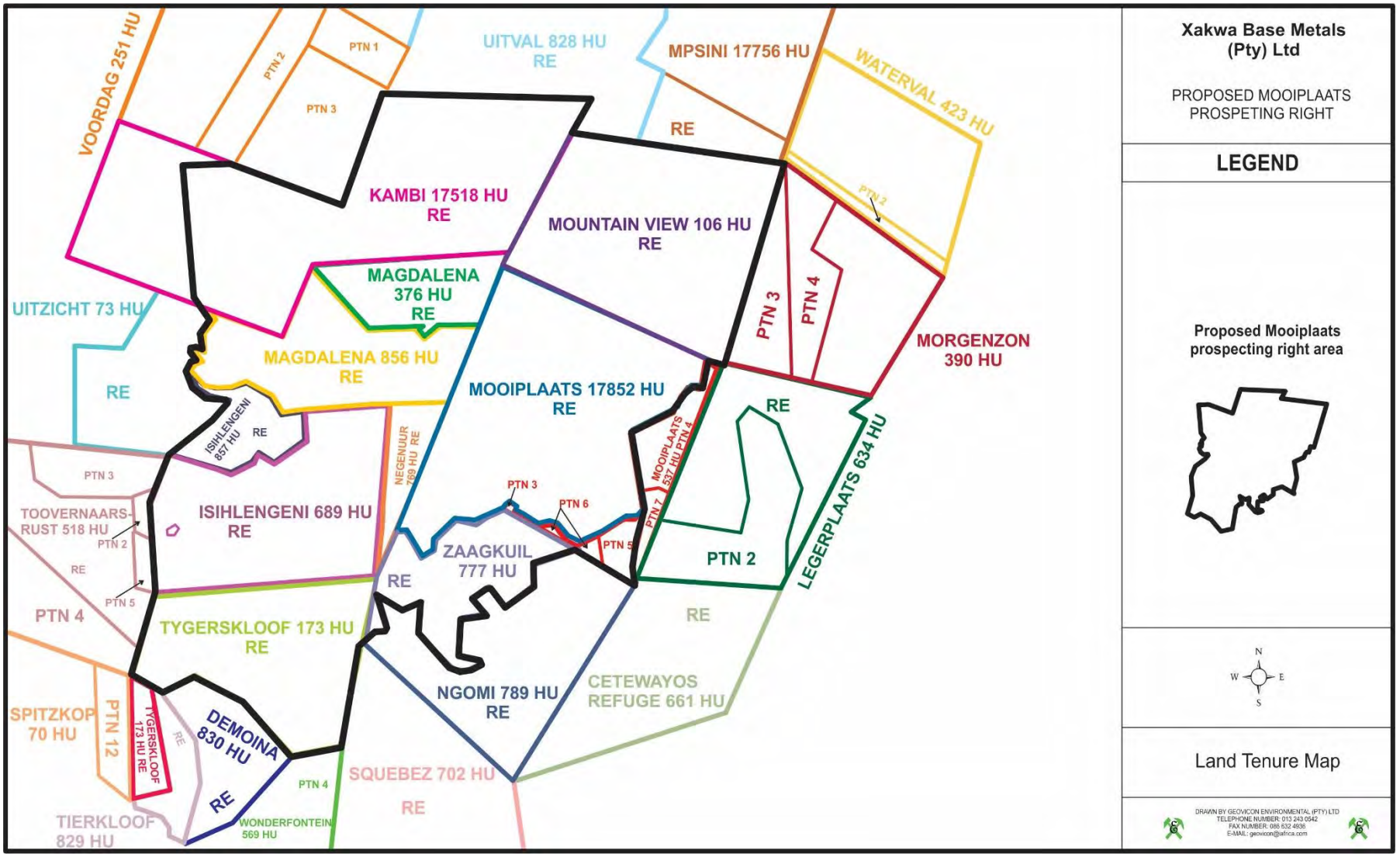


Figure 2: Land Tenure Plan for the proposed Mooiplaats prospecting area.

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 Mooiplaats prospecting project will result in activities that are considered as listed activities. In terms of the above-mentioned legislations, none of the above-mentioned listed activities can be conducted without an environmental authorisation. In view of the above, Xakwa Base Metals (Pty) Limited has submitted an application for an Environmental Authorisation for all listed activities to be conducted at the proposed Mooiplaats 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

Xakwa Base Metals (Pty) Limited proposes to prospect for Aluminium Ore, Gibbsite and Titanium in.the proposed Mooiplaats prospecting area. This will include the usage of diamond core drilling methods. The activities will be undertaken on the remaining extent of the farms Isihlengeni No. 857 HU, Isihlengeni No. 689 HU, Negenuur No. 769 HU, Tygerskloof No. 173 HU., Mountain View No. 106 HU, Magdalena No. 856 HU, Mooiplaats 17852, Zaagkuil No. 777 HU, a portion of the remaining extent of the farm Kambi No. 17518 HU and Portions 3 and the remaining extent of the farm Magdalena No. 376 HU as well as portions 3,5 and 6 of the farm Mooiplaats 537 HU, in the magisterial district of Zululand , Kwazulu -Natal, province.

Table 3: Listed Activities for the proposed Mooiplaats prospecting project area .

LISTED ACTIVITY	NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	APPLICABLE LISTING NOTICE
PROPOSED MOOIPLAATS 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 Mooiplaats 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.	12 121,93 hectares.	NO. 327

2.2.1. Target Minerals

Aluminium Ore, Gibbsite and Titanium

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

The proposed Mooiplaats 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.

Xakwa Base Metals (Pty) Limited proposes to drill thirty (30) boreholes in total throughout the life of the prospecting project.

2.2.3. Planned Life of Project

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

2.3. MOOIPLAATS 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 R618 Provincial Road that passes through the southern part of the prospecting area and a number of minor roads connecting from the R618. Where no roads exist, tracks will be used to access the drilling sites. No clearing of natural vegetation will be undertaken in order to get access to the drilling sites.

2.3.2. Power Supply

Power supply will re quired fior the running of vehicles and diling mechinerey. Power will also be required for the drilling of boreholes, boreholes pumping and for the illumination 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 and campsites 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 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 (oil and liquid fuel wastes) and sewage waste. Oil waste and other liquid fuels waste include used oils/lubricants (grease) 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. Mooiplaats Prospecting Project- Method Statement

In terms of the DMRE BAR and EMPr template, Xakwa Base Metals (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 3: 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 campsites (a caravan/tents and chemical toilets).

2.4.2.1. Establishment of access

The R618 provincial road passes through the southern part of the proposed area. A number of gravel 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.

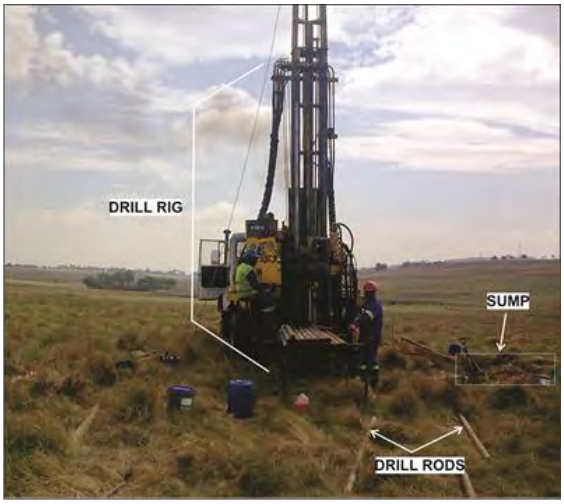


Figure 4: Drill rig operation

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.

2.4.4. Decommissioning phase

2.4.5. 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.

2.4.6. Pre-feasibility study

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

2.4.7. Mining feasibility study

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

2.4.8. 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. 326, No. 325 and No. 324.

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, Xakwa Base Metals (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. KWAZULU-NATAL NATURE CONSERVATION MANAGEMENT ACT (ACT 9 OF 1997)

The Kwazulu- Natal Nature Conservation Management Act, No. 9 of 1997, aims to provide institutional structures for nature conservation in Kwazulu-Natal, to establish control and monitoring bodies and mechanisms, and to provide for matters incidental thereto. This Act amends the Natal Nature Conservation Ordinance,1974 and the KwaZulu-Natal Nature Conservation Act, 1992.This Act makes provision for the protection of the natural environment of the KwaZulu-Natal province. It establishes the KwaZulu-Natal Nature Conservation Board and the KwaZulu-Natal Nature Conservation Service and grants powers to the Minister to establish a local board in respect of one or more protected areas.

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 mters 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 Mooiplaats prospecting project.

Assessment of the geological information available has determined that the area in question may have Aluminium ore, Gibbsite and Titanium 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.

Xakwa Base Metals (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 Kwazulu-Natal. 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.

Xakwa Base Metals (Pty) Limited intends to undertake prospecting on the remaining extent of the farms Isihlengeni No. 857 HU, Isihlengeni No. 689 HU, Negenuur No. 769 HU, Tygerskloof No. 173 HU., Mountain View No. 106 HU, Magdalena No. 856 HU, Mooiplaats 17852, Zaagkuil No. 777 HU, a portion of the remaining extent of the farm Kambi No. 17518 HU and Portions 3 and the remaining extent of the farm Magdalena No. 376 HU as well as portions 3,5 and 6 of the farm Mooiplaats 537 HU, situated in the magisterial district of Zululand , Kwazulu -Natal, province., to determine whether there is Aluminium ore, Gibbsite and Titanium in the proposed prospecting area. 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 the remaining extent of the farms Isihlengeni No. 857 HU, Isihlengeni No. 689 HU, Negenuur No. 769 HU, Tygerskloof No. 173 HU., Mountain View No. 106 HU, Magdalena No. 856 HU, Mooiplaats 17852, Zaagkuil No. 777 HU, a portion of the remaining extent of the farm Kambi No. 17518 HU and Portions 3 and the remaining extent of the farm Magdalena No. 376 HU as well as portions 3,5 and 6 of the farm Mooiplaats 537 HU.

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 route of the R618 and several other secondary and private roads passes through the prospecting area and include a number of unnamed dirt roads that are present in the proposed Mooiplaats prospecting area.

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 proposed prospecting project site, a mobile campsite and an offsite campsite.

Since the drilling sites closer to farm home steads may result in undesirable impacts on the residents of the farm steads and the offsite alternative may result 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. It must be noted here that no drilling site will be established without the consent of the landowners. The establishment will also be undertaken in line with the measures recommended in the approved EMPr.

5.1.5. Design/ Layout Alternatives

Since no complicated surface infrastructure will be required for the proposed drilling operation, no design and layout alternatives for the proposed project 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 mineral applied for is 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

5.1.9. 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.

5.1.9.1. Transportation

See access route alternatives.

5.1.10. No Go Option

Xakwa Base Metals (Pty) Limited intends to prospect for aluminium ore, gibbsite and titanium over the proposed prospecting right area. 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 Mooiplaats prospecting project, situated over the remaining extent of the farms Isihlengeni No. 857 HU, Isihlengeni No. 689 HU, Negenuur No. 769 HU, Tygerskloof No. 173 HU., Mountain View No. 106 HU, Magdalena No. 856 HU, Mooiplaats 17852, Zaagkuil No. 777 HU , a portion of the remaining extent of the farm Kambi No. 17518 HU and Portions 3 and the remaining extent of the farm Magdalena No. 376 HU as well as portions 3,5 and 6 of the farm Mooiplaats 537 HU; accessed via the R618 and unnamed dirt access roads are 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 Xakwa Base Metals (Pty) Limited is applying for an environmental authorisation for the proposed Mooiplaats 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 Mooiplaats 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 28th of January 2022 and ends on the 28th of February 2022. Note that all parties are provided enough time (at least 30 days) to comment on the report.

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 28th of January 2022, notices were posted in the Vryheid Herald Newspaper which is distributed in host and surrounding towns of the proposed prospecting area, informing the public that the BAR/EMPr is placed at the Vryheid 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 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 was also submitted to the commenting authorities for their comments.
- A copy of the draft BAR and EMPr was also placed at the Vryheid local library.

5.2.1.2. Registered Interested and Affected Parties

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

- Department of Mineral Resources and Energy, Kwazulu-Natal Regional Office (Competent Authority).
- National Department of Agriculture, Forestry and Fisheries, Kwazulu-Natal Regional Office (Commenting Authority).
- South African Heritage Resources Agency (Commenting Authority).
- Department of Public Works, Roads and Transport – Kwazulu-Nata
- Department of Rural Development and Land Reform.
- Department of Water Affairs.
- Ward 2 Councillor (Abaqulusi Local Municipality).
- Ward 3 Councillor (Abaqulusi Local Municipality)
- Abaqulusi Local Municipality.
- Land owners and lawful occupiers within the Mooiplaats 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 the 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 and BAR/EMPr commenting 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

The proposed Mooiplaats prospecting area is situated in the Karoo Supergroup

The Zululand District is underlain predominantly by Karoo Sequence basalts, shales, siltstones, sandstones and conglomerates that have been intruded by dolerite dykes, sills and plugs of Jurassic age. Granite, quartzite, basalt, diabase, migmatite, and gneiss are also present; significant areas of granite prevail in the vicinity of Paulpietersburg. The district comprises very little alluvium, which is a feature of a rugged downward eroding landscape. A variety of Karoo Supergroup rocks occur in the area and the District includes Dwyka, Ecca, Beaufort, Lebombo, and Zululand Groups, with Jurassic dolerite intrusions and quartzite of the Mozaan Group (Pongola Supergroup).

Dywka Group: The Group consists mainly of diamictite (tillite) which is generally massive with little jointing, but it may be stratified in places. Subordinate rock types are conglomerate, sandstone, rhythmite and mudrock (both with and without dropstones). In the southern part of the basin, under the influence of the Cape Fold Belt, the diamictite display a distinctive 'tombstone' morphology as a result of selective weathering along axial-plane cleavage.

Ecca Group:

The Pietermaritzburg Formation comprises dark, upward coarsening, silty mudrock, which is heavily bioturbated. Pene-contemporaneously deformed sandy and silty beds appear near the top of the formation.

The Vryheid Formation comprises mudrock, rhythmite, siltstone and fine- to coarse-grained sandstone (pebbly in places). The Formation contains up to five (mineable) coal seams. The different lithofacies are mainly arranged in upward-coarsening deltaic cycles (up to 80m thick in the southeast). Fining-upward fluvial cycles, of which up to six are present in the east, are typically sheet-like in geometry, although some form valley-fill deposits. They comprise coarse-grained to pebbly, immature sandstones - with an abrupt upward transition into fine-grained sediments and coal seams.

Aluminium

From 1962 to 1972 extensive field and laboratory work was carried out by the Geological Survey and the National Institute of Metallurgy to assess the possibilities of the local sources of aluminium. During the course of these investigations gibbsite was discovered in the brown-red or yellow-brown clays resulting from the lateritic weathering of basic rocks in the high rainfall areas of South Africa. These areas extend from the Soutpansberg in the Northern Transvaal southward along the Drakensberg escarpment into Natal and the Transkei. Free alumina is present as gibbsite in these clays. During 1976 appreciable resources of ferruginous bauxite were discovered by Helmuth Redinger Exploration and Development (Pty) Ltd in the Ngome area in Natal. The deposits have resulted from residual weathering under specific climatic conditions of dolerite sills or of baked shale overlying the sills. In places clay occurs within the bauxite or underlies it.

5.2.2. Climate

5.2.2.1. Regional Climate

Mooiplaats prospecting right are 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.

The climate in Vryheid is warm and temperate. The summers here have a good deal of rainfall, while the winters have very little. This climate is considered to be Cwb according to the Köppen-Geiger climate classification. In Vryheid, the average annual temperature is 16.6 °C | 61.9 °F. About 962 mm of precipitation falls annually.

5.2.2.2. Peak Rainfall Data

5.2.2.2.1. Maximum Monthly Rainfall Data

The maximum monthly rainfall data was distilled from the daily rainfall record and is presented in Table 4.

Table 4: Maximum monthly rainfall data (mm).

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
106	145	187	148	120	105	52	21	14	18	28	42

5.2.3. Topography

The elevation of the surrounding area ranges from 620 m above sea level to 1367 m above sea level. The surrounding area is considered undulating and consists of hills and valleys, often with streams in the valleys and pans in the hills.

5.2.4. Land Use

The land in the area is mainly used for planted forests, grazing and limited small scale crop production with quite a few residential areas and a provincial road that passes through the central southern part of the proposed Mooiplaats prospecting area. Adjacent land such as the Ntendeka Wilderness Area which is used for conservation. Other adjacent land uses include small scale crop production and planted forests as well as grazing and a number of residential areas.

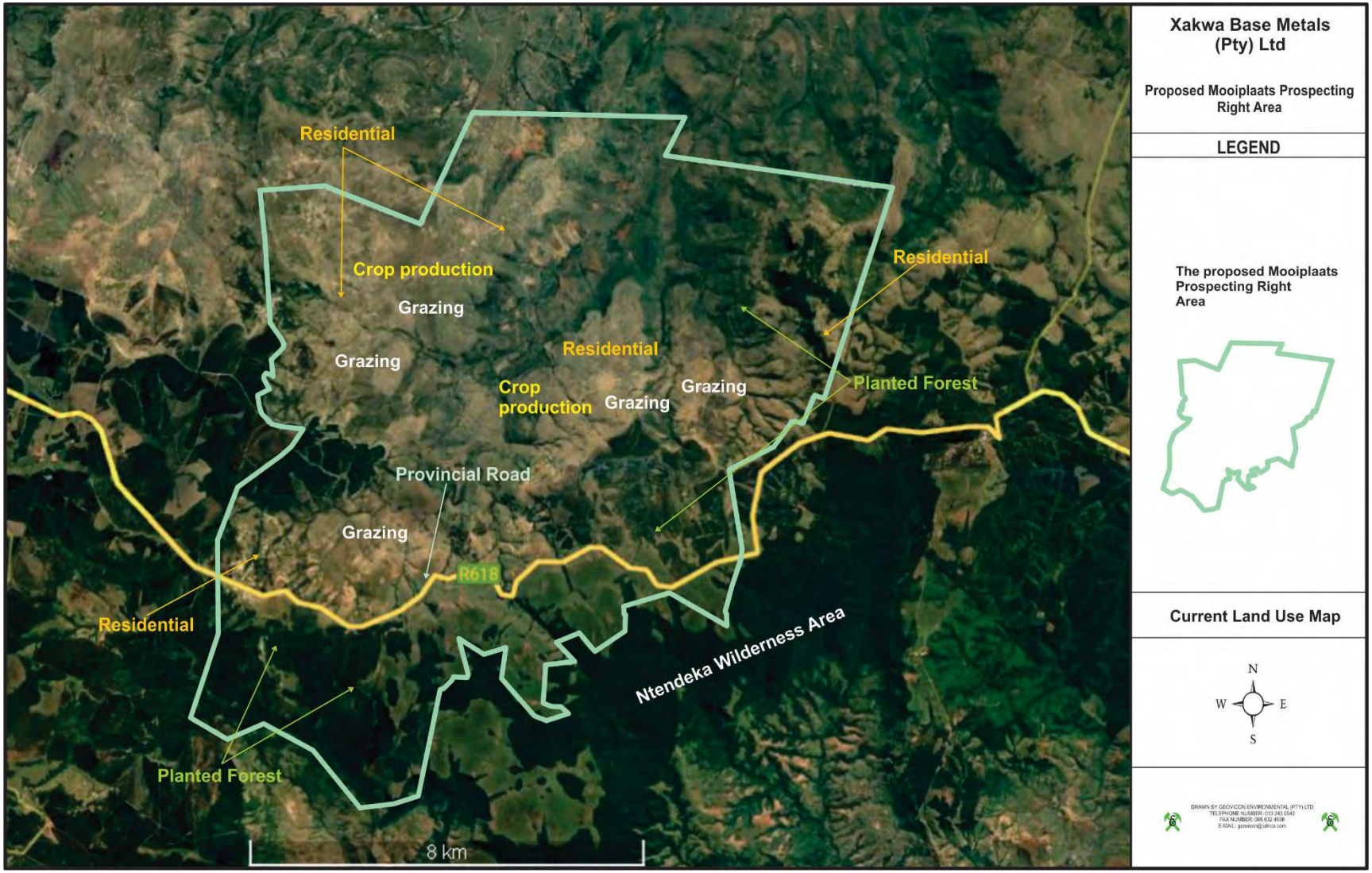


Figure 5: Current land-use map.

5.2.5. Natural Vegetation/Plant Life

The proposed Mooiplaats prospecting area is situated within five natural vegetation types or units that are described by Mucina and Rutherford (2006). Firstly, the Scarp Forest (FOz 5) ecosystem or vegetation type, is situated within the forest biome. The vegetation is species-rich and structurally diverse, multi-layered forests, with well-developed canopy and understorey tree layers, but a poorly developed herb layer. Buttressed stems are common in the Scarp Forest. The most conspicuous trees are *Buxus macowanii*, *B. natalensis*, *Drypetes gerrardii, Englerophytum natalense, Harpephyllum caffrum, Heywoodia lucens, Memecylon natalense, Millettia grandis, Oricia bachmannii, Philenoptera sutherlandii, Rinorea angustifolia, Rothmannia globosa* and *Umtiza listeriana*.

The second vegetation type in which the proposed Mooiplaats prospecting area is situated over, is the Northern Zululand Sourveld (SVI 22) ecosystem or vegetation type, situated in the Grassland biome.

The dominant structural vegetation type is wooded grassland, in places pure sour grasslands and rarely also dense bushveld thickets. Terrain is mainly low, undulating mountains, sometimes highly dissected, and also some moderately undulating plains and hills

The third vegetation type in which the proposed Mooiplaats prospecting area is situated over, is the Northern Zululand Mistbelt Grassland (Gs 1) ecosystem or vegetation type, in the Grassland biome. The vegetation and landscape is described as gentle to steep upper slopes of mountains formed by hard dolerite dykes dominated by relatively forb-rich, tall sour *Themeda triandra* grasslands.

The fourth vegetation type over which the proposed Mooiplaats prospecting area is situated, is the KwaZulu-Natal Highland Thornveld (Gs 6) ecosystem or vegetation type, in the Grassland biome. The vegetation and landscape are described as hilly, undulating landscapes and broad valleys supporting tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana* var. *woodii* and in small pockets also with *A. karroo* and *A. nilotica*.

Another vegetation type over which the proposed Mooiplaats prospecting area is situated, is the Paulpietersburg Moist Grassland (Gm 15) ecosystem or vegetation type, belonging to the Grassland Biome,

Vegetation and landscape features are described as mainly undulating with moderately steep slopes, but valley basins are wide and flat and mountainous areas occur mostly along the northern and eastern boundary. Tall closed grassland rich in forbs and dominated by *Tristachya leucothrix*, *Themeda triandra* and *Hyparrhenia hirta*. Evergreen woody vegetation is characteristic on rocky outcrops.

5.2.6. Animal life

The proposed Mooiplaats prospecting area is situated over a wide range of unique ecosystem types as mentioned above, these ecosystems serve as habitats for all sorts of animals. In accordance with the above-mentioned land uses certain species can occur within and in the surrounding areas of the proposed Mooiplaats prospecting right area. All animal species lists mentioned in the tables below have been obtained from the web-accessible Virtual Museum Animal Demography Unit. The proposed Mooiplaats prospecting area is situated over the 2731CD quarter degree square grid. The tables below represent the possible occurrence of animal species found within the perimeters of the 2731CD quarter degree square grid and is not restricted to the proposed Mooiplaats prospecting right area.

Table 5: List of Mammal species that occur in the 2731CD quarter degree grid (Mammal Map, Animal Demography Unit)

#	Species code	Family	Scientific name	Common name	Red list category
1	151470	Bathyergidae	*Cryptomys hottentotus*	Southern African Mole-rat	Least Concern (2016)
2	151490	Bathyergidae	*Cryptomys hottentotus natalensis*		
3	215570	Bovidae	*Philantomba monticola*	Blue Duiker	Vulnerable (2016)
4	215700	Bovidae	*Sylvicapra grimmia*	Bush Duiker	Least Concern (2016)
5	114040	Cercopithecidae	*Papio ursinus*	Chacma Baboon	Least Concern (2016)
6	106170	Chrysochloridae	*Amblysomus hottentotus*	Hottentot Golden Mole	Least Concern (2016)
7	193900	Felidae	*Panthera pardus*	Leopard	Vulnerable (2016)
8	127730	Gliridae	*Graphiurus (Graphiurus) murinus*	Forest African Dormouse	Least Concern
9	151730	Hystricidae	*Hystrix africaeaustralis*	Cape Porcupine	Least Concern
10	181860	Molossidae	*Mops (Mops) condylurus*	Angolan Free-tailed Bat	Least Concern
11	145390	Muridae	*Aethomys ineptus*	Tete Veld Aethomys	Least Concern (2016)
12	217970	Muridae	*Aethomys namaquensis*	Namaqua Rock Mouse	Least Concern
13	218020	Muridae	*Gerbilliscus brantsii*	Highveld Gerbil	Least Concern (2016)
14	146620	Muridae	*Grammomys dolichurus*	Common Grammomys	Least Concern (2016)
15	147530	Muridae	*Mastomys natalensis*	Natal Mastomys	Least Concern (2016)
16	148270	Muridae	*Mus (Nannomys) minutoides*	Southern African Pygmy Mouse	Least Concern
17	151030	Muridae	*Otomys angoniensis*	Angoni Vlei Rat	Least Concern (2016)
18	151102	Muridae	*Otomys auratus*	Southern African Vlei Rat (Grassland type)	Near Threatened (2016)
19	150360	Muridae	*Rhabdomys pumilio*	Xeric Four-striped Grass Rat	Least Concern (2016)
20	203170	Mustelidae	*Mellivora capensis*	Honey Badger	Least Concern (2016)
21	136600	Nesomyidae	*Dendromus mesomelas*	Brants's African Climbing Mouse	Least Concern (2016)
22	136620	Nesomyidae	*Dendromus mystacalis*	Chestnut African Climbing Mouse	Least Concern (2016)
23	168290	Pteropodidae	*Epomophorus wahlbergi*	Wahlberg's Epauletted Fruit Bat	Least Concern (2016)
24	171650	Rhinolophidae	*Rhinolophus clivosus*	Geoffroy's Horseshoe Bat	Least Concern (2016)
25	173340	Rhinolophidae	*Rhinolophus swinnyi*	Swinny's Horseshoe Bat	Vulnerable (2016)
26	160740	Soricidae	*Crocidura cyanea*	Reddish-gray Musk Shrew	Least Concern (2016)
27	161130	Soricidae	*Crocidura hirta*	Lesser Red Musk Shrew	Least Concern (2016)
28	163230	Soricidae	*Myosorex cafer*	Dark-footed Mouse Shrew	Vulnerable (2016)
29	163350	Soricidae	*Myosorex varius*	Forest Shrew	Least Concern (2016)
30	162890	Soricidae	*Suncus infinitesimus*	Least Dwarf Shrew	Least Concern (2016)
31	217870	Vespertilionidae	*Hypsugo anchietae*	Anchieta's Pipistrelle	Near Threatened

32	190220	Vespertilionidae	*Miniopterus fraterculus*	Lesser Long-fingered Bat	Least Concern (2016)
33	190410	Vespertilionidae	*Miniopterus natalensis*	Natal Long-fingered Bat	Least Concern (2016)
34	187180	Vespertilionidae	*Neoromicia nana*	Banana Pipistrelle	Least Concern
35	185360	Vespertilionidae	*Pipistrellus (Pipistrellus) hesperidus*	Dusky Pipistrelle	Least Concern
36	185500	Vespertilionidae	*Pipistrellus kuhlii*	Kuhl's Pipistrelle	

Table 6: List of Reptile species that occur in the 2731CD quarter degree grid (Reptile Map, Animal Demography Unit)

#	Species code	Family	Scientific name	Common name	Red list category
1	1322	Chamaeleonidae	*Bradypodion ngomeense*	Ngome Dwarf Chameleon	Near Threatened (SARCA 2014)
2	4560	Colubridae	*Crotaphopeltis hotamboeia*	Red-lipped Snake	Least Concern (SARCA 2014)
3	4620	Colubridae	*Philothamnus occidentalis*	Western Natal Green Snake	Least Concern (SARCA 2014)
4	3120	Cordylidae	*Cordylus vittifer*	Common Girdled Lizard	Least Concern (SARCA 2014)
5	3190	Cordylidae	*Pseudocordylus melanotus melanotus*	Common Crag Lizard	Least Concern (SARCA 2014)
6	5360	Elapidae	*Dendroaspis polylepis*	Black Mamba	Least Concern (SARCA 2014)
7	5210	Elapidae	*Elapsoidea sundevallii sundevallii*	Sundevall's Garter Snake	
8	5260	Elapidae	*Hemachatus haemachatus*	Rinkhals	Least Concern (SARCA 2014)
9	510	Gekkonidae	*Pachydactylus vansoni*	Van Son's Gecko	Least Concern (SARCA 2014)
10	3490	Gerrhosauridae	*Gerrhosaurus flavigularis*	Yellow-throated Plated Lizard	Least Concern (SARCA 2014)
11	5130	Lamprophiidae	*Homoroselaps lacteus*	Spotted Harlequin Snake	Least Concern (SARCA 2014)
12	4350	Lamprophiidae	*Inyoka swazicus*	Swazi Rock Snake	Least Concern (SARCA 2014)
13	4300	Lamprophiidae	*Lamprophis guttatus*	Spotted House Snake	Least Concern (SARCA 2014)
14	4180	Lamprophiidae	*Macrelaps microlepidotus*	Natal Black Snake	Near Threatened (SARCA 2014)
15	5781	Pelomedusidae	*Pelomedusa galeata*	South African Marsh Terrapin	Not evaluated
16	4070	Pythonidae	*Python natalensis*	Southern African Python	Least Concern (SARCA 2014)
17	2520	Scincidae	*Panaspis wahlbergii*	Wahlberg's Snake-eyed Skink	Least Concern (SARCA 2014)
18	2700	Scincidae	*Scelotes mirus*	Montane Dwarf Burrowing Skink	Least Concern (SARCA 2014)
19	2450	Scincidae	*Trachylepis punctatissima*	Speckled Rock Skink	Least Concern (SARCA 2014)
20	2430	Scincidae	*Trachylepis striata*	Striped Skink	Least Concern (SARCA 2014)
21	2480	Scincidae	*Trachylepis varia sensu lato*	Common Variable Skink Complex	Least Concern (SARCA 2014)
22	5630	Testudinidae	*Kinixys natalensis*	Natal Hinged Tortoise	Least Concern (SARCA 2014)
23	5410	Viperidae	*Bitis arietans arietans*	Puff Adder	Least Concern (SARCA 2014)

Table 7: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	140	Arthroleptidae	*Arthroleptis wahlbergi*	Bush Squeaker	Least Concern
2	220	Brevicepitidae	*Breviceps mossambicus*	Mozambique Rain Frog	Least Concern
3	270	Brevicepitidae	*Breviceps verrucosus*	Plaintive Rain Frog	Least Concern
4	330	Bufonidae	*Sclerophrys gutturalis*	Guttural Toad	Least Concern (IUCN, 2016)
5	490	Heleophrynidae	*Hadromophryne natalensis*	Natal Cascade Frog	Least Concern
6	590	Hyperoliidae	*Hyperolius marmoratus*	Painted Reed Frog	Least Concern (IUCN ver 3.1, 2013)
7	660	Hyperoliidae	*Kassina senegalensis*	Bubbling Kassina	Least Concern
8	740	Phrynobatrachidae	*Phrynobatrachus natalensis*	Snoring Puddle Frog	Least Concern (IUCN, 2013)
9	1050	Pipidae	*Xenopus laevis*	Common Platanna	Least Concern
10	880	Pyxicephalidae	*Amietia delalandii*	Delalande's River Frog	Least Concern (2017)
11	90	Pyxicephalidae	*Anhydrophryne hewitti*	Hewitt's Moss Frog	Least Concern (IUCN, 2010)
12	430	Pyxicephalidae	*Cacosternum nanum*	Bronze Caco	Least Concern (2013)
13	950	Pyxicephalidae	*Strongylopus grayii*	Clicking Stream Frog	Least Concern
14	980	Pyxicephalidae	*Strongylopus wageri*	Plain Stream Frog	Near Threatened
15	1030	Pyxicephalidae	*Tomopterna natalensis*	Natal Sand Frog	Least Concern

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

#	Species code	Family	Scientific name	Common name	Red list category
1	472101	HESPERIIDAE	*Afrogegenes sp.*		
2	470090	HESPERIIDAE	*Apallaga mokeezi separata*	Large flat	Least Concern (SABCA 2013)
3	468993	HESPERIIDAE	*Calleagris kobela*	Pondo dark flat	Least Concern (SABCA 2013)
4	468310	HESPERIIDAE	*Coeliades keithloa*	Red-tab policeman	Least Concern (SABCA 2013)
5	468330	HESPERIIDAE	*Coeliades libeon*	Spotless policeman	Least Concern (SABCA 2013)

6	468380	HESPERIIDAE	*Coeliades pisistratus*	Two-pip policeman	Least Concern (SABCA 2013)
7	468720	HESPERIIDAE	*Eagris nottoana nottoana*	Rufous-winged elfin	Least Concern (SABCA 2013)
8	470370	HESPERIIDAE	*Eretis djaelaelae*	Marbled elf	Least Concern (SABCA 2013)
9	472170	HESPERIIDAE	*Gegenes pumilio gambica*	Dark dodger	Least Concern (SABCA 2013)
10	473010	HESPERIIDAE	*Kedestes macomo*	Macomo ranger	Least Concern (SABCA 2013)
11	472430	HESPERIIDAE	*Larsenia holtzi*	Variable swift	Least Concern (SABCA 2013)
12	471670	HESPERIIDAE	*Metisella metis paris*	Gold-spotted sylph	Least Concern (SABCA 2013)
13	474440	HESPERIIDAE	*Parosmodes morantii morantii*	Morant's orange	Least Concern (SABCA 2013)
14	472520	HESPERIIDAE	*Pelopidas mathias*	Black-branded swift	Least Concern (SABCA 2013)
15	470700	HESPERIIDAE	*Sarangesa motozi*	Forest elfin	Least Concern (SABCA 2013)
16	471110	HESPERIIDAE	*Spialia delagoae*	Delagoa sandman	Least Concern (SABCA 2013)
17	471210	HESPERIIDAE	*Spialia dromus*	Forest sandman	Least Concern (SABCA 2013)
18	471340	HESPERIIDAE	*Spialia spio*	Mountain sandman	Least Concern (SABCA 2013)
19	472560	HESPERIIDAE	*Tsitana tsita*	Dismal sylph	Least Concern (SABCA 2013)
20	459560	LYCAENIDAE	*Aloeides swanepoeli*	Grassveld russet	Least Concern (SABCA 2013)
21	459570	LYCAENIDAE	*Aloeides taikosama*	Dusky russet	Least Concern (SABCA 2013)
22	460430	LYCAENIDAE	*Anthene amarah amarah*	Black-striped ciliate blue	Least Concern (SABCA 2013)
23	460860	LYCAENIDAE	*Anthene larydas*	Spotted ciliate blue	Least Concern (SABCA 2013)
24	464820	LYCAENIDAE	*Azanus moriqua*	Black-bordered babul blue	Least Concern (SABCA 2013)
25	464830	LYCAENIDAE	*Azanus natalensis*	Natal babul blue	Least Concern (SABCA 2013)
26	446960	LYCAENIDAE	*Baliochila aslanga*	Natal mottled buff	Least Concern (SABCA 2013)
27	463730	LYCAENIDAE	*Cacyreus virilis*	Mocker bronze	Least Concern (SABCA 2013)

28	456740	LYCAENIDAE	*Chloroselas pseudozeritis pseudozeritis*	Brilliant gem	Least Concern (SABCA 2013)
29	458120	LYCAENIDAE	*Cigaritis ella*	Ella's silverline	Least Concern (SABCA 2013)
30	443820	LYCAENIDAE	*Durbania limbata*	Natal rocksitter	Least Concern (SABCA 2013)
31	465380	LYCAENIDAE	*Euchrysops osiris*	Osiris smoky blue	Least Concern (SABCA 2013)
32	454150	LYCAENIDAE	*Hypolycaena philippus philippus*	Purple-brown hairstreak	Least Concern (SABCA 2013)
33	453100	LYCAENIDAE	*Iolaus trimeni*	Protea sapphire	Least Concern (SABCA 2013)
34	454400	LYCAENIDAE	*Leptomyrina hirundo*	Tailed black-eye	Least Concern (SABCA 2013)
35	464770	LYCAENIDAE	*Oraidium barberae*	Dwarf blue	Least Concern (SABCA 2013)
36	442180	LYCAENIDAE	*Pentila tropicalis tropicalis*	Spotted buff	Least Concern (SABCA 2013)
37	464490	LYCAENIDAE	*Tarucus sybaris sybaris*	Dotted pierrot	Least Concern (SABCA 2013)
38	440600	LYCAENIDAE	*Thestor basutus basutus*	Basuto skolly	Least Concern (SABCA 2013)
39	454520	LYCAENIDAE	*Deudorix dinochares*	Apricot playboy	Least Concern (SABCA 2013)
40	454560	LYCAENIDAE	*Deudorix diocles*	Orange-barred playboy	Least Concern (SABCA 2013)
41	464605	LYCAENIDAE	*Zizeeria knysna knysna*	African grass blue	Least Concern (SABCA 2013)
42	410360	NYMPHALIDAE	*Acraea acara acara*	Acara acraea	Least Concern (SABCA 2013)
43	411990	NYMPHALIDAE	*Acraea aganice aganice*	Dark wanderer	Least Concern (SABCA 2013)
44	410420	NYMPHALIDAE	*Acraea boopis boopis*	Rainforest acraea	Least Concern (SABCA 2013)
45	410580	NYMPHALIDAE	*Acraea horta*	Garden acraea	Least Concern (SABCA 2013)
46	411820	NYMPHALIDAE	*Acraea natalica*	Black-based acraea	Least Concern (SABCA 2013)
47	411350	NYMPHALIDAE	*Acraea nohara nohara*	Light red acraea	Least Concern (SABCA 2013)
48	411500	NYMPHALIDAE	*Acraea violarum*	Speckled red acraea	Least Concern (SABCA 2013)
49	416120	NYMPHALIDAE	*Bicyclus safitza safitza*	Black-haired bush brown	Least Concern (SABCA 2013)

50	408500	NYMPHALIDAE	*Byblia anvatara acheloia*	African joker	Least Concern (SABCA 2013)
51	419750	NYMPHALIDAE	*Cassionympha cassius*	Rainforest dull brown	Least Concern (SABCA 2013)
52	439440	NYMPHALIDAE	*Catacroptera cloanthe cloanthe*	Pirate	Least Concern (SABCA 2013)
53	435220	NYMPHALIDAE	*Charaxes candiope*	Green-veined charaxes	Least Concern (SABCA 2013)
54	435290	NYMPHALIDAE	*Charaxes cithaeron cithaeron*	Blue-spotted charaxes	Least Concern (SABCA 2013)
55	435440	NYMPHALIDAE	*Charaxes druceanus druceanus*	Silver-barred charaxes	Least Concern (SABCA 2013)
56	433240	NYMPHALIDAE	*Charaxes ethalion ethalion*	Satyr charaxes	Least Concern (SABCA 2013)
57	433570	NYMPHALIDAE	*Charaxes jahlusa argynnides*	Pearl-spotted charaxes	Least Concern (SABCA 2013)
58	437080	NYMPHALIDAE	*Charaxes varanes varanes*	Pearl charaxes	Least Concern (SABCA 2013)
59	437340	NYMPHALIDAE	*Charaxes xiphares penningtoni*	Forest-king charaxes	Least Concern (SABCA 2013)
60	432500	NYMPHALIDAE	*Charaxes zoolina*	Club-tailed charaxes	Least Concern (SABCA 2013)
61	420290	NYMPHALIDAE	*Cymothoe alcimeda trimeni*	Battling glider	Least Concern (SABCA 2013)
62	420700	NYMPHALIDAE	*Cymothoe coranus coranus*	Blonde glider	Least Concern (SABCA 2013)
63	409280	NYMPHALIDAE	*Danaus chrysippus orientis*	African plain tiger	Least Concern (SABCA 2013)
64	408850	NYMPHALIDAE	*Eurytela hiarbas angustata*	Pied piper	Least Concern (SABCA 2013)
65	439150	NYMPHALIDAE	*Hypolimnas anthedon wahlbergi*	Variable diadem	Least Concern (SABCA 2013)
66	438310	NYMPHALIDAE	*Junonia natalica natalica*	Brown commodore	Least Concern (SABCA 2013)
67	414870	NYMPHALIDAE	*Lachnoptera ayresii*	Blotched leopard	Least Concern (SABCA 2013)
68	415130	NYMPHALIDAE	*Melanitis leda*	Common evening brown	Least Concern (SABCA 2013)
69	415190	NYMPHALIDAE	*Paralethe dendrophilus albina*	Bush beauty	Least Concern (SABCA 2013)
70	415200	NYMPHALIDAE	*Paralethe dendrophilus indosa*	Bush beauty	Least Concern (SABCA 2013)
71	414810	NYMPHALIDAE	*Pardopsis punctatissima*	Polka dot	Least Concern (SABCA 2013)

72	414940	NYMPHALIDAE	*Phalanta phalantha aethiopica*	African leopard	Least Concern (SABCA 2013)
73	419560	NYMPHALIDAE	*Physcaeneura panda*	Dark-webbed ringlet	Least Concern (SABCA 2013)
74	438810	NYMPHALIDAE	*Precis archesia archesia*	Garden inspector	Least Concern (SABCA 2013)
75	438980	NYMPHALIDAE	*Precis octavia sesamus*	Southern gaudy commodore	Least Concern (SABCA 2013)
76	439070	NYMPHALIDAE	*Precis tugela tugela*	Dry-leaf commodore	Least Concern (SABCA 2013)
77	438700	NYMPHALIDAE	*Protogoniomorpha anacardii nebulosa*	Clouded Mother-of-pearl	Least Concern (SABCA 2013)
78	422310	NYMPHALIDAE	*Pseudacraea boisduvalii trimenii*	Boisduval's false acraea	Least Concern (SABCA 2013)
79	422540	NYMPHALIDAE	*Pseudacraea eurytus imitator*	False wanderer	Least Concern (SABCA 2013)
80	422740	NYMPHALIDAE	*Pseudacraea lucretia tarquinea*	False chief	Least Concern (SABCA 2013)
81	419990	NYMPHALIDAE	*Pseudonympha varii*	Mountain marsh brown	Least Concern (SABCA 2013)
82	408960	NYMPHALIDAE	*Sevenia boisduvali boisduvali*	Boisduval's tree nymph	Least Concern (SABCA 2013)
83	409050	NYMPHALIDAE	*Sevenia morantii*	Morant's tree nymph	Least Concern (SABCA 2013)
84	413120	NYMPHALIDAE	*Telchinia cerasa cerasa*	Tree-top telchinia	Least Concern (SABCA 2013)
85	413200	NYMPHALIDAE	*Telchinia encedon encedon*	White-barred telchinia	Least Concern (SABCA 2013)
86	413230	NYMPHALIDAE	*Telchinia esebria*	Dusky telchinia	Least Concern (SABCA 2013)
87	414270	NYMPHALIDAE	*Telchinia igola*	Dusky-veined telchinia	Least Concern (SABCA 2013)
88	413770	NYMPHALIDAE	*Telchinia serena*	Dancing telchinia	Least Concern (SABCA 2013)
89	402430	PAPILIONIDAE	*Graphium leonidas leonidas*	Veined swordtail	Least Concern (SABCA 2013)
90	400530	PAPILIONIDAE	*Papilio demodocus demodocus*	Citrus swallowtail	Least Concern (SABCA 2013)
91	400610	PAPILIONIDAE	*Papilio echerioides echerioides*	White-banded swallowtail	Least Concern (SABCA 2013)
92	400800	PAPILIONIDAE	*Papilio euphranor*	Bush kite	Least Concern (SABCA 2013)
93	401360	PAPILIONIDAE	*Papilio nireus lyaeus*	Narrow green-banded swallowtail	Least Concern (SABCA 2013)

94	401460	PAPILIONIDAE	*Papilio ophidicephalus ayresi*	Emperor swallowtail	Least Concern (SABCA 2013)
95	403540	PIERIDAE	*Afrodryas leda*	Autumn-leaf vagrant	Least Concern (SABCA 2013)
96	405230	PIERIDAE	*Appias epaphia contracta*	Diverse Albatross White	Least Concern (SABCA 2013)
97	407590	PIERIDAE	*Belenois creona severina*	African caper white	Least Concern (SABCA 2013)
98	407630	PIERIDAE	*Belenois gidica abyssinica*	African veined white	Least Concern (SABCA 2013)
99	403160	PIERIDAE	*Colias electo electo*	African clouded yellow	Least Concern (SABCA 2013)
100	403740	PIERIDAE	*Colotis annae annae*	Scarlet tip	Least Concern (SABCA 2013)
101	403790	PIERIDAE	*Colotis antevippe gavisa*	Red tip	Least Concern (SABCA 2013)
102	404180	PIERIDAE	*Colotis euippe omphale*	Southern round-winged orange tip	Least Concern (LC)
103	404690	PIERIDAE	*Colotis regina*	Queen purple tip	Least Concern (SABCA 2013)
104	407190	PIERIDAE	*Dixeia charina charina*	African ant-heap white	Least Concern (SABCA 2013)
105	407370	PIERIDAE	*Dixeia pigea*	Small ant-heap white	Least Concern (SABCA 2013)
106	403510	PIERIDAE	*Eronia cleodora*	Vine-leaf vagrant	Least Concern (SABCA 2013)
107	402930	PIERIDAE	*Eurema brigitta brigitta*	Broad-bordered grass yellow	Least Concern (SABCA 2013)
108	402970	PIERIDAE	*Eurema desjardinsii regularis*	Angled grass yellow	Least Concern (SABCA 2013)
109	403380	PIERIDAE	*Nepheronia argia variegata*	Large vagrant	Least Concern (SABCA 2013)
110	403400	PIERIDAE	*Nepheronia buquetii buquetii*	Buquet's vagrant	Least Concern (SABCA 2013)

Table 9: List of Dungbeetle species that occur in the 2731CD quarter degree grid (Dungbeetle Map, Animal Demography Unit)

#	Species code	Family	Scientific name	Common name	Red list category
1	7700480	Scarabaeidae	*Caccobius obtusus*		
2	7700820	Scarabaeidae	*Catharsius mossambicanus*		
3	7700970	Scarabaeidae	*Catharsius sesostris*		
4	7701020	Scarabaeidae	*Catharsius tricornutus*		
5	7701490	Scarabaeidae	*Copris fidius*		

6	7701690	Scarabaeidae	*Copris macer*		
7	7701780	Scarabaeidae	*Copris obesus*		
8	7702070	Scarabaeidae	*Cyptochirus ambiguus*		
9	7702540	Scarabaeidae	*Epirinus ngomae*		
10	7702750	Scarabaeidae	*Euoniticellus triangulatus*		
11	7702990	Scarabaeidae	*Garreta unicolor*		
12	7704900	Scarabaeidae	*Oniticellus planatus*		
13	7705390	Scarabaeidae	*Onitis pecuarius*		
14	7705790	Scarabaeidae	*Onthophagus asperulus*		
15	7705930	Scarabaeidae	*Onthophagus binodis*		
16	7706210	Scarabaeidae	*Onthophagus cretus*		
17	7706360	Scarabaeidae	*Onthophagus depressus*		
18	7708430	Scarabaeidae	*Pachylomera femoralis*		
19	7709060	Scarabaeidae	*Proagoderus chalcostolus*		
20	7709750	Scarabaeidae	*Scarabaeus caffer*		
21	7710710	Scarabaeidae	*Sisyphus gazanus*		
22	7711000	Scarabaeidae	*Xinidium dentilabris*		

Table 10: List of Odonata 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	664140	Aeshnidae	*Anax imperator*	Blue Emperor	LC
2	664170	Aeshnidae	*Anax speratus*	(Eastern) Orange Emperor	LC
3	664510	Aeshnidae	*Zosteraeschna minuscula*	Friendly Hawker	LC
4	661180	Chlorocyphidae	*Platycypha caligata*	Dancing Jewel	LC
5	662330	Coenagrionidae	*Africallagma glaucum*	Swamp Bluet	LC
6	662410	Coenagrionidae	*Agriocnemis sp.*	wisps	
7	662720	Coenagrionidae	*Ceriagrion glabrum*	Common Citril	LC
8	663410	Coenagrionidae	*Pseudagrion hageni*	Painted Sprite	LC
9	663460	Coenagrionidae	*Pseudagrion kersteni*	Powder-faced Sprite	LC
10	663560	Coenagrionidae	*Pseudagrion salisburyense*	Slate Sprite	LC
11	663610	Coenagrionidae	*Pseudagrion spernatum*	Upland Sprite	LC
12	663880	Coenagrionidae	*Pseudagrion sublacteum*	Cherry-eye Sprite	LC
13	665740	Gomphidae	*Paragomphus cognatus*	Rock Hooktail	LC
14	660360	Lestidae	*Lestes plagiatus*	Highland Spreadwing	LC

15	667030	Libellulidae	*Brachythemis leucosticta*	Southern Banded Groundling	LC
16	667130	Libellulidae	*Crocothemis erythraea*	Broad Scarlet	LC
17	667140	Libellulidae	*Crocothemis sanguinolenta*	Little Scarlet	LC
18	667780	Libellulidae	*Orthetrum abbotti*	Little Skimmer	LC
19	667860	Libellulidae	*Orthetrum caffrum*	Two-striped Skimmer	LC
20	667900	Libellulidae	*Orthetrum chrysostigma*	Epaulet Skimmer	LC
21	667950	Libellulidae	*Orthetrum julia*	Julia Skimmer	LC
22	668200	Libellulidae	*Palpopleura lucia*	Lucia Widow	LC
23	668230	Libellulidae	*Pantala flavescens*	Wandering Glider	LC
24	668670	Libellulidae	*Trithemis arteriosa*	Red-veined Dropwing	LC
25	668870	Libellulidae	*Trithemis dorsalis*	Highland Dropwing	LC
26	668890	Libellulidae	*Trithemis furva*	Navy Dropwing	LC
27	669080	Libellulidae	*Trithemis stictica*	Jaunty Dropwing	LC
28	661480	Platycnemididae	*Allocnemis leucosticta*	Goldtail	LC
29	661810	Platycnemididae	*Elattoneura glauca*	Common Threadtail	LC
30	660120	Synlestidae	*Chlorolestes fasciatus*	Mountain Malachite	LC

The above-mentioned animal species are most likely to occur in the Ntendeka Wilderness Area, especially the animals that are considered threatened.

The bird species that occur within the proposed Mooiplaats prospecting right area has been obtained through the South African Bird Atlas Project version 2 web-based application where the area is situated over pentads. With regards to the proposed Mooiplaats prospecting right area the pentad id for the area is 2745_3115

Table 11: Bird species that occur in the ADU Pentad 2745_3115

	Ref	**Common group**	**Common species**	**Genus**	**Species**	**Regional threat status**
1	55	Heron	Black-headed	*Ardea*	*melanocephala*	
2	80	Stork	White	*Ciconia*	*ciconia*	
3	82	Ibis	Southern Bald	*Geronticus*	*calvus*	**VU**
4	84	Ibis	Hadada	*Bostrychia*	*hagedash*	
5	88	Goose	Spur-winged	*Plectropterus*	*gambensis*	
6	89	Goose	Egyptian	*Alopochen*	*aegyptiaca*	
7	95	Duck	African Black	*Anas*	*sparsa*	
8	107	Vulture	White-backed	*Gyps*	*africanus*	**CR**
9	129	Kite	Yellow-billed	*Milvus*	*aegyptius*	
10	130	Kite	Black-winged	*Elanus*	*caeruleus*	
11	137	Eagle	Wahlberg's	*Hieraaetus*	*wahlbergi*	
12	152	Buzzard	Jackal	*Buteo*	*rufofuscus*	
13	154	Buzzard	Common	*Buteo*	*buteo*	

14	192	Guineafowl	Helmeted	*Numida*	*meleagris*	
15	196	Buttonquail	Common	*Turnix*	*sylvaticus*	
16	205	Flufftail	Red-chested	*Sarothrura*	*rufa*	
17	210	Moorhen	Common	*Gallinula*	*chloropus*	
18	212	Coot	Red-knobbed	*Fulica*	*cristata*	
19	247	Lapwing	African Wattled	*Vanellus*	*senegallus*	
20	314	Dove	Red-eyed	*Streptopelia*	*semitorquata*	
21	316	Dove	Cape Turtle	*Streptopelia*	*capicola*	
22	337	Turaco	Purple-crested	*Gallirex*	*porphyreolophus*	
23	343	Cuckoo	Red-chested	*Cuculus*	*solitarius*	
24	344	Cuckoo	Black	*Cuculus*	*clamosus*	
25	350	Cuckoo	African Emerald	*Chrysococcyx*	*cupreus*	
26	352	Cuckoo	Diederik	*Chrysococcyx*	*caprius*	
27	383	Swift	White-rumped	*Apus*	*caffer*	
28	385	Swift	Little	*Apus*	*affinis*	
29	390	Mousebird	Speckled	*Colius*	*striatus*	
30	410	Bee-eater	Little	*Merops*	*pusillus*	
31	418	Hoopoe	African	*Upupa*	*africana*	
32	431	Barbet	Black-collared	*Lybius*	*torquatus*	
33	439	Barbet	Crested	*Trachyphonus*	*vaillantii*	
34	443	Honeybird	Brown-backed	*Prodotiscus*	*regulus*	
35	453	Wryneck	Red-throated	*Jynx*	*ruficollis*	
36	458	Lark	Rufous-naped	*Mirafra*	*africana*	
37	493	Swallow	Barn	*Hirundo*	*rustica*	
38	495	Swallow	White-throated	*Hirundo*	*albigularis*	
39	501	Swallow	Red-breasted	*Cecropis*	*semirufa*	
40	502	Swallow	Greater Striped	*Cecropis*	*cucullata*	
41	503	Swallow	Lesser Striped	*Cecropis*	*abyssinica*	
42	506	Martin	Rock	*Ptyonoprogne*	*fuligula*	
43	511	Saw-wing	Black (Southern Africa)	*Psalidoprocne*	*pristoptera holomelas*	
44	517	Drongo	Fork-tailed	*Dicrurus*	*adsimilis*	
45	521	Oriole	Black-headed	*Oriolus*	*larvatus*	
46	522	Crow	Pied	*Corvus*	*albus*	
47	524	Raven	White-necked	*Corvus*	*albicollis*	
48	545	Bulbul	Dark-capped	*Pycnonotus*	*tricolor*	
49	551	Greenbul	Sombre	*Andropadus*	*importunus*	
50	552	Thrush	Kurrichane	*Turdus*	*libonyana*	
51	559	Thrush	Cape Rock	*Monticola*	*rupestris*	
52	569	Chat	Buff-streaked	*Campicoloides*	*bifasciatus*	
53	576	Stonechat	African	*Saxicola*	*torquatus*	
54	581	Robin-Chat	Cape	*Cossypha*	*caffra*	
55	599	Warbler	Willow	*Phylloscopus*	*trochilus*	
56	610	Warbler	Barratt's	*Bradypterus*	*barratti*	
57	618	Grassbird	Cape	*Sphenoeacus*	*afer*	
58	621	Crombec	Long-billed	*Sylvietta*	*rufescens*	
59	627	Camaroptera	Green-backed	*Camaroptera*	*brachyura*	

60	629	Cisticola	Zitting	*Cisticola*	*juncidis*	
61	631	Cisticola	Cloud	*Cisticola*	*textrix*	
62	637		Neddicky	*Cisticola*	*fulvicapilla*	
63	639	Cisticola	Wailing	*Cisticola*	*lais*	
64	646	Cisticola	Levaillant's	*Cisticola*	*tinniens*	
65	647	Cisticola	Croaking	*Cisticola*	*natalensis*	
66	648	Cisticola	Lazy	*Cisticola*	*aberrans*	
67	649	Prinia	Tawny-flanked	*Prinia*	*subflava*	
68	655	Flycatcher	African Dusky	*Muscicapa*	*adusta*	
69	666	Warbler	African Yellow	*Iduna*	*natalensis*	
70	673	Batis	Chinspot	*Batis*	*molitor*	
71	682	Flycatcher	African Paradise	*Terpsiphone*	*viridis*	
72	686	Wagtail	Cape	*Motacilla*	*capensis*	
73	692	Pipit	African	*Anthus*	*cinnamomeus*	
74	696	Pipit	Striped	*Anthus*	*lineiventris*	
75	704	Longclaw	Yellow-throated	*Macronyx*	*croceus*	
76	707	Fiscal	Southern	*Lanius*	*collaris*	
77	709	Boubou	Southern	*Laniarius*	*ferrugineus*	
78	715	Tchagra	Black-crowned	*Tchagra*	*senegalus*	
79	719	Bushshrike	Orange-breasted	*Chlorophoneus*	*sulfureopectus*	
80	737	Starling	Cape	*Lamprotornis*	*nitens*	
81	745	Starling	Red-winged	*Onychognathus*	*morio*	
82	760	Sunbird	Southern Double-collared	*Cinnyris*	*chalybeus*	
83	763	Sunbird	White-bellied	*Cinnyris*	*talatala*	
84	772	Sunbird	Amethyst	*Chalcomitra*	*amethystina*	
85	784	Sparrow	House	*Passer*	*domesticus*	
86	791	Weaver	Spectacled	*Ploceus*	*ocularis*	
87	797	Weaver	Village	*Ploceus*	*cucullatus*	
88	803	Weaver	Southern Masked	*Ploceus*	*velatus*	
89	805	Quelea	Red-billed	*Quelea*	*quelea*	
90	808	Bishop	Southern Red	*Euplectes*	*orix*	
91	816	Widowbird	Fan-tailed	*Euplectes*	*axillaris*	
92	823	Mannikin	Bronze	*Spermestes*	*cucullata*	
93	833	Firefinch	African	*Lagonosticta*	*rubricata*	
94	843	Waxbill	Common	*Estrilda*	*astrild*	
95	846	Whydah	Pin-tailed	*Vidua*	*macroura*	
96	857	Canary	Cape	*Serinus*	*canicollis*	
97	859	Canary	Yellow-fronted	*Crithagra*	*mozambica*	
98	867	Seedeater	Streaky-headed	*Crithagra*	*gularis*	
99	874	Bunting	Golden-breasted	*Emberiza*	*flaviventris*	
100	1049	Prinia	Drakensberg	*Prinia*	*hypoxantha*	
101	1172	White-eye	Cape	*Zosterops*	*virens*	
102	10877	Pipit	Nicholson's	*Anthus*	*nicholsoni*	

5.2.7. Surface Water

The proposed Mooiplaats prospecting area falls within the Usuthu to Umhlatuze Catchment Water Management Area.The site is located in the Mfolozi River catchment area falling over quaternary catchments W31B, quaternary catchment W31C and quaternary catchment W22E (Figure 6).

Table 12: Summary of the Quaternary Catchments in the vicinity of the proposed Mooiplaats prospecting project area

Primary Catchment	Quaternary Catchment	Area km^2	MAP (mm)	PE_mm (mm)	MASR_mm (mm)
Mfolozi River	W31B	308	796,80	1828,80	111,60
Mfolozi River	W31C	174	896,30	1824	109,30
Mfolozi River	W22E	391	1054,50	1844	215,60

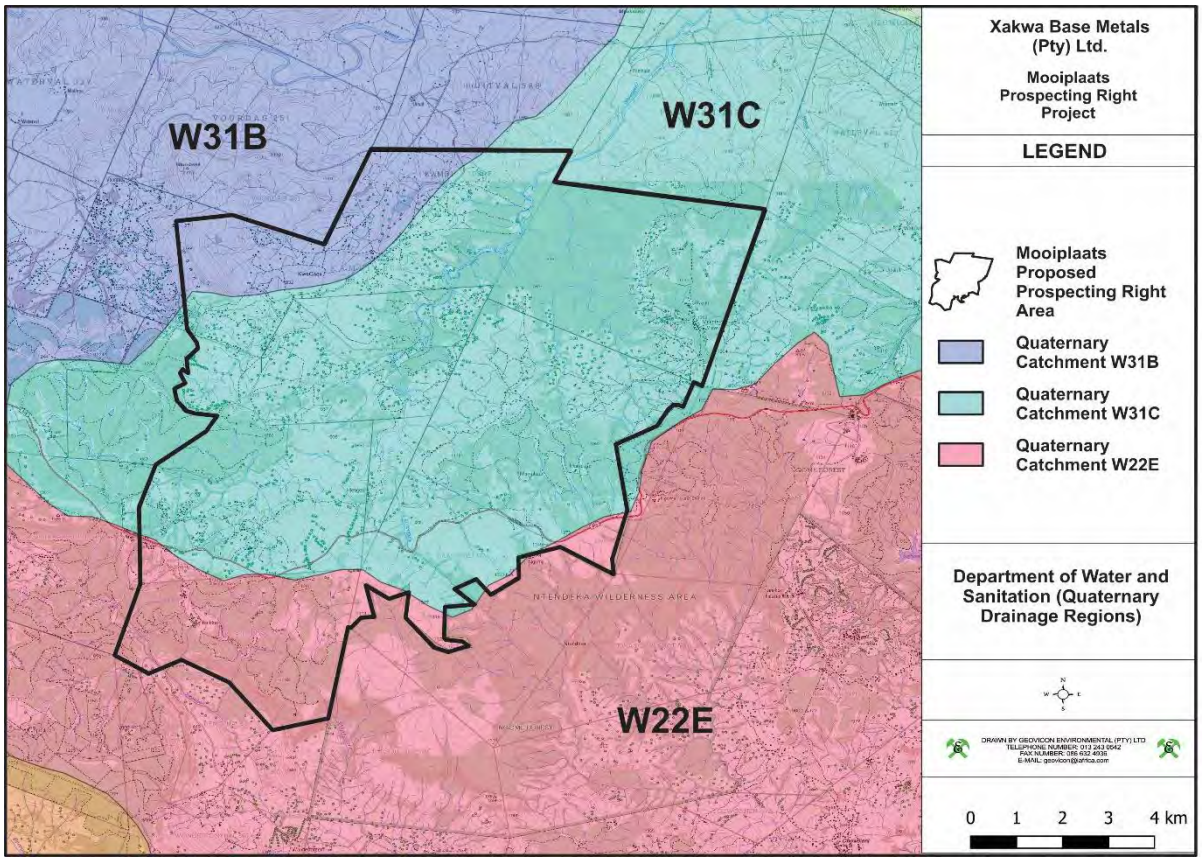


Figure 6: Quaternary catchment areas of the proposed prospecting area.

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 (Kwazulu-Natal 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 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

Geohydrology

The Dwyka diamictite and shale have very low hydraulic conductivities [~ 10^{-11} to 10^{-12} $m.s^{-1}$ and virtually no primary voids. The Dwyka Group constitutes a very low-yielding fractured aquifer and water is confined within narrow discontinuities like jointing and fracturing. They therefore tend to form aquitards rather than aquifers. The few sandstone bodies deposited in the glacial valleys of the northern facies are very limited in extent, and sealed off by the diamictite or mudrock. Since the Dwyka sediments were deposited mainly under marine conditions, the water in these aquifers tends to be saline. Exploitable aquifers thus only exist at few localities in the Basin, where sand and gravel were deposited on beaches or where the Dwyka Group was fractured significantly. In general, the Dwyka Group is thus not an ideal unit for the large-scale development of groundwater.

The Ecca Group consists mainly of shales that are very dense, they are often overlooked as significant sources of groundwater. One should thus not neglect the Ecca rocks as possible sources for groundwater, especially the deltaic sandstone facies. The permeabilities of these sandstones are usually very low. The main reason for this is that the sandstones are usually poorly sorted.

5.2.9. Sensitive Landscapes

Xakwa Base Metals (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-based study over the Mooiplaats 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. See **Appendix D** for the **Screening Tool Report**.

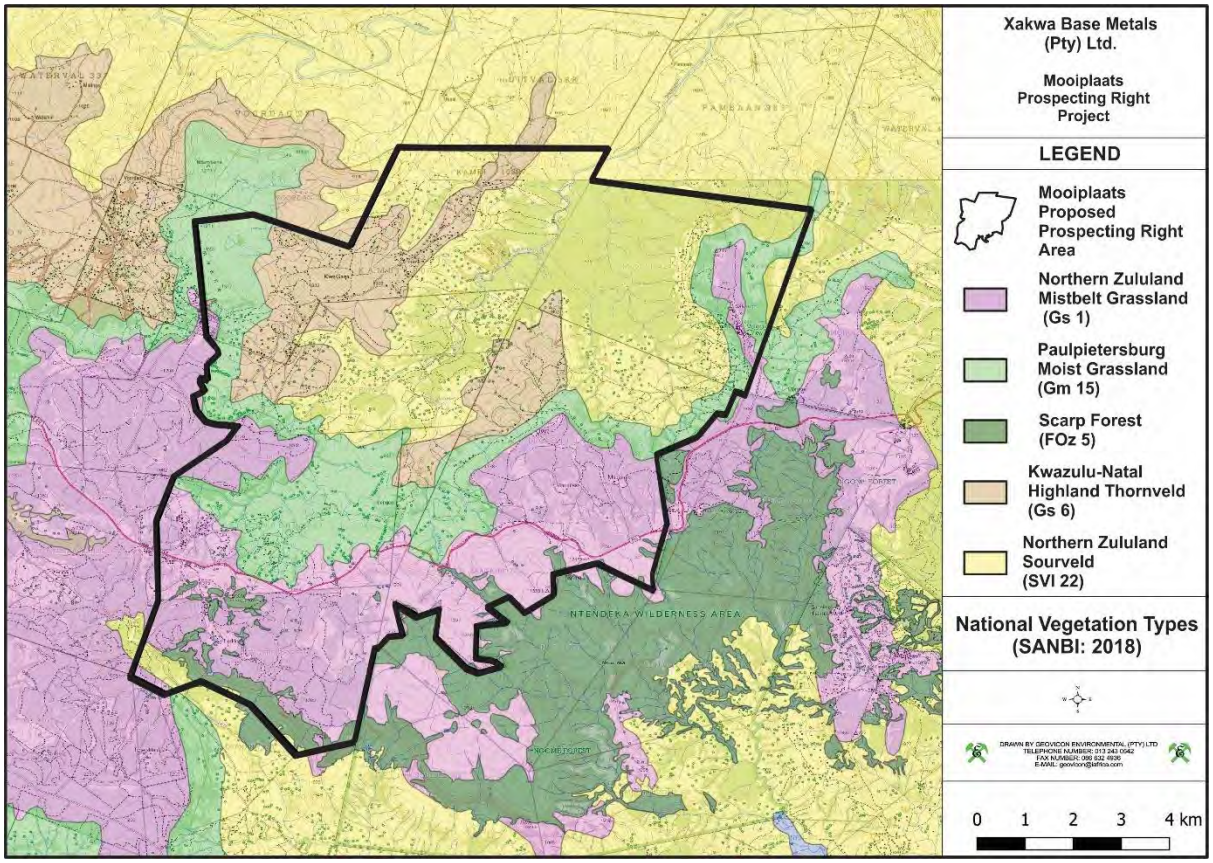


Figure 7: National Vegetation Types in the vicinity of the proposed Mooiplaats prospecting right area (SANBI: 2018).

The proposed Mooiplaats prospecting right area is situated in the Northern Zululand Mistbelt Grassland (Gs 1) ecosystem or vegetation type, and the Paulpietersburg Moist Grassland (Gm 15) ecosystem or vegetation type. The proposed Mooiplaats prospecting right area is also situated over the Scarp Forest (FOz 5) ecosystem or vegetation type and the Kwazulu-Natal Highland Thornveld (Gs 6) ecosystem or vegetation type, as well as the Northern Zululand Sourveld (SVI 22) ecosystem or vegetation type. The area is situated predominantly in the Grassland Biome and the Scarp Forest (FOz 5) ecosystem or vegetation type is situated within the forest biome.

Northern Zululand Mistbelt Grassland (Gs 1)

Important Taxa

Graminoids: *Themeda triandra* (d), *Tristachya leucothrix* (d), *Alloteropsis semialata* subsp. *eckloniana*, *Andropogon schirensis*, *Aristida monticola*, *Brachiaria serrata*, *Cymbopogon nardus*, *Cyperus albostriatus*, *Ehrharta erecta* var. *erecta, Elionurus muticus*, *Eragrostis plana*, *E. racemosa*, *Hyparrhenia hirta*, *Loudetia simplex*, *Microchloa caffra*, *Monocymbium ceresiiforme*, *Panicum deustum*, *Paspalum scrobiculatum*, *Rendlia altera*, *Schizachyrium sanguineum*, *Setaria nigrirostris*, *Sporobolus africanus*, *Trachypogon spicatus*.

Herbs: *Aeschynomene micrantha*, *Conostomium natalense*, *Helichrysum chionosphaerum, H. nanum*, *H. nudifolium* var. *oxyphyllum*, *H. nudifolium* var. *pilosellum*, *H. umbraculigerum*, *Hermannia grandistipula*.

Geophytic Herbs: *Cheilanthes hirta*, *Oxalis smithiana*, *Watsonia latifolia*.

Small Tree: *Apodytes dimidiata* subsp. *dimidiata*.

Low Shrubs: *Asparagus virgatus*, *Clutia pulchella*.

Succulent Shrub: *Aloe arborescens*.

Biogeographically Important Taxon (Low Escarpment endemic)

Herb: *Melanospermum italae*.

Endemic Taxa Herbs: *Dracosciadium italae*, *Helichrysum ingomense*, *Selago barbula*.

Geophytic Herbs: *Brachystelma ngomense*, *Dierama erectum*, *Schizoglossum ingomense*.

Conservation: Vulnerable. Target 23%. Only about 3% statutorily conserved in the Ithala Nature Reserve and in the Ntendeka Wilderness Area of the Ngome State Forest (Scott-Shaw et al. 1996, Scott-Shaw 1999). Some 22% has been transformed for plantations or cultivated land. Threats to the remaining grasslands are heavy selective grazing by livestock and extensive annual burning. Spread of alien *Acacia mearnsii* and Eucalyptus species is of serious concern. Erosion very low (47%), moderate (29%), low (14%) and high (10%).

Remarks: This vegetation unit surrounds a large patch of Northern Midlands Mistbelt Forest (Von Maltitz et al. 2003) at Ngome. Camp (1999a) indicated that a striking difference between this unit and his BRG 5 and BRG 7 (constituting Midlands Mistbelt Grassland) is the lack of *Aristida junciformis* subsp. *junciformis*. A number of endemic species confined to the region of the Northern Zululand Mistbelt Grassland add to this differentiation.

Paulpietersburg Moist Grassland (Gm 15)

Important Taxa

Graminoids: *Alloteropsis semialata* subsp. *eckloniana* (d), *Andropogon schirensis* (d), *Brachiaria serrata* (d), *Ctenium concinnum* (d), *Cymbopogon caesius* (d), *Digitaria tricholaenoides* (d), *Eragrostis racemosa* (d), *Harpochloa falx* (d), *Heteropogon contortus* (d), *Hyparrhenia hirta* (d), *Loudetia simplex* (d), *Microchloa caffra* (d), *Monocymbium ceresiiforme* (d), *Rendlia altera* (d), *Setaria nigrirostris* (d), *Themeda triandra* (d), *Tristachya leucothrix* (d), *Andropogon appendiculatus*, *Cynodon hirsutus*, *Diheteropogon amplectens*, *D. filifolius*, *Elionurus muticus*, *Eragrostis chloromelas*, *E. curvula*, *E. plana*, *Festuca scabra*, *Melinis nerviglumis*, *Panicum ecklonii*, *P. natalense*, *Trachypogon spicatus*, *Urelytrum agropyroides.*

Herbs: *Argyrolobium speciosum* (d), *Cissus diversilobata* (d), *Dicoma zeyheri* (d), *Eriosema kraussianum* (d), *Geranium wakkerstroomianum* (d), *Helichrysum nudifolium* var. *nudifolium* (d), *Ipomoea oblongata* (d), *Pelargonium luridum* (d), *Acalypha glandulifolia*, *A. peduncularis*, *Acanthospermum australe*, *Aster bakerianus*, *Becium filamentosum*, *Berkheya setifera*, *Dicoma anomala*, *Euryops laxus*, *E. transvaalensis* subsp. *setilobus*, *E. transvaalensis* subsp. *transvaalensis*, *Helichrysum rugulosum*, *H. simillimum*, *Indigofera hilaris* var. *hilaris*, *I. velutina*, *Kohautia amatymbica*, *Pearsonia grandifolia*, *Pentanisia prunelloides* subsp. *latifolia*, *Senecio bupleuroides*, *S. coronatus, S. inornatus*, *S. isatideus*, *S. latifolius*, *Sonchus nanuThunbergia atriplicifolia*, *Vernonia capensis*, *V. natalensis, Xerophyta retinervis*.

Herbaceous Climber: *Rhynchosia totta*.

Geophytic Herbs: *Chlorophytum haygarthii* (d), *Gladiolus aurantiacus* (d), *Agapanthus inapertus* subsp. *intermedius*, *Asclepias aurea*, *Cheilanthes hirta*, *Cyrtanthus tuckii* var. *transvaalensis*, *Hypoxis colchicifolia*, *H. costata*, *H. rigidula* var. *pilosissima*, *Moraea brevistyla*, *Pteridium aquilinum*, *Watsonia latifolia*, *Zantedeschia rehmannii*.

Succulent Herbs: *Aloe ecklonis*, *A. maculata*, *Lopholaena segmentata*.

Small Trees: *Canthium ciliatum* (d), *Dombeya rotundifolia*, *Vangueria infausta*.

Succulent Tree: *Aloe marlothii* subsp. *marlothii.*

Tall Shrubs: *Calpurnia sericea* (d), *Rhus rehmanniana* (d), *Diospyros lycioides* subsp. *guerkei, Euclea crispa* subsp. *crispa*.

Low Shrubs: *Rhus discolor* (d), *Anthospermum rigidum* subsp. *pumilum*, *A. rigidum* subsp. *rigidum*, *Clutia monticola*, *Diospyros galpinii*, *Erica oatesii*, *E. woodii*, *Hermannia geniculata*, *Indigofera arrecta*, *Otholobium wilmsii*, *Polygala uncinata, Pseudarthria hookeri*, *Rubus rigidus*.

Succulent Shrub: *Euphorbia pulvinata*.

Biogeographically Important Taxa (all Low Escarpment endemics)

Succulent Herb: *Aloe modesta.*

Low Shrubs: *Bowkeria citrina*, *Hemizygia macrophylla*, *Lotononis amajubica*.

Endemic Taxon

Succulent Shrub: *Aloe reitzii* var. *vernalis.*

Conservation: Vulnerable. Target 24%. Only very small portion statutorily conserved in Witbad, Vryheid Mountain, Paardeplaats and Phongola Bush Nature Reserves. Some private reserves protect small patches (Rooikraal, Mhlongamvula, Kombewaria). About one third already transformed by plantations or cultivated land. Heavy livestock grazing and altered fire regimes have greatly reduced the area of grasslands of high conservation value. Aliens such as species of Acacia, Eucalyptus and Pinus are of major concern in places. Erosion very low (80%) or low (13%). References Acocks (1953, 1988), Eckhardt et al. (1996a, c), Eckhardt (1998), Camp (1999a).

Scarp Forest (FOz 5)

Important Taxa

Tall Trees: *Buxus natalensis* (d), *Drypetes gerrardii* (d), *Englerophytum natalense* (d), *Harpephyllum caffrum* (d), *Heywoodia lucens* (d), *Rothmannia globosa* (d), *Commiphora harveyi*, *C. woodii*, *Drypetes arguta*, *Manilkara discolor*, *Nectaropetalum capense*, *Nuxia congesta*, *Olinia emarginata*, *Ptaeroxylon obliquum*, *Pterocelastrus tricuspidatus*, *Vitellariopsis marginata*.

Small Trees: *Buxus macowanii* (d), *Rinorea angustifolia* (d), *Dombeya cymosa*, *Encephalartos natalensis*, *E. villosus*, *Ochna natalitia*, *Strychnos henningsii*, *S. mitis*.

Herbaceous Climbers: *Flagellaria guineensis*, *Thunbergia alata*.

Tall Shrubs: *Memecylon natalense* (d), *Eugenia natalitia*.

Low Shrub: *Stangeria eriopus*.

Soft Shrub: *Piper capense*.

Herbs: Begonia dregei, B. homonyma, Streptocarpus grandis, S. johannis.

Geophytic Herb: *Clivia miniata.*

Biogeographically Important Taxon Tall Shrub: *Pseudoscolopia polyantha* (disjunct populations also in Capensis in AZa 1 Fynbos Riparian Vegetation).

Endemic Taxa Tall Trees: *Millettia grandis* (d), *Oricia bachmannii* (d), *Philenoptera sutherlandii* (d), *Umtiza listeriana* (d), *Celtis mildbraedii*, *Colubrina nicholsonii*, *Cryptocarya myrtifolia*, *C. wyliei*, *Dahlgrenodendron natalense*, *Jubaeopsis caffra*, *Manilkara nicholsonii*, *Maytenus oleosa*, *Pseudosalacia streyi*, *Rinorea domatiosa*.

Small Trees: *Alberta magna*, *Albizia suluensis*, *Apodytes abbottii*, *Canthium vanwykii*, *Encephalartos woodii* (extinct in the wild), *Gerrardanthus tomentosus*, *Rhynchocalyx lawsonioides*, *Tarchonanthus trilobus* var. *trilobus.*

Woody Climber: *Podranea ricasoliana* (d).

Epiphytic Herb: *Bolusiella maudiae*.

Epiphytic Shrub: *Dermatobotrys saundersii*.

Epiphytic Parasitic Shrubs: *Actinanthella wyliei*, *Helixanthera woodii*.

Tall Shrubs: *Eugenia simii*, *E. verdoorniae*, *Gymnosporia bachmannii*, *Justicia bolusii*, *J. petiolaris* subsp. *bowiei*, *Oxyanthus pyriformis*, *Putterlickia retrospinosa*.

Soft Shrubs: *Heterosamara galpinii*, *Metarungia galpinii*.

Herbs: *Impatiens flanaganiae*, *Plectranthus oribiensis*, *P. praetermissus*, *Streptocarpus fasciatus*, *S. kentaniensis*, *S. lupatanus*, *S. porphyrostachys*, *S. primulifolius* subsp. *formosus*.

Geophytic Herbs: *Clivia robusta* (d), *C. gardenii*.

Succulent Herbs: *Plectranthus ernstii, P. hilliardiae* subsp. *australis*, *P. hilliardiae* subsp. *hilliardiae*, *P. oertendahlii*, *P. saccatus* var. *longitubus*.

Conservation: Least threatened in protected areas, but exposed to over-exploitation elsewhere. Target 40%. More than 20% statutorily conserved in Umtiza and Manubi Nature Reserves, Dwesa-Cwebe Wildlife Reserve & Marine Sanctuary, Hluleka, Mount Thesiger, Umkambati, Umtamvuna, Oribi Gorge, Vernon Crookes, Krantzkloof, Nkandla, Ongoye, Dlinza, Entumeni, Ghost Mountain and Hlatikulu (Gwalinweni) Nature Reserves as well as in Hluhluwe-iMfolozi Park. Still most of the approximately 70 smaller scarp forests between Durban and Umtamvuna are not protected. Proclamation of the planned Pondoland National Park is expected to improve the conservation status of these unique forests along the Wild Coast. Smaller patches of the northern scarp forests are protected in the Barberton area, in southern Kruger National Park and in some Swaziland nature reserves. Almost 5% has been transformed for cultivation or plantations.

Aliens such as *Chromolaena odorata*, *Solanum mauritianum*, *Melia azedarach*, *Lantana camara* and *Litsea sebifera* are of concern locally. Collapse of traditional authorities in both Eastern Cape (especially in Transkei and in KwaZulu) has led to uncontrolled use of forests formerly protected under the authority of headmen and chiefs. Bark stripping, muthi collection, deadwood extraction, and land-claims may become other major sources of threat to the existence of some forest patches (Von Maltitz et al. 2003). *Dahlgrenodendron natalense* and *Metarungia galpinii* are listed as endangered. *Encephalartos ngoyanus*, *Eugenia simii*, *Jubaeopsis caffra* and *Rhynchocalyx lawsonioides* are vulnerable. *Encephalartos woodii* (formerly found only in the Ongoye Forest) is extinct in the wild, and survives in about five individuals in various living botanical collections

Remarks Biogeographically (and from the point of view of biodiversity) this is probably the most valuable forest in South Africa housing many endemic species, six endemic genera and one endemic family (Rhynchocalycaceae) of trees and relict occurrences of small populations of Encephalartos, suggesting that this vegetation unit is biogeographically ancient. The endemism in the herbaceous understorey is also high, particularly in the genera Plectranthus and Streptocarpus. The Pondoland Scarp Forest is a core vegetation unit of the Pondoland Centre of Endemism as defined by Van Wyk & Smith (2001).

Kwazulu-Natal Highland Thornveld (Gs 6)

Important Taxa

Small Trees: *Acacia sieberiana* var*. woodii* (d), *A. natalitia*, *A. nilotica*, *Cussonia spicata*, *Ziziphus mucronata.*

Tall Shrub: *Dichrostachys cinerea*.

Low Shrubs: *Barleria obtusa* (d), *Anthospermum rigidum* subsp. *pumilum*, *Chaetacanthus setiger*, *Gymnosporia heterophylla*.

Semiparasitic Shrub: *Thesium costatum*.

Graminoids: *Abildgaardia ovata* (d), *Andropogon eucomus* (d), *Aristida bipartita* (d), *A. congesta* (d), *Chloris virgata* (d), *Cynodon dactylon* (d), *Elionurus muticus* (d), *Eragrostis capensis* (d), *E. chloromelas* (d), *E. plana* (d), *E. racemosa* (d), *E. superba* (d), *Heteropogon contortus* (d), *Hyparrhenia hirta* (d), *Setaria sphacelata* (d), *Themeda triandra* (d), *Tristachya leucothrix* (d), *Andropogon appendiculatus*, *Brachiaria serrata*, *Cymbopogon caesius*, *C. marginatus*, *C. pospischilii*, *Cyperus obtusiflorus* var. *obtusiflorus*, *Digitaria monodactyla*, *D. tricholaenoides*, *Diheteropogon amplectens*, *Eragrostis curvula*, *E. gummiflua*, *E. patentissima*, *Harpochloa falx*, *Microchloa caffra*, *Panicum natalense*, *Setaria nigrirostris*, *Sporobolus africanus*, *S. pyramidalis*.

Herbs: *Hermannia depressa* (d), *Becium filamentosum*, *Chamaecrista mimosoides*, *Euryops transvaalensis* subsp*. setilobus*, *Haplocarpha scaposa*, *Helichrysum rugulosum*.

Herbaceous Climber: *Rhynchosia totta*.

Geophytic Herb: *Haemanthus montanus*.

Succulent Herbs: *Aloe dominella*, *A. greenii*, *Orbea woodii*.

Endemic Taxa

Low Shrub: *Barleria greenii*.

Succulent Shrub: *Aloe gerstneri*.

Succulent Herb: *Aloe inconspicua*.

Conservation: Least threatened. Target 23%. Only about 2% statutorily conserved in the Spioenkop, Weenen, Ntinini, Wagendrift, Moor Park and Tugela Drift Nature Reserves. More than 16% has been transformed for cultivation and by urban sprawl as well as by building of dams (Craigie Burn, Spioenkop, Wagendrift and Windsor). Alien *Opuntia*, *Eucalyptus*, *Populus*, *Acacia* and *Melia* are becoming invasive in places, but probably the greatest threat to the remaining natural areas of this unit is bush encroachment. Erosion very low (34%), low (29%), moderate (2%) and high (12%).

Remarks The presence of sparse woodlands with Acacia are considered a management problem and ascribed to ‘bush encroachment’ (Edwards 1967, Camp 1999c). One may, however, argue that the region of this vegetation unit has always been a natural mosaic of open tall grassland and sparse woodland (with virtually the same species composition as the neighbouring grassland), with progressive encroachment of woody elements into grassland, especially in heavily disturbed areas.

Northern Zululand Sourveld (SVI 22)

Important Taxa

Small Trees: *Acacia sieberiana* var. *woodii* (d), *A. natalitia*, *A. nilotica*, *A. tortilis* subsp. *heteracantha*, *Plectroniella armata*.

Tall Shrubs: *Gardenia volkensii*, *Gnidia caffra*, *G. kraussiana*.

Low Shrubs: *Agathisanthemum bojeri*, *Chaetacanthus burchellii*, *Crossandra fruticulosa*, *C. greenstockii*, *Diospyros galpinii*, *Phyllanthus glaucophyllus*, *Ruellia cordata*, *Syncolostemon argenteus*, *Tetraselago natalensis*.

Succulent Shrub: *Aloe vanbalenii*.

Woody Climber: *Cryptolepis oblongifolia*.

Herbaceous Climber: *Cyphostemma schlechteri*.

Graminoids: *Eragrostis curvula* (d), *Hyparrhenia hirta* (d), *Microchloa caffra* (d), *Themeda triandra* (d), *Tristachya leucothrix* (d), *Alloteropsis semialata* subsp. *semialata*, *Digitaria argyrograpta*, *D. tricholaenoides*, *Diheteropogon amplectens*, *Elionurus muticus*, *Loudetia simplex*, *Trachypogon spicatus*.

Herbs: *Alepidea longifolia*, *Argyrolobium adscendens*, *Aster bakerianus*, *Berkheya speciosa*, *Chascanum hederaceum*, *Crabbea hirsuta*, *Gazania krebsiana* subsp. *serrulata*, *Gerbera ambigua*, *Helichrysum mixtum*, *H. nudifolium* var. *pilosellum, Hemizygia pretoriae* subsp. *pretoriae*, *Hermannia grandistipula*, *Hypericum aethiopicum*, *Lichtensteinia interrupta*, *Pimpinella caffra*, *Senecio glaberrimus*, *S. latifolius*, *Stachys nigricans*, *Vernonia galpinii*, *V. oligocephala*.

Geophytic Herbs: *Hypoxis hemerocallidea*, *Pachycarpus concolor*.

Succulent Herbs: *Aloe minima*, *A. parvibracteata*, *Senecio oxyriifolius*.

Geoxylic Suffrutex: *Salacia kraussii*.

Conservation: Vulnerable. Target 19%. Only 4% statutorily conserved, mainly in the Hluhluwe-iMfolozi Park and Ithala Game Reserve. Some 22% already transformed, mainly by cultivation and plantations. Erosion is generally moderate to high.

Remark Northern Zululand Sourveld can be seen as a northern extension of the SVs 4 Ngongoni Veld.

The proposed Mooiplaats prospecting right area is situated in the vicinity of threatened ecosystems with statuses vulnerable and endangered. According to the National Gazette No. 34809 of 9 December 2011 endangered (EN) ecosystems are ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems. Vulnerable (VU) ecosystems are 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.

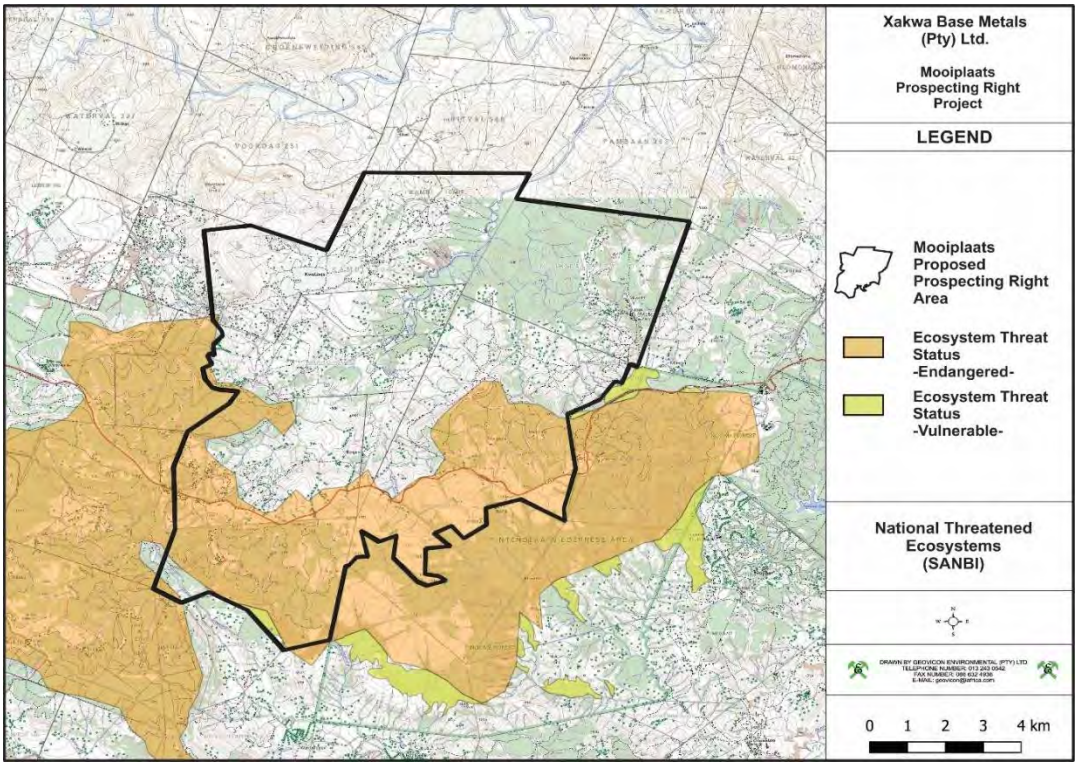


Figure 8: Threatened Ecosystems in the vicinity of the proposed Mooiplaats prospecting right area

The proposed Mooiplaats prospecting right area is situated within an upstream management National Freshwater Ecosystem Priority Areas and River Freshwater Ecosystem Priority Areas (Figure 12). Upstream Management areas are sub quaternary catchments in which human activities need to be managed to prevent degradation of downstream river FEPAs and Fish Support Areas.

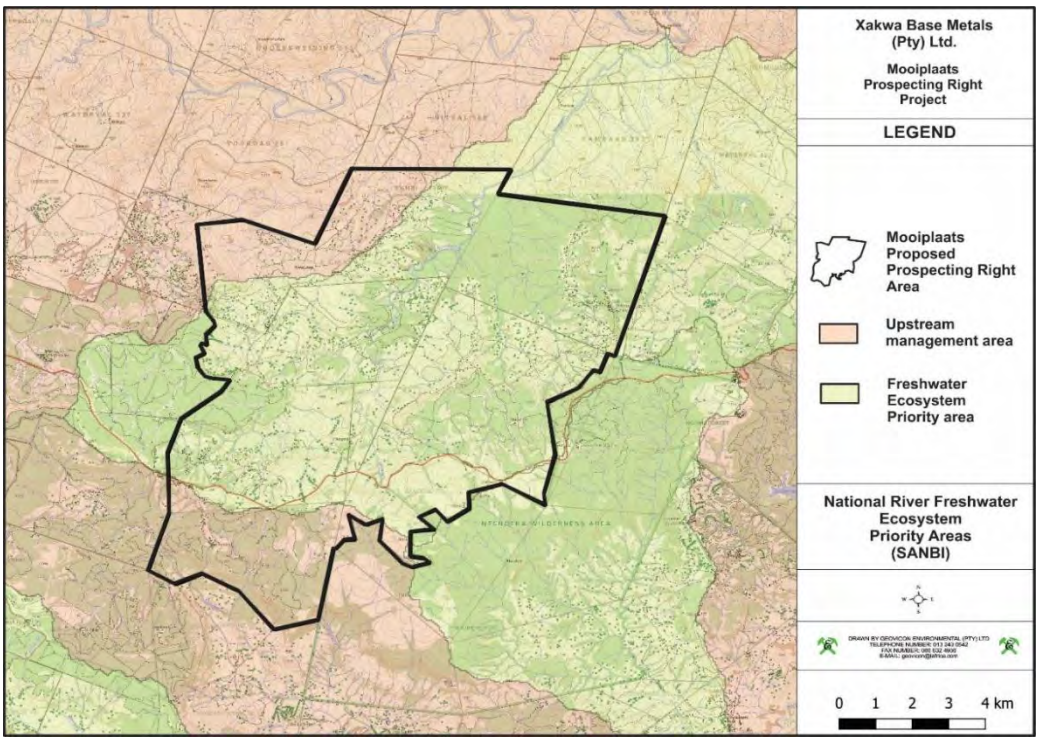


Figure 9: National freshwater ecosystem priority area in the proposed Mooiplaats prospecting area

The proposed Mooiplaats prospecting right area is situated over a Strategic Water Source area of South Africa, namely the Mfolozi Headwaters surface water strategic water source area. Figure 10 below provides a visual illustration of the aforementioned statement.Figure 10: Strategic Water Sources of South Africa in the vicinity of the proposed Mooiplaats prospecting right area

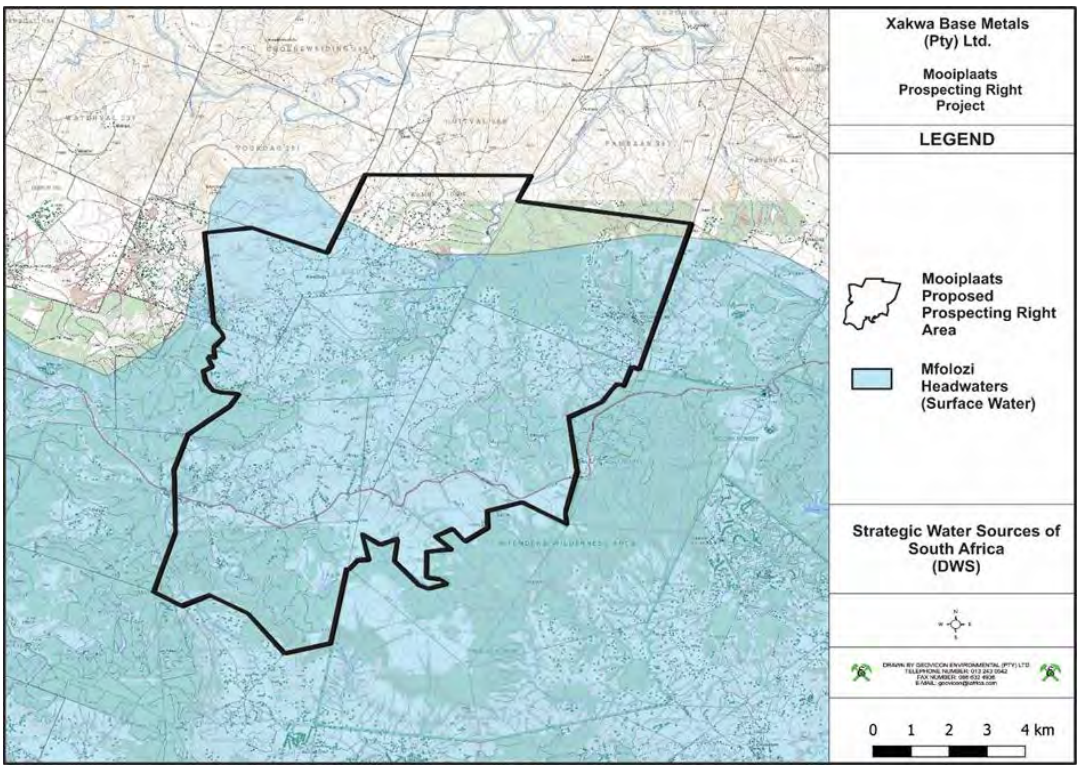


Figure 10: Strategic Water Sources of South Africa in the vicinity of the proposed Mooiplaats prospecting right area

According to the **South African National Biodiversity Institute, 2018: National Biodiversity Assessment - National Wetland Map 5,** the proposed Mooiplaats prospecting right area is situated in the vicinity of some National Wetland areas with a river passing through the proposed prospecting site, as well as seepage and depression wetland types in that occur in the areas that surround the proposed Mooiplaats prospecting right area (Figure 11)falling into the Sub-Escarpment Grassland Group 1, Sub-Escarpment Grassland Group 2 and the Lowveld Group 11 wetland vegetation types (Figure 12).

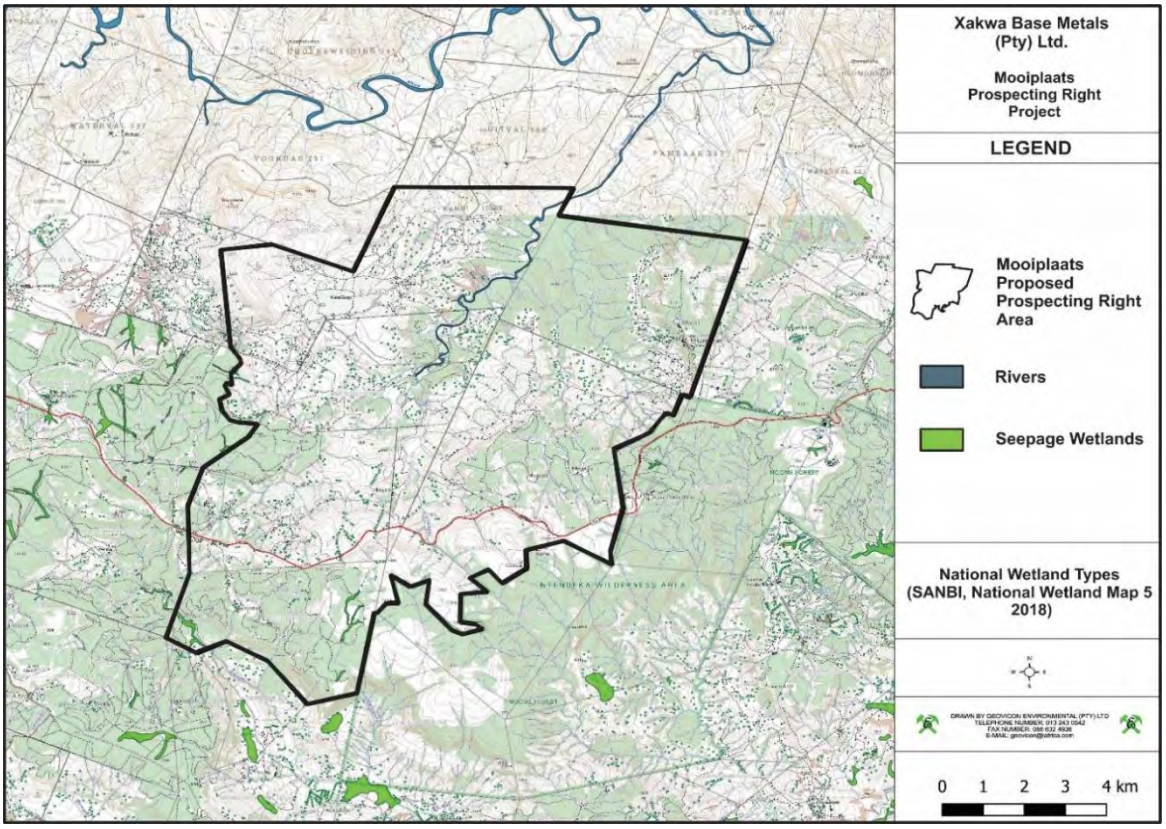


Figure 11: National Wetland Types in the vicinity of the proposed Mooiplaats prospecting right area

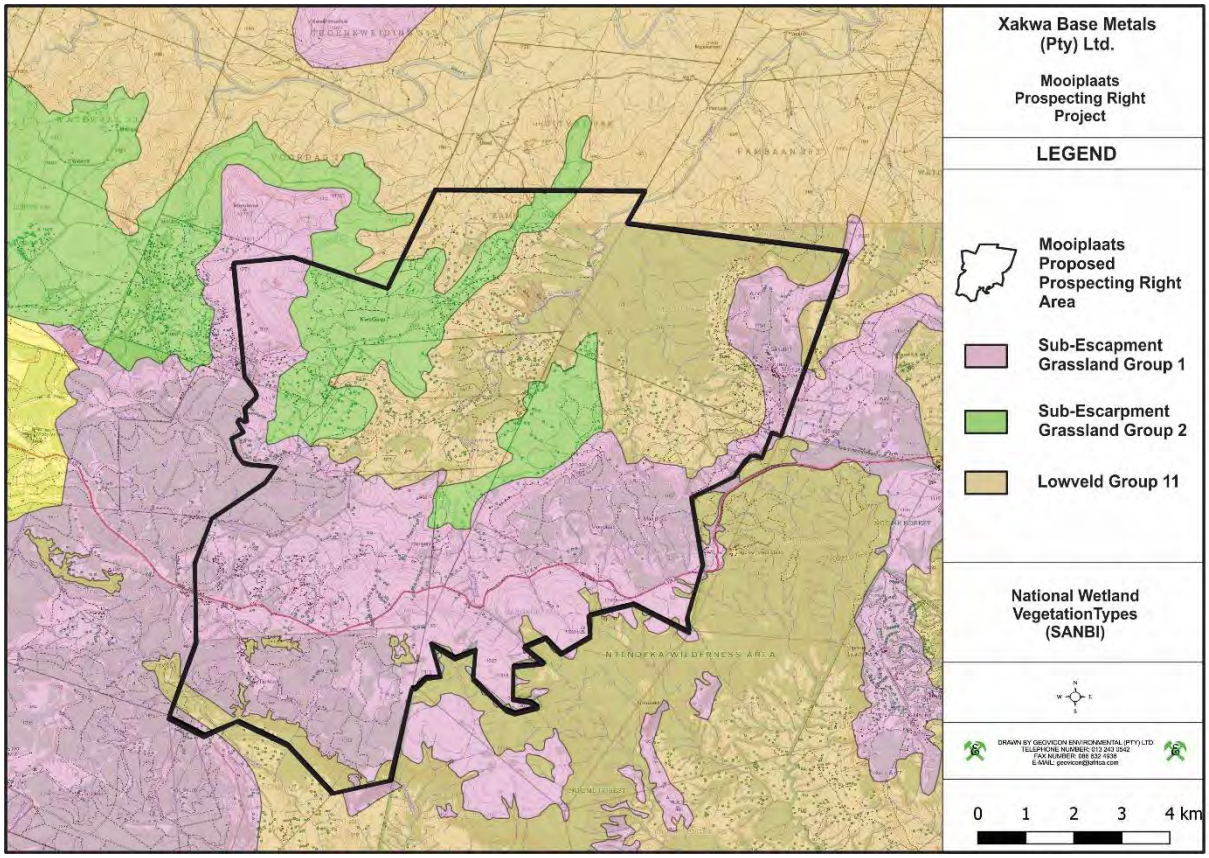


Figure 12: National Wetland Vegetation Types in the vicinity of the proposed Mooiplaats prospecting right area

The proposed Mooiplaats proposed prospecting right area is situated in environmentally sensitive areas known as Critical Biodiversity Areas, that are subdivided into two categories, namely irreplaceable Critical Biodiversity Areas and optimal Critical Biodiversity Areas. According to the Draft Kwazulu-Natal Biodiversity Spatial Planning Terms and Processes version 3.3 (2017) Critical Biodiversity Areas are crucial for supporting biodiversity features and ecosystem functioning and are required to meet biodiversity and/or process targets. **Irreplaceable Critical Biodiversity Areas** are defined as areas considered critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable populations of species and the functionality of ecosystems. **Optimal Critical Biodiversity Areas** are defined as areas that represent an optimised solution to meet the required biodiversity conservation targets while avoiding high-cost areas as much as possible.

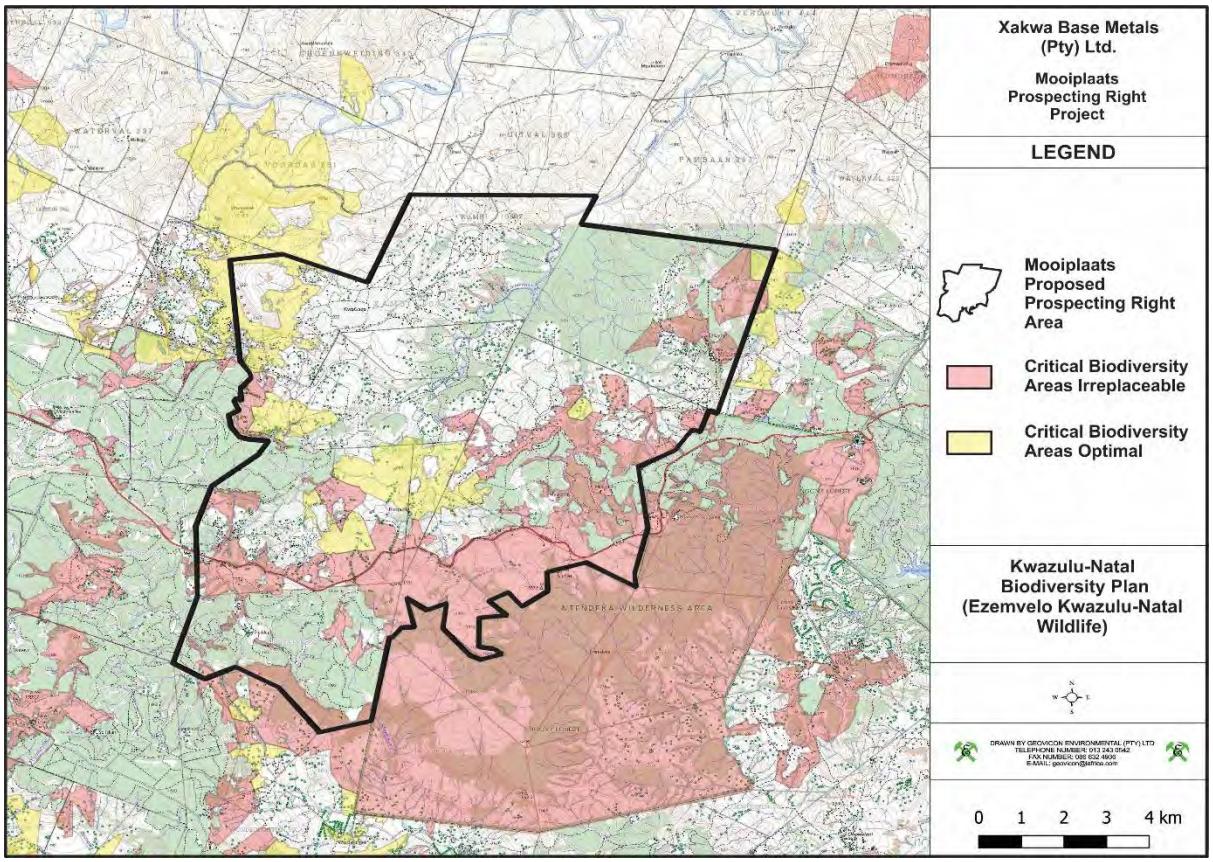


Figure 13: Kwazulu-Natal Biodiversity Plan, Critical Biodiversity Areas Map (Ezemvelo Kwazulu-Natal Wildlife)

The proposed Mooiplaats prospecting right area is situated in the vicinity of Ecological Support Areas (Figure 14). According to the Draft Kwazulu-Natal Biodiversity Spatial Planning Terms and Processes version 3.3 (2017), Ecological Support Areas are functional but not necessarily entirely natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within Critical Biodiversity Areas and they also contribute significantly to the maintenance off ecosystem services.

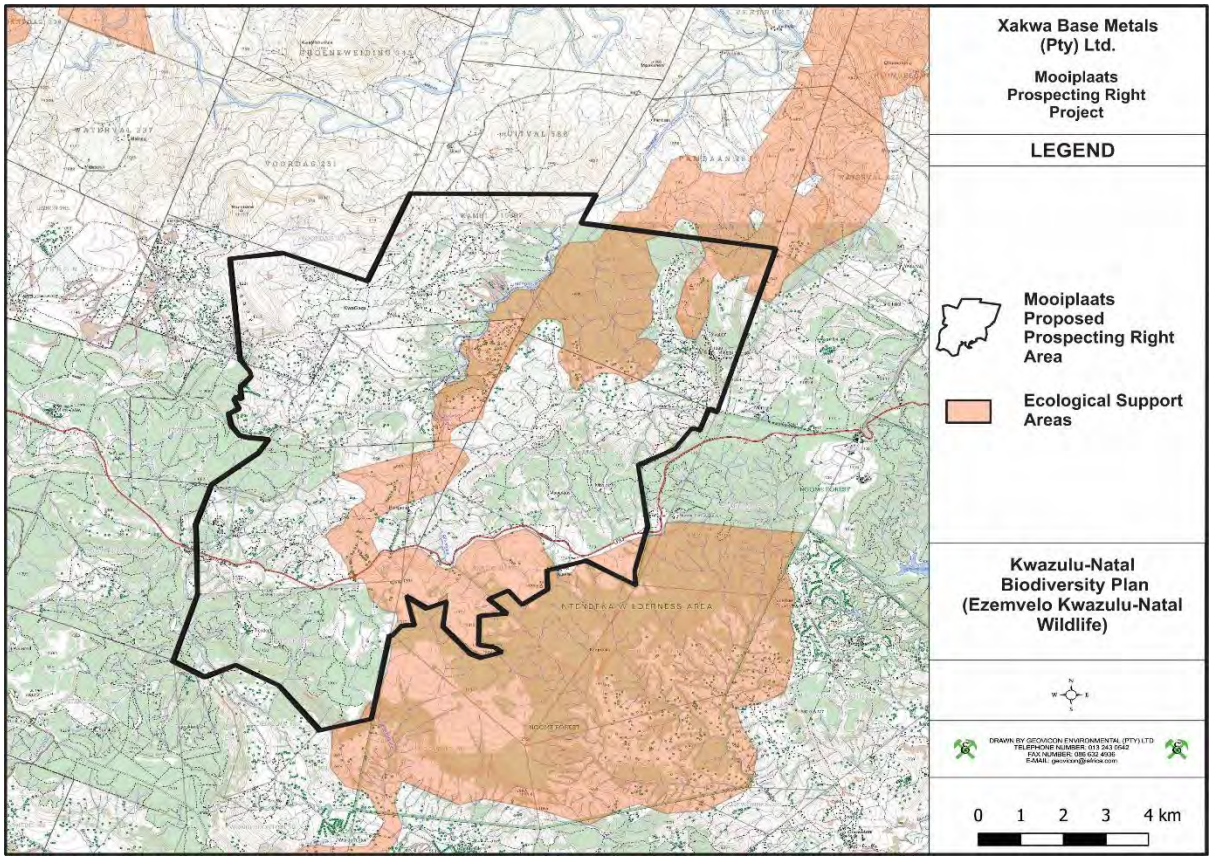


Figure 14: Kwazulu-Natal Biodiversity Plan, Ecological Support Areas Map (Ezemvelo Kwazulu-Natal Wildlife)

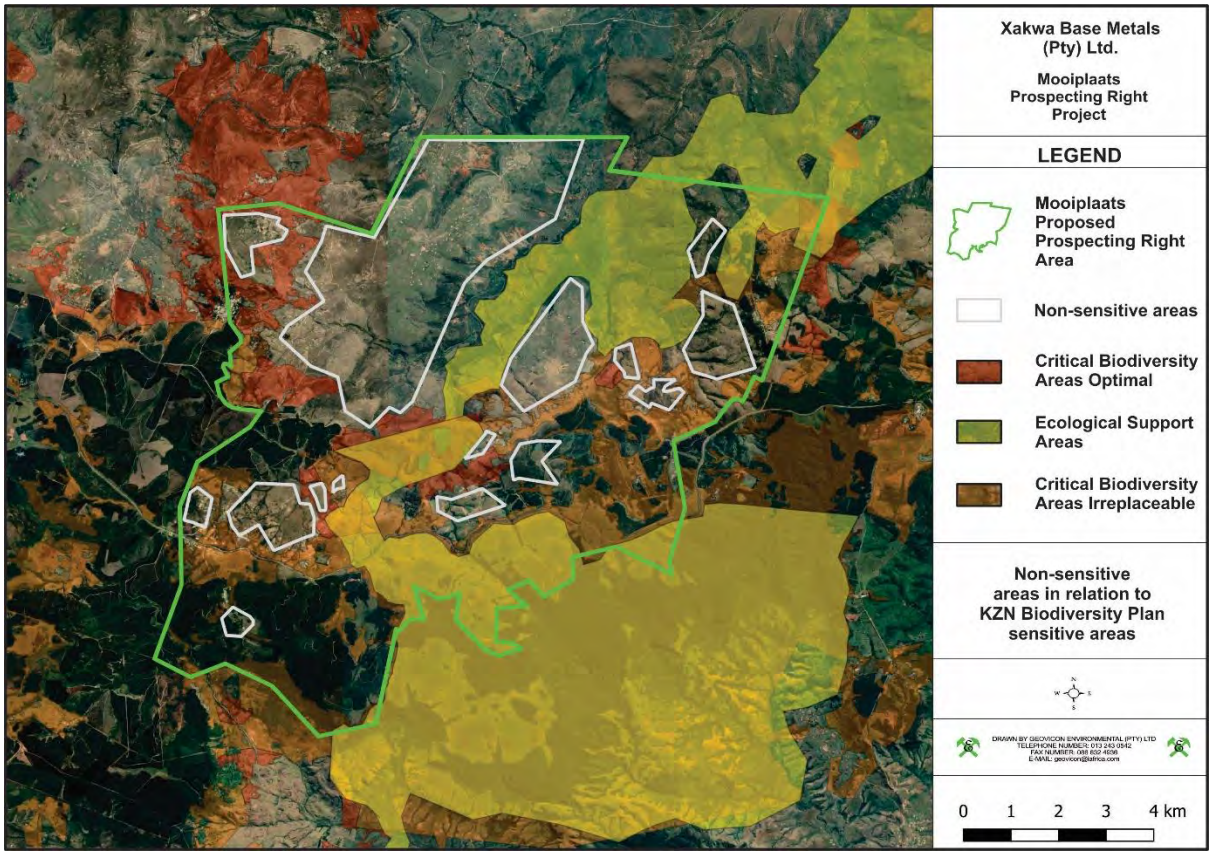


Figure 15: Non sensitive areas in relation to the KZN Biodiversity Plan sensitive areas

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 categories of air pollution sources are found at the proposed area.

5.2.11. Noise

The proposed project area is predominantly a farming area. Noise from the area is mainly from farming 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.

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. 326 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, Xakwa Base Metals (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), Pietermaritzburg 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 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 Mooiplaats 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 18 for the results.

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).

Table 13: The above criteria are expressed for each impact in tabular form according to the following definitions:

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

6.2.1. Socio-Economic Status

AbaQulusi Municipality is located in the northern part of KwaZulu-Natal and is approximately 1943 km^2 in extent and has a population of about 211 060 people (Stats SA, 2011).

6.2.1.1. Population density, growth and location

According to the most recent Integrated Development Plan (2021-2022), the following information regarding the population density, growth and location has been determined, the tables below provide a graphic indication to what the population density was during the 2011 national census in comparison to the density that was determined during a community survey that was done in 2016.

Table 14: Population sizes of the Zuland District Municipality

Persons	Census 2011	Community Survey 2016
Total population	211 060	243 795
Growth rates	1.0	0.03
Change (%)	10.5	15.5
Population density	50	58

Source: STATS SA CS 2016

Table 15:Pouplation Distribution of the Zululand District Municipality

Persons proportion	Census 2011	Community Survey 2016
Young (0-14 years)	36.7%	37.9%
Youth (15-34 years)	36.5%	39.8%
Working age (15-64 years)	58.6%	57.8%
Elderly (65 years or older)	4.7%	4.3%
Sex ratio (men/100 women)	91	93
Dependency ratio	70.5	70.8

Source: STATS SA CS 2016

Table 16:Population groups of the Zululand District Municipality

Race	Census 2011	Community Survey 2016
Black African	95.4%	96.9%
Coloured	0.5%	0.7%
White	3.5%	2.3%
Indian/Asian	0.4%	0.2%

Source: STATS SA CS 2016

Table 17:Educational status of the Zululand District Municipality

Highest Level of Education	Census 2011	Community Survey 2016
No schooling (aged 20+)	16.9%	8.1%
% completed matric (aged 20+)	28.1%	33.4%
% completed higher education	6.6%	6.2%

Source: STATS SA CS 2016

6.2.1.2. Major economic activities and sources of employment

Economically the AbaQulusi area is endowed with various resources, which to date, have not yet been fully developed. To facilitate future development and growth it is essential to draw on these resources and through creative and visionary means implement measures that will result in the economic regeneration and upliftment of the population. Agriculture provides the economic base and the products produced are timber, field crops and livestock

The 3 main economic drivers of Abaqulusi include that of Community Services, Mining and Finance Services. Community services contributes just 20% to the economy and is regarded as primary contributor to the economy. The potential to further increase the Mining, Agriculture, Trade and Transport sector of the economy is an opportunity that presents itself to Abaqulusi due to its rich history in Mining activities, large agricultural land and diverse productivity and its favourable location to promote trade and transport.

SECTION SIX

Environmental impact assessment

6.3. RESULTS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

6.3.1. Assessment of the Mooiplaats prospecting area impacts/risks

Table 18: Results of the Environmental Impact Assessment for Mooiplaats 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. 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.
		With mitigation					
		S	L	S	L	L	
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. During drilling activities, veld fires can manifest especially during the winter months from the drilling sites and their	Natural vegetation	Without mitigation					Use sites with most disturbed vegetation cover for the development. 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 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	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							
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.							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. 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.
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.
		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							
							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.
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	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
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 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.	Air Quality	Without mitigation					Ensure that source specific management measures for Mooiplaats prospecting area are complied with.
		S	L	S	L	L	
		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	Visual Aspects	Without mitigation					Inform the land owner on the type of machinery and equipment to be used at the prospecting site.
		S	L	S	L	L	
		With mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
topography, visibility for the most part will most probably be restricted to short distances.		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.	Sites of Archaeological and Cultural Importance	Without mitigation					The establishment of the construction infrastructure complex will be such that the development is always away from the any heritage sites. 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	M	S	H	H	
		With mitigation					
		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 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.

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.	Animal Life	Without mitigation					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
		S	L	S	L	L	
		Without mitigation					
		S	L	S	L	N	
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 be allowed on site. All hydrocarbons will be stored on protected storage areas away from the streams.
		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							
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 generated from prospecting operations activities may add to the current noise levels. This may have impacts on surrounding property owners and occupiers.	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 use, that equipment is kept in good working order and that the equipment must be fitted with
		S	L	S	M	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
		With mitigation					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.
		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 conditions that the landowner may deem necessary for the prospecting operation.
		S	L	S	L	L	
		With Mitigation					
		S	L	S	L	N	
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.

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

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.
		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 elevated silt load, which may cause pollution of the nearby water environment.	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							
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

Xakwa Base Metals (Pty) Limited has applied for a prospecting right over the Mooiplaats prospecting area. The prospecting operation will involve the systematic removal of aluminium ore, gibbsite and titanium. The prospecting operation will involve the exploration for the above-mentioned mineral 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 Abaqulusi Local Municipality situated in an area characterised by elevated undulating plateau with streams such as the Sihlengeni river. 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 planted forest, grazing and residential areas.

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. Xakwa Base Metals (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 from 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 is 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.

6.6. Aspects for Inclusion as conditions of the Environmental Authorisation

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

- Xakwa Base Metals (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.
- Xakwa Base Metals (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
- Xakwa Base Metals (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 this BAR and EMPr. These comments will be addressed the 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

See section 6.6 above.

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 Mooiplaats 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 Xakwa Base Metals (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

Company: Geovicon Environmental (Pty) Limited

Postal Address:

P.O. Box 4050

MIDDELBURG, 1050

Tel: (013) 243 5842

Fax: (086) 632 4936

Cell No.: 082 498 1847

Email: tshepo@geovicon.co.za

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 work 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 Mooiplaats prospecting project as an environmental assessment practitioner. Mr Shakwane is the environmental assessment practitioner for the environmental impact assessment for the proposed Mooiplaats prospecting project.

He is registered with the Environmental Assessment Practitioners Association of South Africa and South African Council for Natural Scientific Professions as an Environmental Assessment Practitioner and a

Professional Natural Scientist in terms of section 24H of the National Environmental Management Act, (Act 107 of 1998) and section 20(3) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003), respectively. He is also a member of the International Association for Impact Assessment (IAIASA), South Africa and serves under the IAIASA Mpumalanga Regional Committe.

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 proposed Mooiplaats prospecting project basic assessment process.

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 R38 or R33, 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).

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 Mooiplaats 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 MOOIPLAATS PROSPECTING AREA ACTIVITIES

The following actions will be undertaken by Xakwa Base Metals (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 19: Environmental Management Programme for the proposed Mooiplaats 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								
Loss of soils, erosion of the soils and impacts on land owner's livelihood.	Soils, Land Use and Land Capability.	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. 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.	Establishment of the site will be undertaken according to the prospecting method statement. No soil stripping will be allowed during site establishment. Should it be necessary to conduct geophysical surveys and geological mapping, ensure minimal disturbance of soil. 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. 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	Appointed contractor and site manager. Appointed contractor. Appointed contractor. Appointed contractor and the applicant site manager. Appointed contractor. Appointed contractor.	Visual monitoring through inspections. Visual monitoring and inspections Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections Undertake regular inspections.	Environmental Control Officer (ECO) during construction. 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. 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
				actively used for crop farming are avoided. 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.	Appointed contractor	Undertake regular inspections.	ECO monthly. Site Manager.	During construction phase.
Loss of natural vegetation in the affected areas.	Flora.	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	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly.	During construction phase.
				No strip of topsoil and vegetation will be allowed during site establishment.	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly.	During construction phase.
				Ensure minimal disturbance of vegetation when conducting geophysical surveys and geological mapping.	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly.	During construction phase.
				Any area that may result into the disturbance of the vegetation cover must be rehabilitated immediately on discovery.	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase.
				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.	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly Site Manager	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
				Smoking shall be prohibited in the vicinity of flammable substances.				
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. 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. 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 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. Appointed contractor and site manager.	Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections. Visual monitoring and inspections.	ECO monthly. ECO monthly. ECO monthly. ECO monthly.	During construction phase. During construction phase. During construction phase. 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	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. 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
			regulations under the GN704.	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.	Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager.	Regular inspections Regular inspections Regular inspections Regular inspections	ECO monthly. ECO monthly. ECO monthly.	During construction phase During construction phase 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).	Drilling activities 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 only be undertaken within the areas identified as non-sensitive areas (see Figure 15 for the position of these areas). Should drilling be required outside of these areas, the relative environmental investigations will be conducted in order to define already disturbed areas, for drilling activities.	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.
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.	Dust suppression, using water, 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	The noise levels from the construction sites will be managed and measures will be taken to ensure	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	Appointed contractor and site manager.	Undertake site checks on speeds used.	Site manager.	Throughout the 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
		employees and surrounding communities/land owners.	that noise levels are below the National Noise Control Regulations, SANS10103:2008 guidelines.	working order and the equipment will be fitted with correct and appropriate noise abatement measures. 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.	Site manager. Site manager.	Speed checking will be conducted. Use of earplugs will be checked and reported.	Site manager checking as regularly as possible. Site manager will check the use of the earplugs as regularly as possible.	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.	Applicant and site manager.	The constructed perimeter berms will be inspected for compliance with the design specifications.	Mine Engineer on a monthly basis.	Throughout the 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 25 of 1999) and recommendations from the specialist.	The establishment of the sites will be away from any identified grave site or heritage sites identified within the prospecting project area. A buffer of hundred meters will be created between the sites and the proposed camp and drilling 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 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, Natural Vegetation, Land	Ensure that the operation of the drilling sites and use of campsite and rehabilitation of	The land use and capability of the sites where the operations will	Ensure that the drilling of the exploration boreholes is done in such a manner that the environment is	Appointed contractor and site manager.	Regular inspections	ECO monthly.	During the operational phase of the area.

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
soils, destruction of natural vegetation and loss of land use.	Use and Land Capability.	drilling site do not have detrimental impacts on the soils, natural vegetation and current land use.	be undertaken will continue after the proposed area.	protected from probable spillages and contamination by carbonaceous material. 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.				
				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.	Regular inspections.	ECO monthly.	During the operational phase of the area.
				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, sold waste disposal site or hydrocarbon recycling or treatment facilities.	Appointed contractor.	Inspection of the site will be conducted.	ECO monthly.	During the operational phase of the area.
				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.	Appointed contractor.	Inspection of the site will be conducted.	ECO monthly.	During the operational phase of the area.

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
				Smoking shall be prohibited in the vicinity of flammable substances.				
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.
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 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 be allowed on site. All hydrocarbons will be stored on protected storage areas away from the streams.	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
				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 that drilling operation does not have a detrimental impact on the number of aquifers underlain by the site.	Aquifers will not be affected.	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.
				Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.	Appointed contractor and site manager.	Regular inspections.	ECO monthly.	During operational phase.
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 streams and wetlands. The applicant must also apply for a GA before drilling within 500m of nearby streams and/or wetlands. Drilling activities will only be undertaken within the areas identified as non-sensitive areas (see Figure 15 for the position of these areas). Should drilling be required outside of these areas, the relative	Appointed contractor.	Inspection to ensure compliance with the action plan.	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
				environmental investigations will be conducted in order to define already disturbed areas, for drilling activities.				
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. 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.	The constructed perimeter berms will be inspected for compliance with the design specifications.	Mine Engineer on a monthly basis.	During operational phase.
Damage or destruction of sites with archaeological and cultural significance.	Sites of archaeological and cultural importance.	Ensure that the operational activities do 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	Socio-economic aspects.	Ensure that the drilling operation does not significantly disrupt the daily living and	The mine will ensure that all safety standards are met and that access to landowners and	Announce any road closures and other disruptions and maintain roads used for the operation in good order.	Appointed contractor and site manager.	Liaison with affected parties.	Site manager as and when necessary.	Throughout the 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
landowners and occupiers.		movements of the land owners and occupiers.	occupiers are not detrimentally affected.	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.	Applicant and site manager. Site manager.	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 meetings are held. Site manager.	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. Movement of mine vehicles and machinery will be limited to demarcated routes, which will be rehabilitated when no longer in use.	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. Rehabilitation site will be inspected to monitor areas with compaction or hydrocarbon contamination.	Site manager will conduct the inspections monthly. Site manager. ECO will conduct the inspections monthly.	Throughout the decommissioning and closure phases. Throughout the decommissioning and closure phases. Throughout the decommissioning and closure phases.
Re-instatement of soil productivity, land capability, land use and	Soils, Land Capability, Land Use and Topography.	Ensure that the rehabilitation of the sites re-instate the soil productivity, land capability,	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.	Appointed contractor.	Removal of the infrastructure will be inspected.	Site manager will conduct the inspections.	During decommissioning 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
topographical patterns.		land use and topographical patterns						
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 pertaining to the financial provision for prospecting, exploration, mining or production operations (GNR 1147) were promulgated on the 20th of November 2015. Xakwa Base Metals (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 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 18 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 20: 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 will be 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 Mooiplaats 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 will be determined and will, with its associated reports be included in the final BAR.

6.6 METHOD OF PROVIDING FOR THE FINANCIAL PROVISION

According to Regulation 8 of the Regulations pertaining to the 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.

Xakwa Base Metals (Pty) Limited has opted to use a financial guarantee to provide for the determined quantum for financial provision.

Table 21: Financial provision for Mooiplaats Prospecting Right

"Rules-based" assessment of the quantum for financial provision							
CALCULATION OF THE QUANTUM							
Mine:	Mooiplaats Prospecting Project - Xakwa Base Metals (Pty) Limited	**Location:**	Mooiplaats Prospecting Project				
Evaluators:	O.T Shakwane of Geovicon Environmental (Pty) Limited	**Date:**	20-Jan-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(Plugging of 30 boreholes)	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	0.60	R 178 800.11	0.80	0.50	R 42 912.03
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	ha	0.02	R 141 639.86	1.00	1.10	R 3 116.08
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	0.60	R 18 849.42	1.00	1.10	R 12 440.61
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 58 468.72**
	Multiply by Weighting factor 2	1.1		R 5 846.87			R 5 846.87
1	Preliminary and general	Add 12% if subtotal 1 is less than R100,000,000.00					R 7 016.25
2	Contingencies	Add 10% of subtotal 1					R 5 846.87
						Sub Total 2	
						(Subtotal 1 plus sum of management & contingencies)	**R 77 178.71**
						VAT (15%)	R 11 576.81
		(Subtotal 2 plus VAT)			**GRAND TOTAL**		**R 88 755.51**

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 Xakwa Base Metals (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

Xakwa Base Metals (Pty) Limited has developed procedures for environmental related emergencies for Mooiplaats 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 Xakwa Base Metals (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 Mooiplaats 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 22).

7.3.5 Responsibilities

Table 22: Responsibilities

Mine Management	Xakwa Base Metals (Pty) Limited is responsible for the safety and well-being of employees working at Mooiplaats 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 Mooiplaats 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 Mooiplaats prospecting area.

7.3.11 Emergency Response flowchart for Xakwa Base Metals (Pty) Limited

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

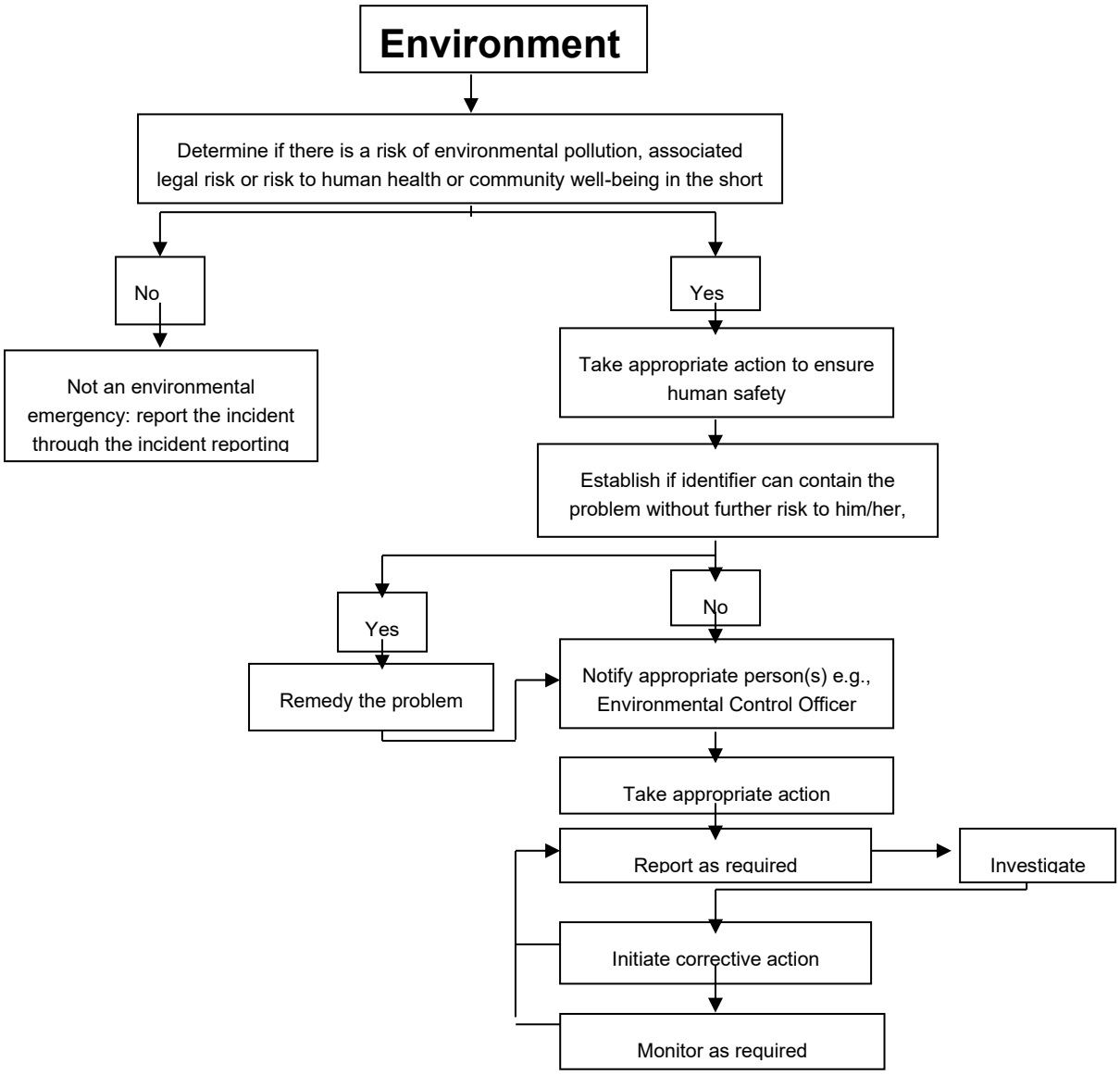


Figure 16: emergency response.

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), Mooiplaats 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 Mooiplaats 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 Mooiplaats 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 Mooiplaats 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 23:

Table 23: 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. Mooiplaats 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 **Xakwa Base Metals (Pty) Limited** have studied and understand the contents of this document in it's 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.....

.....

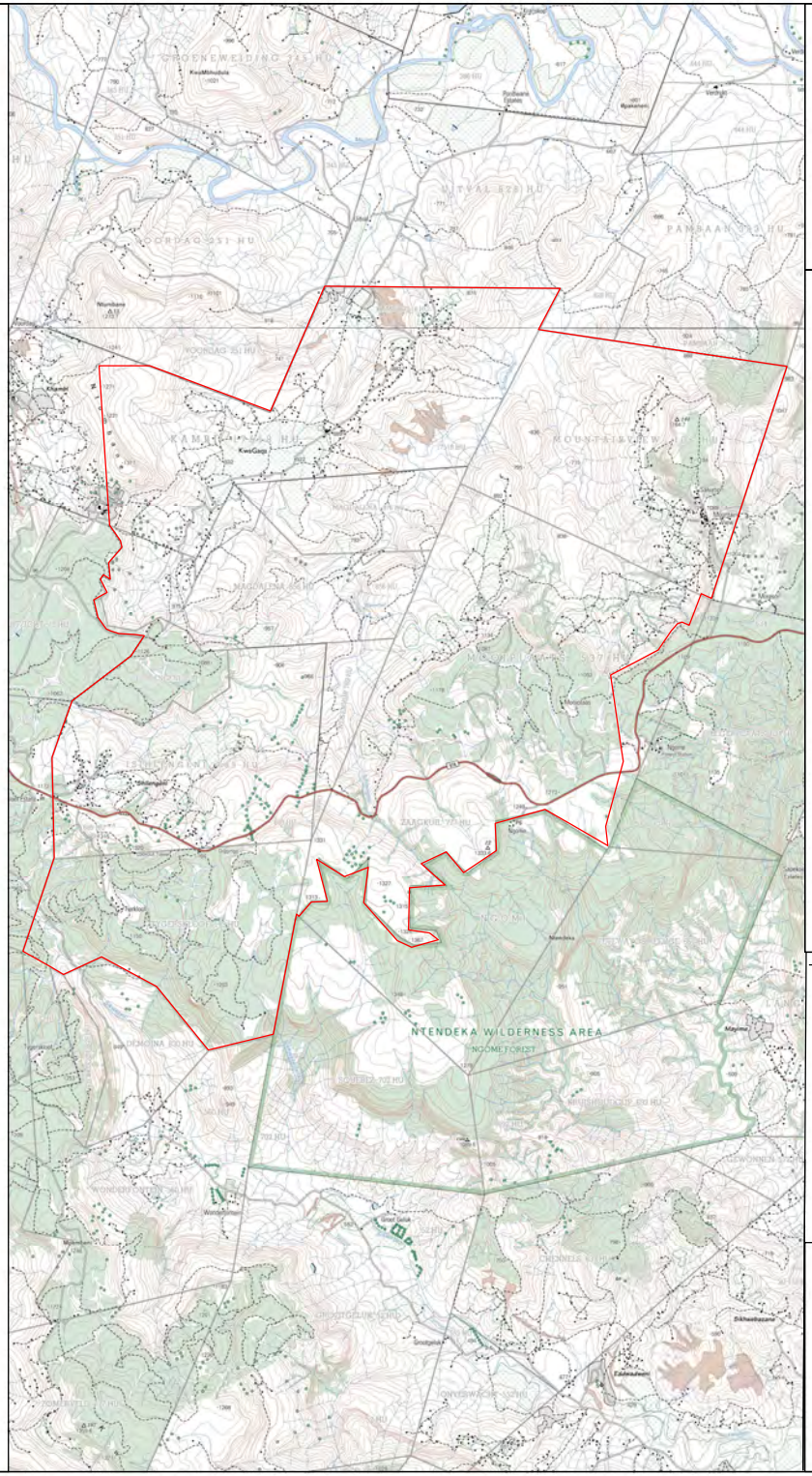
REGIONAL MANAGER

REGION:……

Appendix A – Regulation 2.2 Plan

PROSPECTING CO-ORDINATES
WG 31°

POINTS	LAT	LON
1	-27.7566156	31.3209624
2	-27.7566156	31.3113943
3	-27.7833368	31.3134199
4	-27.7859229	31.3155103
5	-27.7870562	31.3157652
6	-27.7896132	31.3132809
7	-27.7923755	31.31359
8	-27.7916784	31.3122983
9	-27.7923805	31.3117186
10	-27.7946265	31.3129799
11	-27.7951558	31.3119246
12	-27.7958708	31.3104994
13	-27.7987794	31.3112833
14	-27.8007715	31.3128696
15	-27.8010828	31.3136091
16	-27.8015074	31.31526
17	-27.8016468	31.3183452
18	-27.8018931	31.3200587
19	-27.8052403	31.3175412
20	-27.8127981	31.3064425
21	-27.8184356	31.3042158
22	-27.8222878	31.3026942
23	-27.828872	31.3028745
24	-27.8391265	31.3031554
25	-27.849828	31.2991748
26	-27.8548032	31.2973242
27	-27.8574267	31.3024916
28	-27.8586856	31.3049717
29	-27.8557416	31.3121325
30	-27.8606852	31.3225213
31	-27.8712935	31.3323255
32	-27.8686172	31.3445594
33	-27.8484515	31.3489142
34	-27.8488127	31.3493511
35	-27.8464364	31.3516817
36	-27.8463251	31.3547624
37	-27.839253	31.35266
38	-27.8421562	31.3579567
39	-27.8405905	31.3624052
40	-27.8465118	31.3615666
41	-27.8528596	31.3679512
42	-27.8539658	31.3706462
43	-27.8526875	31.3756481
44	-27.8515574	31.3740178
45	-27.8510554	31.3700773
46	-27.8439912	31.3702321
47	-27.8435059	31.3769083
48	-27.8399404	31.372418
49	-27.8379675	31.3771592
50	-27.8414175	31.3803895
51	-27.8377185	31.3866101
52	-27.8331659	31.3863567
53	-27.8308153	31.3957632
54	-27.8335025	31.4010561
55	-27.836841	31.4076327
56	-27.8336032	31.4071966
57	-27.8244338	31.4099666
58	-27.8227258	31.4104826
59	-27.8193271	31.4099041
60	-27.8082421	31.4080175
61	-27.8040109	31.4170006
62	-27.8007663	31.4194424
63	-27.7995777	31.4206118
64	-27.7993273	31.4214549
65	-27.7998499	31.4228366
66	-27.7945481	31.4251072
67	-27.7953075	31.4269827
68	-27.7563655	31.4411162
69	-27.7521611	31.4083298
70	-27.7503507	31.3942311
71	-27.7434299	31.3982831
72	-27.7431726	31.353864
73	-27.7641439	31.3437584
1	-27.7566156	31.3209624



XAKWA BASE METALS (PTY) LTD REG NO: 2012/192971/07

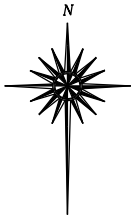
APPLICATION FOR PROSPECTING RIGHT

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

Scale 1 : 3 450

LEGEND

PROSPECTING RIGHT AREA



The figure lettered 1-73 AND 1 represent a Prospecting Right area in extent of approximately 12121.93ha, comprising of a portion of the farm KAMBI 17518 HU, the farm MOUNTAIN VIEW 106 HU, portions 3 and RE OF THE FARM MAGDALENA 376 HU, the farm MAGDALENA 856 HU, the farm ISIHLENGENI 857 HU, the farm ISIHLENGENI 689 HU, the farm NEGENUUR 769 HU, the farm FARM 17852 HU, portions 3,5 and 6 of the farm MOOIPLAATS 537 HU, the farm ZAAGKUIL 777 HU and the farm TYGERSKLOOF 173 HU, located 57.83km East of the town VRYHEID, in the Magisterial district of VRYHEID for which XAKWA BASE METALS (PTY) LTD, Reg No : 2012/192971/07 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
KWAZULU NATAL PROVINCE

SIGNED: .....
XAKWA BASE METALS (PTY) LTD
Reg No: 2012/192971/07

XAKWA TECHNICAL SERVICES

Contact : 012 472 0328
Email : info@xakwa.com
tiisetso@xakwa.com

Address : 175 Corobay
Waterkloof Glen
0010

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.

GEREGISTREERDE WOON- EN POSADRES

1. Bewaar die bewys van u GEREGISTREERDE WOON- EN POSADRES in hierdie sakkie.

2. Indien u van adres verander het, of indien besonderhede van u huidige adres, bv. straatnaam en/of -nommer, ens. verander het, moet die vorm KENNISGEWING VAN ADRESVERANDERING, wat in die sakkie agter in die identiteitsdokument is, gebruik word om die verandering aan te meld en moet dit ingedien word by of gepos word aan die naaste streek-/distrikkantoor van die DEPARTEMENT VAN BINNELANDSE SAKE.

REGISTERED RESIDENTIAL AND POSTAL ADDRESS

1. Keep the proof of your REGISTERED RESIDENTIAL AND POSTAL ADDRESS in this pocket.

2. If you have changed your address, or, if particulars of your present address, e.g. name of street and/or street number, etc., have been changed, the NOTICE OF CHANGE OF ADDRESS form in the pocket at the back of the identity document must be used to report the change and it must be handed in at or posted to the nearest regional/district office of the DEPARTMENT OF HOME AFFAIRS.

1

I.D.No. 720708 5407 08 2

S.A.BURGER/S.A.CITIZEN

VAN/SURNAME
SHAKWANE

VOORNAME/FORENAMES
ORNASSIS TSHEPO

GEBOORTEDISTRIK OF-LAND/
DISTRICT OR COUNTRY OF BIRTH
SOUTH AFRICA

GEBOORTEDATUM/
DATE OF BIRTH
1972-07-08

DATUM UITGEREIK
DATE ISSUED
2007-09-21

UITGEREIK OP GESAG VAN DIE DIREKTEUR-GENERAAL: BINNELANDSE SAKE

ISSUED BY AUTHORITY OF THE DIRECTOR-GENERAL: HOME AFFAIRS

MTHIMUNYE PHANGISILE

Cell Number: 0630076350

Work Tel Number: 013 243 0542

Email Address: phangisile.mthimunye@gmail.com

PERSONAL DETAILS

Name	:	Phangisile Petronelah
Surname	:	Mthimunye
Title	:	Miss
Gender	:	Female
Date of Birth	:	19920703
Identity Number	:	9207030264081
Nationality	:	South African
Home Language	:	isiZulu
Other Language (Speak, Read or Write)	:	English, Tshivenda and Tswana
Race	:	African
Home Address	:	1349 Tokologo Mhluzi 1053
Health	:	Excellent
Disabilities	:	None

EDUCATION

Tertiary Education

2016

Bachelor of Earth Sciences in Mining and Environmental Geology : University Of Venda

Secondary Education

2010

Grade 12 : Sozama Secondary School

AWARDS AND ACHIEVEMENTS

Highest achievement in isiZulu

Highest achievement in Life Science

Top Ten Achiever

Dux Learner

Good Demeanor

Perseverance

Obtaining level 1 in Ballroom adult 1

Obtaining level 2 in Latin adult 2

WORKING HISTORY

Company	:	Optimum Colliery
Position Held	:	Learner Geologist
Year	:	2014

Responsibilities

- Underground Mapping
- Conduct Geological Hazards Identification

Company	:	Geovicon Environmental (Pty)
Position Held	:	Junior Environmental Officer
Year	:	2016 to current

Responsibilities

- Water Monitoring and Reporting
- Performance Audit Assessment Reporting
- Prospecting and Mining Permit Applications
- Water Use License Applications
- Water Use Licence Audits,
- Environmental Reports (Environmental Impact Assessment reports, Scoping reports and Basic Assessment reports)

REFERENCES

Mr Sphiwe Mhlongo

University of Venda

Lecture

0733043321

Mr Gladman Tefu

Geovicon Environmental

Director

0825545261

Miss Makgongwa Bukelwa

Optimum Colliery

Senior Geologist

0836836603

REPUBLIC OF SOUTH AFRICA

National Senior Certificate

Awarded to

Phangisile Petronelah Mthimunye

SUID-AFRIKAANSE POLISIEDIENS
ADJUNK-STASIEKOMMISSARIS
2017 -01- 18
DEPUTY STATION COMMISSIONER
MHLUZI
SOUTH AFRICAN POLICE SERVICE

Identity number 9207030264081

Subject	%	Achievement level
IsiZulu Home Language	72	6
Afrikaans Second Additional Language	76	6
English First Additional Language	68	5
Mathematics	64	5
Life Orientation	81	7
Life Sciences	70	6
Physical Sciences	71	6
**********	***	*

I CERTIFY THAT THIS DOCUMENT IS A TRUE REPRODUCTION (COPY) OF THE ORIGINAL DOCUMENT WHICH WAS HANDED TO ME FOR AUTHENTICATION. I FURTHER CERTIFY THAT, FROM MY OBSERVATION, NO ALTERATION OR CHANGE WAS NOT MADE TO THE ORIGINAL DOCUMENT.

HANDTEKENING/SIGNATURE

This candidate is awarded the National Senior Certificate and has met the minimum requirements for admission to bachelor's degree, diploma or higher certificate study as gazetted for admission to higher education, subject to the admission requirements of the higher education institution concerned.

With effect from December 2010

M. S. Lakometsi

Chief Executive Officer

110 7200 2080 C

This certificate is issued without alterations or erasure of any kind

UMALUSI

Council for Quality Assurance in General and Further Education and Training South Africa

2057286

(See reverse for more information)

University of Venda

This is to Certify that the Degree of

Bachelor of Earth Sciences in Mining and Environmental Geology

was Awarded to

MTHIMUNYE PHANGISILE PETRONELAH

9207030264081

at a Ceremony held on the

12-MAY-2016

in Accordance with the Provisions of the Act and Statute

Vice Chancellor

University Registrar

6311101758

Dean

NOTICE OF PERSONAL PARTICULARS

1. Any changes to the personal particulars in your ID Book must be communicated to all relevant parties.

NOTICE OF CHANGE OF ADDRESS

1. Keep the NOTICE OF CHANGE OF ADDRESS form in this pocket to report a change of address or a change in particular of your present address e.g. name of street and/or street number etc.

2. Hand in at or post to the nearest regional/district office of the DEPARTMENT OF HOME AFFAIRS

1

I.D. No. 920703 0264 081

S.A.CITIZEN

SURNAME
MTHIMUNYE

FORENAMES
PHANGISILE PETRONELAH

COUNTRY OF BIRTH
SOUTH AFRICA

DATE OF BIRTH
1992-07-03

DATE ISSUED
2014-02-04

ISSUED BY AUTHORITY OF
THE DIRECTOR-GENERAL
HOME AFFAIRS

Appendix C: Deeds List

WinDeed Database D/O Property

HU, ISIHLENGENI, 857, 0, PIETERMARITZBURG

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	2022/01/14 13:43	Farm Number	857
Reference	-	Registration Division	HU
Report Print Date	2022/01/14 13:44	Portion Number	0
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

PROPERTY INFORMATION			
Property Type	FARM	Diagram Deed Number	T40883/995
Farm Name	ISIHLENGENI	Local Authority	NOT AVAILABLE
Farm Number	857	Province	KWAZULU NATAL
Registration Division	HU	Remaining Extent	NO
Portion Number	0	Extent	318,0426HA
Previous Description	-	LPI Code	N0HU00000000085700000

OWNER INFORMATION (1)			
FREEWHEEL TRADE & INVEST 7 PTY LTD			Owner 1 of 1
Company Type	TRANSFER	Document	T21486/2011
Registration Number	200801557907	Microfilm / Scanned Date	-
Name	FREEWHEEL TRADE & INVEST 7 PTY LTD	Purchase Price (R)	3 500 000
Multiple Owners	NO	Purchase Date	2011/06/14
Multiple Properties	NO	Registration Date	2011/07/13
Share (%)	-		

ENDORSEMENTS (3)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	FROM SUB 1 MAGDALENA	856	Unknown	-
2	FROM SUB 1 ISIHLENGE	NI	Unknown	-

ENDORSEMENTS (3)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
3	RENUMBER FROM	VRYHEID RD , 857 ,	-	0000000000 00 *

HISTORIC DOCUMENTS (3)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	B19422/1991	BANKS HOUSE INVESTMENTS CC	75 000	1996 0026 2075
2	T40883/1995	ISIHLENGENI FARMING CC	CCT	2008 0042 2350
3	B62738/2007	-	350 000	2008 0042 2316

WinDeed Database D/O Property

HU, ISIHLENGENI, 689, 0 (REMAINING EXTENT), PIETERMARITZBURG

Lexis® WinDeed

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SEARCH CRITERIA			
Search Date	2022/01/14 13:46	Farm Number	689
Reference	-	Registration Division	HU
Report Print Date	2022/01/14 13:46	Portion Number	0
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

PROPERTY INFORMATION			
Property Type	FARM	Diagram Deed Number	G7338/908
Farm Name	ISIHLENGENI	Local Authority	NOT AVAILABLE
Farm Number	689	Province	KWAZULU NATAL
Registration Division	HU	Remaining Extent	NO
Portion Number	0 (REMAINING EXTENT)	Extent	1462.1233H
Previous Description	-	LPI Code	N0HU00000000068900000

OWNER INFORMATION (1)			
ESIHLENGENI TRUST-TRUSTEES			Owner 1 of 1
Company Type	TRANSFER	Document	T582/2010
Registration Number	IT 879/2007	Microfilm / Scanned Date	-
Name	ESIHLENGENI TRUST-TRUSTEES	Purchase Price (R)	DONATION
Multiple Owners	NO	Purchase Date	-
Multiple Properties	NO	Registration Date	2010/01/12
Share (%)	-		

ENDORSEMENTS (4)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	VA3385/2004	-	Unknown	2004 0967 2001
2	AGREEMENT IN TERMS OF	OF 1996 VIDE	-	-

ENDORSEMENTS (4)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
	ACT 84			
3	VRYHEID RD,689	-	Unknown	1994 0831 1167
4	RENUMBER FROM	VRYHEID RD , 689 ,	-	0000000000 00 *

HISTORIC DOCUMENTS (5)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	T26896/1992	ELCSA PROPERTY MANAGEMENT CO	DONATION	2009 0160 4090
2	T26896/1992	E L C PROP MANAGEMENT CO	DONATION	2009 0160 4090
3	EX20/1987-26/1/87-73	-	Unknown	-
4	EX393/1990-5/11/1990	-	Unknown	-
5	G7338/19085	HERMANNSBURG MISSION	Unknown	-

WinDeed Database D/O Property

HU, NEGENUUR, 769, 0, PIETERMARITZBURG

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SEARCH CRITERIA			
Search Date	2022/01/14 13:49	Farm Number	769
Reference	-	Registration Division	HU
Report Print Date	2022/01/14 13:50	Portion Number	0
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

PROPERTY INFORMATION			
Property Type	FARM	Diagram Deed Number	G15/949
Farm Name	NEGENUUR	Local Authority	NOT AVAILABLE
Farm Number	769	Province	KWAZULU NATAL
Registration Division	HU	Remaining Extent	NO
Portion Number	0	Extent	230,1321HA
Previous Description	-	LPI Code	N0HU00000000076900000

OWNER INFORMATION (1)			
SIHLENGENI PLASE EDMS BPK			Owner 1 of 1
Company Type	TRANSFER	Document	T33210/1998
Registration Number	77/00989/07	Microfilm / Scanned Date	1998 0822 0255
Name	SIHLENGENI PLASE EDMS BPK	Purchase Price (R)	378 000
Multiple Owners	NO	Purchase Date	1998/08/16
Multiple Properties	NO	Registration Date	1998/12/03
Share (%)	-		

ENDORSEMENTS (2)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	RENUMBER FROM	VRYHEID RD , 769 ,	-	0000000000 00 *
2	VRYHEID RD,769	-	Unknown	1995 0053 0216

HISTORIC DOCUMENTS (4)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	B28965/1991	VOLKSKAS BANK LTD	80 000	1998 0822 0272
2	B4717/1996	LAND BANK	90 000	1998 0822 0269
3	T10922/1983	ERASMUS T C J	Unknown	-
4	T24116/1987	SMITH GERT JACOBUS	120 000	1998 0822 0249

WinDeed Database D/O Property - List

HU, 173, A, PIETERMARITZBURG

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SEARCH CRITERIA			
Search Date	2022/01/14 14:53	Farm Number	173
Reference	-	Registration Division	HU
Report Print Date	2022/01/14 14:53	Portion Number	A
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

PORTION LIST

Portion	Owner	Title Deed	Registration Date	Purchase Price (R)
0	IMPUMELELO COMMUNITY TRUST-TRUSTEES	T40103/2012	2012/12/19	7 716 749
1	** FOR INFO REFER TO REGISTRAR OF DEEDS **	REPLACED	-	-
2	IMPUMELELO COMMUNITY TRUST-TRUSTEES	T25934/2012	2012/08/27	5 583 932
3	** FOR INFO REFER TO REGISTRAR OF DEEDS **	REPLACED	-	-

WinDeed Database D/O Property

HU, MOUNTAIN VIEW, 106, 0, PIETERMARITZBURG

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SEARCH CRITERIA			
Search Date	2022/01/14 14:04	Farm Number	106
Reference	-	Registration Division	HU
Report Print Date	2022/01/14 14:04	Portion Number	0
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

PROPERTY INFORMATION			
Property Type	FARM	Diagram Deed Number	GVR106/885
Farm Name	MOUNTAIN VIEW	Local Authority	NOT AVAILABLE
Farm Number	106	Province	KWAZULU NATAL
Registration Division	HU	Remaining Extent	NO
Portion Number	0	Extent	2183MOR 456SQ
Previous Description	-	LPI Code	N0HU00000000010600000

OWNER INFORMATION (1)			
SALVATION ARMY PROPERTY CO			Owner 1 of 1
Company Type	TRANSFER	Document	T436/1932
Registration Number	190400234308	Microfilm / Scanned Date	-
Name	SALVATION ARMY PROPERTY CO	Purchase Price (R)	-
Multiple Owners	NO	Purchase Date	-
Multiple Properties	NO	Registration Date	1932/02/23
Share (%)	-		

ENDORSEMENTS (2)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	VRYHEID RD,106	-	Unknown	1994 0825 2174
2	RENUMBER FROM	VRYHEID RD , 106 ,	-	0000000000 00 *

HISTORIC DOCUMENTS

No historic documents to display

WinDeed Database D/O Property

HU, MAGDALENA, 856, 0 (REMAINING EXTENT), PIETERMARITZBURG

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SEARCH CRITERIA			
Search Date	2022/01/14 14:09	Farm Number	856
Reference	-	Registration Division	HU
Report Print Date	2022/01/14 14:09	Portion Number	0
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

PROPERTY INFORMATION			
Property Type	FARM	Diagram Deed Number	T40881/995
Farm Name	MAGDALENA	Local Authority	NOT AVAILABLE
Farm Number	856	Province	KWAZULU NATAL
Registration Division	HU	Remaining Extent	NO
Portion Number	0 (REMAINING EXTENT)	Extent	1075.7130H
Previous Description	-	LPI Code	N0HU00000000085600000

OWNER INFORMATION (1)			
SIHLENGENI PLASE EDMS BPK			Owner 1 of 1
Company Type	TRANSFER	Document	T19932/1998
Registration Number	77/00989/07	Microfilm / Scanned Date	1998 0538 0149
Name	SIHLENGENI PLASE EDMS BPK	Purchase Price (R)	1 486 500
Multiple Owners	NO	Purchase Date	1998/07/03
Multiple Properties	NO	Registration Date	1998/07/31
Share (%)	-		

ENDORSEMENTS (3)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	FROM MAGDALENA 754	-	Unknown	-
2	FROM SUB 2 MAGDALENA	376	Unknown	-

ENDORSEMENTS (3)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
3	RENUMBER FROM	VRYHEID RD , 856 ,	-	0000000000 00 *

HISTORIC DOCUMENTS (1)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	T40881/1995	MORRIS MARTHA MAGDALENA	CCT	1998 0538 0143

WinDeed Database D/O Property

HU, 17852, A, PIETERMARITZBURG

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SEARCH CRITERIA			
Search Date	2022/01/26 20:00	Farm Number	17852
Reference	-	Registration Division	HU
Report Print Date	2022/01/26 20:00	Portion Number	A
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

THERE IS NO INFORMATION AVAILABLE THAT MATCHES YOUR SEARCH CRITERIA.

WinDeed Database D/O Property

HU, ZAAGKUIL, 777, 0, PIETERMARITZBURG

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SEARCH CRITERIA

Search Date	2022/01/14 14:19	Farm Number	777
Reference	-	Registration Division	HU
Report Print Date	2022/01/14 14:20	Portion Number	0
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

PROPERTY INFORMATION

Property Type	FARM	Diagram Deed Number	T29694/1988
Farm Name	ZAAGKUIL	Local Authority	NOT AVAILABLE
Farm Number	777	Province	KWAZULU NATAL
Registration Division	HU	Remaining Extent	NO
Portion Number	0	Extent	683.2767H
Previous Description	-	LPI Code	N0HU00000000077700000

OWNER INFORMATION (1)

R S A — Owner 1 of 1

Company Type	TRANSFER	Document	T2435/2000
Registration Number	-	Microfilm / Scanned Date	2000 0068 0784
Name	R S A	Purchase Price (R)	400 000
Multiple Owners	NO	Purchase Date	1997/10/13
Multiple Properties	NO	Registration Date	2000/01/26
Share (%)	-		

ENDORSEMENTS (4)

#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	VA1065/1994	3846/1990B	-	1994 0746 0075
2	VA766/1993	29694/1988T	-	1993 0635 2214
3	RENUMBER FROM	VRYHEID RD , 777 ,	-	0000000000 00 *

ENDORSEMENTS (4)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
4	VRYHEID RD,777	-	Unknown	1995 0053 0240

HISTORIC DOCUMENTS (3)				
#	Document	Institution	Amount (R)	Microfilm / Scanned Date
1	T29694/1988	ABACUS FORESTRIES PTY LTD	1 162 500	2000 0068 0749
2	T29694/1988	INTERBOARD FORESTRIES PTY LTD	1 162 500	2000 0068 0749
3	T509/1975	UYS DIRK CORNELIUS	Unknown	2000 0068 0749

WinDeed Database D/O Property

HU, 17518, A, PIETERMARITZBURG

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SEARCH CRITERIA			
Search Date	2022/01/10 14:44	Farm Number	17518
Reference	-	Registration Division	HU
Report Print Date	2022/01/26 19:51	Portion Number	A
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

THERE IS NO INFORMATION AVAILABLE THAT MATCHES YOUR SEARCH CRITERIA.

WinDeed Database D/O Property - List

HU, 376, A, PIETERMARITZBURG

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SEARCH CRITERIA			
Search Date	2022/01/14 14:06	Farm Number	376
Reference	-	Registration Division	HU
Report Print Date	2022/01/14 14:06	Portion Number	A
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	Search Source	WinDeed Database

PORTION LIST

Portion	Owner	Title Deed	Registration Date	Purchase Price (R)
2	** FOR INFO REFER TO REGISTRAR OF DEEDS **	REPLACED	-	-
3	SIHLENGENI PLASE PTY LTD	T6263/1977	1977/05/06	-

WinDeed Database D/O Property - List

HU, 537, A, PIETERMARITZBURG

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SEARCH CRITERIA			
Search Date	2022/01/10 15:32	Farm Number	537
Reference	-	Registration Division	HU
Report Print Date	2022/01/10 15:33	Portion Number	A
Farm Name	-	Remaining Extent	NO
Deeds Office	Pietermaritzburg	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	ABACUS FORESTRIES PTY LTD	T29694/1988	1988/11/16	1 162 500
2	ABACUS FORESTRIES PTY LTD	T29694/1988	1988/11/16	1 162 500
3	ZULULAND DIOCESAN TRUSTS' BOARD-TRUSTEES	T486/1926	1926/02/08	-
4	R S A	T8641/1960	1960/10/31	-
5	R S A	T2435/2000	2000/01/26	400 000
6	R S A	T2435/2000	2000/01/26	400 000
7	R S A	T37548/2000	2000/08/14	-

Appendix D: Department of Forestry, Fisheries and the Environment Screening Report

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

EIA Reference number:

Project name: Mooiplaats prospecting right project

Project title: Mooiplaats prospecting right project

Date screening report generated: 06/12/2021 12:13:46

Applicant: Xakwa Base Metals (Pty) Ltd

Compiler: Geovicon Environmental (Pty) Ltd

Compiler signature:

.....

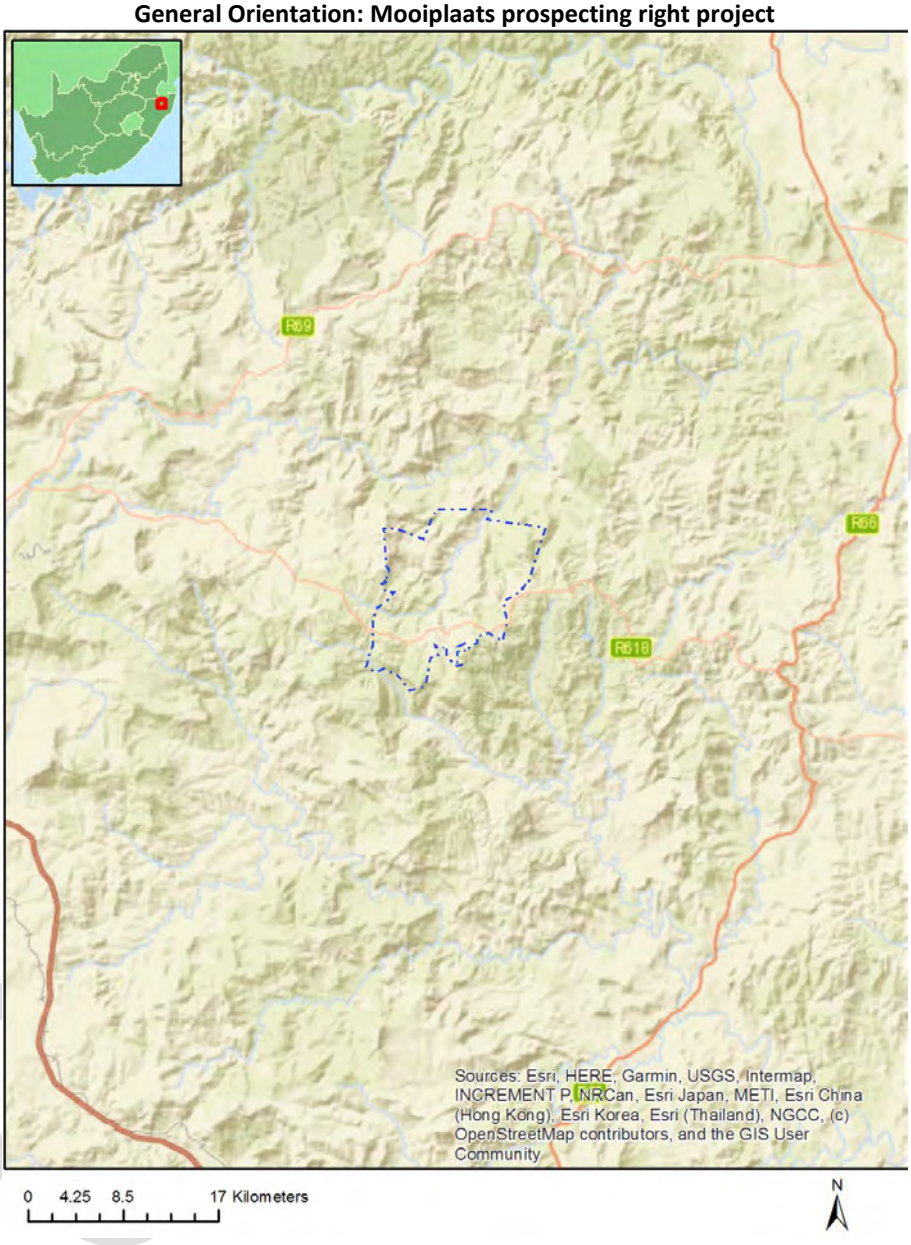
Application Category: Mining|Prospecting rights

Table of Contents

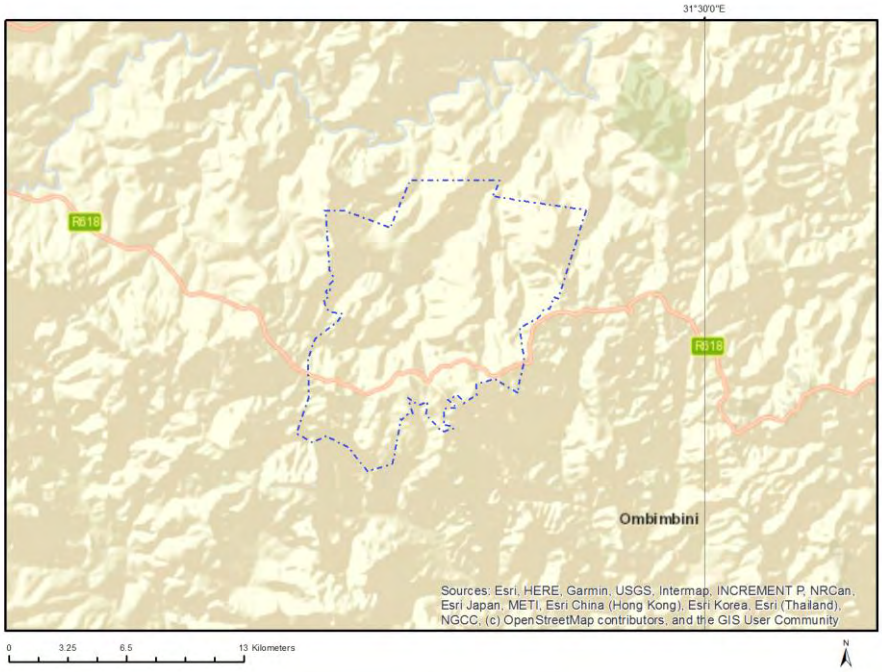
Proposed Project Location

Orientation map 1: General location

General Orientation: Mooiplaats prospecting right project



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	MAGDALENA	376	0	27°46'50.41S	31°21'37.97E	Farm
2	NEGENUUR	769	0	27°48'48.96S	31°21'27.87E	Farm
3	MAGDALENA	856	0	27°47'36.91S	31°20'29.75E	Farm
4	TYGERSKLOOF	173	0	27°51'9.45S	31°19'28.59E	Farm
5	PONGOLA	537	0	27°49'21.57S	31°22'47.93E	Farm
6	PONGOLA	537	0	27°48'43.45S	31°24'48.71E	Farm
7	DEMOINA	830	0	27°52'13.98S	31°19'5.57E	Farm
8	ISIHLENGENI	857	0	27°48'29.32S	31°19'21.95E	Farm
9	NGOME PERIODICAL COURT	17657	0	27°49'56.58S	31°23'24.6E	Farm
10	MOUNTAINVIEW	106	0	27°46'12.82S	31°24'42.01E	Farm
11	PONGOLA	518	0	27°49'49.9S	31°16'57.39E	Farm
12	ISIHLENGENI	689	0	27°49'24.15S	31°19'47.98E	Farm
13	ZAAGKUIL	777	0	27°49'57.62S	31°22'8.71E	Farm
14	UITVAL	828	0	27°43'48.88S	31°23'13.49E	Farm
15	UITZICHT	73	0	27°47'56.19S	31°18'6.61E	Farm
16	VOORDAG	251	0	27°44'19.49S	31°19'35.98E	Farm
17	KAMBI	17518	0	27°46'13.83S	31°20'15.03E	Farm
18	WATERVAL	70	0	27°51'57.8S	31°16'25.89E	Farm
19	MPISINI	17756	0	27°44'10.44S	31°25'50.38E	Farm
20	MOOIPLAAS	17852	0	27°48'13.46S	31°23'18.33E	Farm
21	SQUEBEZ	702	0	27°52'37.3S	31°21'39.39E	Farm
22	UITZICHT	73	5	27°47'57.02S	31°18'6.58E	Farm Portion
23	PONGOLA	518	2	27°49'24.87S	31°18'4.21E	Farm Portion
24	NEGENUUR	769	0	27°48'48.96S	31°21'27.87E	Farm Portion
25	ISIHLENGENI	857	0	27°48'29.32S	31°19'21.95E	Farm Portion
26	WATERVAL	70	12	27°51'54.56S	31°17'40.96E	Farm Portion

27	MAGDALENA	376	3	27°47'18.46S	31°21'44.32E	Farm Portion
28	VOORDAG	251	2	27°44'24.99S	31°19'36.53E	Farm Portion
29	PONGOLA	537	4	27°48'33.31S	31°24'57.92E	Farm Portion
30		181	2	27°45'55.98S	31°18'3.02E	Farm Portion
31	VOORDAG	251	3	27°44'56.97S	31°20'18.62E	Farm Portion
32	PONGOLA	537	5	27°49'48.09S	31°24'17.6E	Farm Portion
33	PONGOLA	537	6	27°49'44.85S	31°23'41.07E	Farm Portion
34	MAGDALENA	856	0	27°47'36.91S	31°20'29.75E	Farm Portion
35	MOUNTAINVIEW	106	0	27°46'12.82S	31°24'42.01E	Farm Portion
36	TYGERSKLOOF	173	0	27°51'2.62S	31°19'38.67E	Farm Portion
37	MAGDALENA	376	0	27°46'50.17S	31°21'37.92E	Farm Portion
38	KAMBI	17518	0	27°45'49.54S	31°20'25.4E	Farm Portion
39	MOOIPLAAS	17852	0	27°48'13.46S	31°23'18.33E	Farm Portion
40	PONGOLA	518	0	27°49'40.34S	31°17'6.99E	Farm Portion
41	PONGOLA	518	3	27°48'56.16S	31°17'27.18E	Farm Portion
42	ISIHLENGENI	689	0	27°49'24.15S	31°19'47.98E	Farm Portion
43	ZAAGKUIL	777	0	27°50'9.2S	31°22'13.08E	Farm Portion
44	DEMOINA	830	0	27°52'13.98S	31°19'5.57E	Farm Portion
45	NGOME PERIODICAL COURT	17657	0	27°49'56.58S	31°23'24.6E	Farm Portion
46	PONGOLA	518	4	27°50'22.54S	31°16'28.19E	Farm Portion
47	PONGOLA	537	3	27°49'21.56S	31°22'47.98E	Farm Portion
48	ISIHLENGENI	689	2	27°49'37.45S	31°18'25.9E	Farm Portion
49	SQUEBEZ	702	0	27°52'37.3S	31°21'39.39E	Farm Portion
50	UITVAL	828	0	27°43'48.88S	31°23'13.49E	Farm Portion
51	MPISINI	17756	0	27°44'10.44S	31°25'50.38E	Farm Portion
52	TYGERSKLOOF	173	2	27°52'4.88S	31°18'6.79E	Farm Portion
53	PONGOLA	518	5	27°49'59.76S	31°18'3.74E	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

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

[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.

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**.

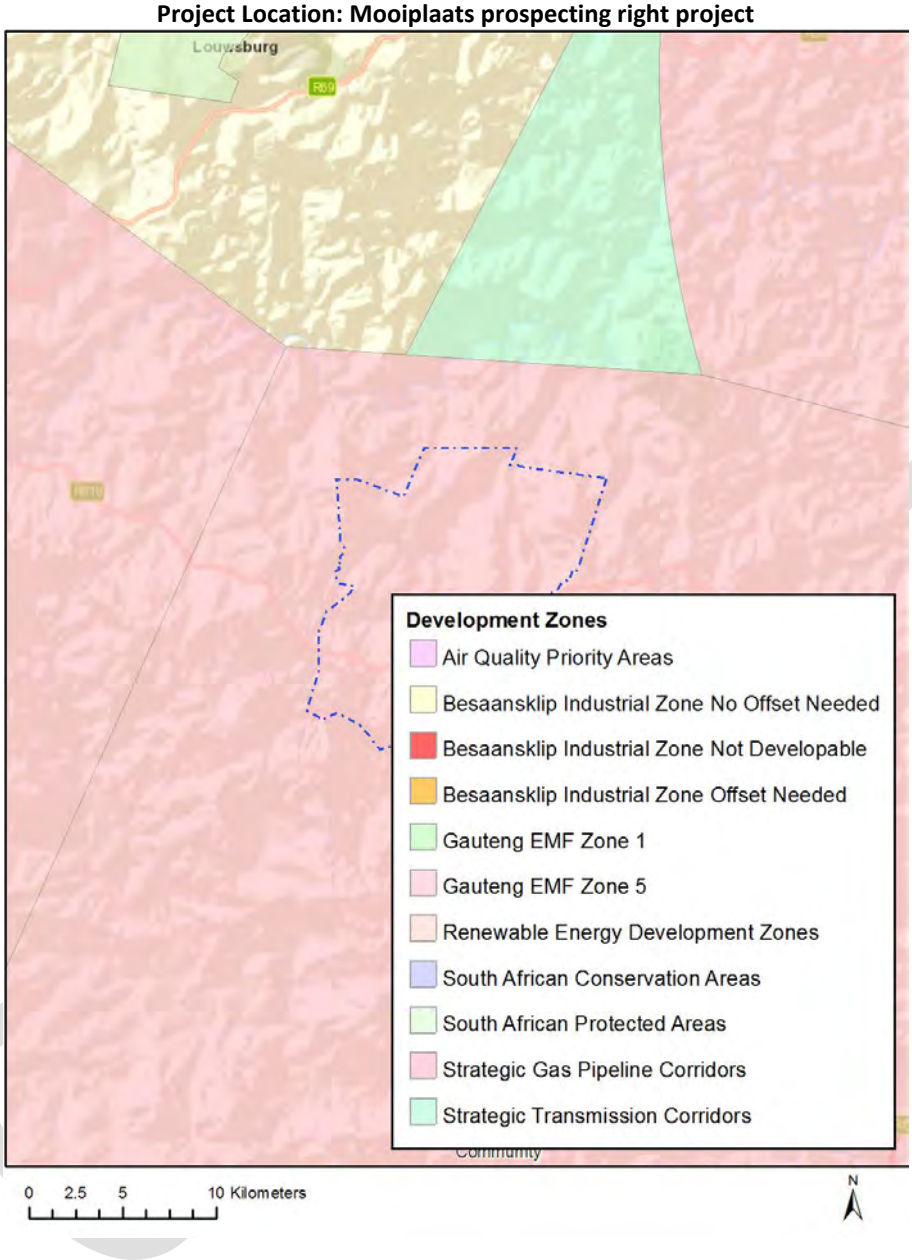
Relevant development incentives, restrictions, exclusions or prohibitions

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 Transmission Corridor-Expanded Eastern Corridor	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_EGI.pdf
Strategic Gas Pipeline Corridors -Phase 7: Coega to Richards Bay	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_GAS.pdf
South African Protected Areas	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/SAPAD_OR_2021_Q2_Metadata.pdf

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

Project Location: Mooiplaats prospecting right project



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.

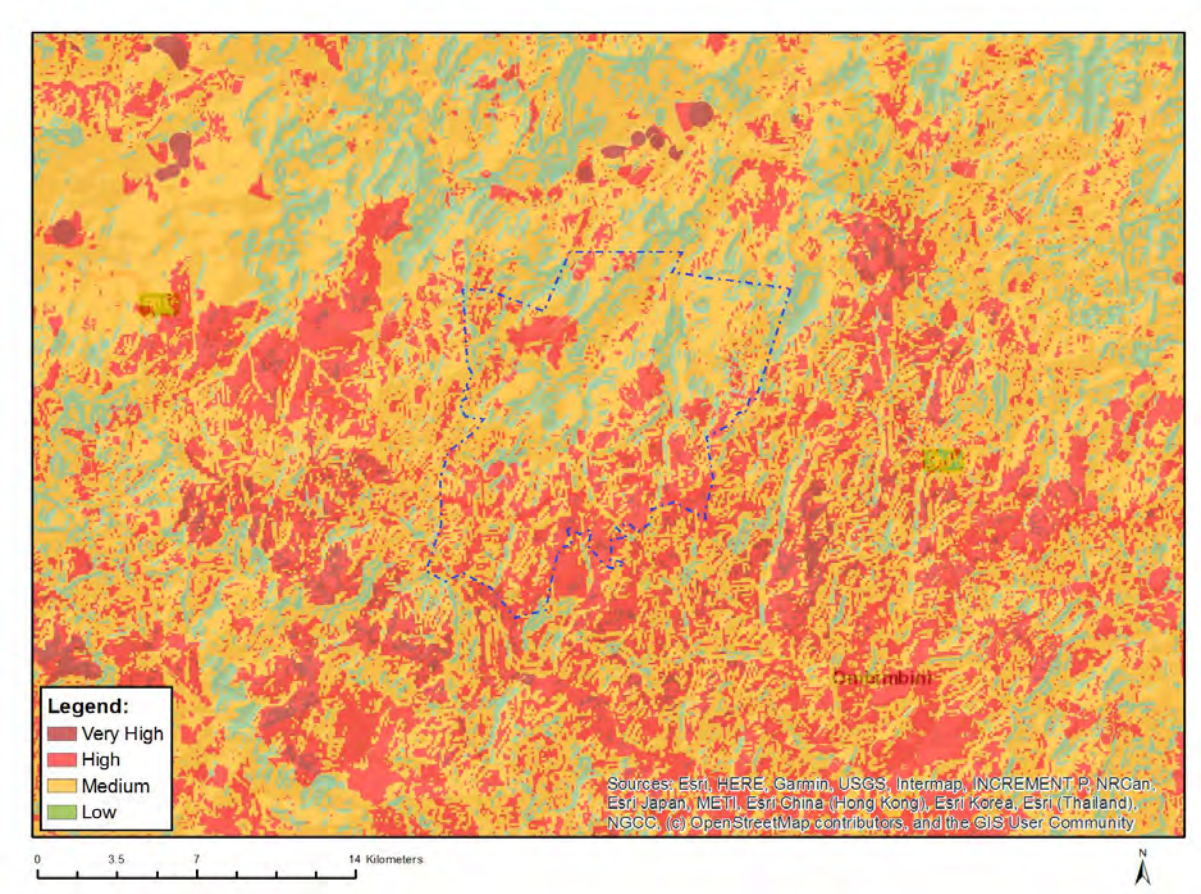
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_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

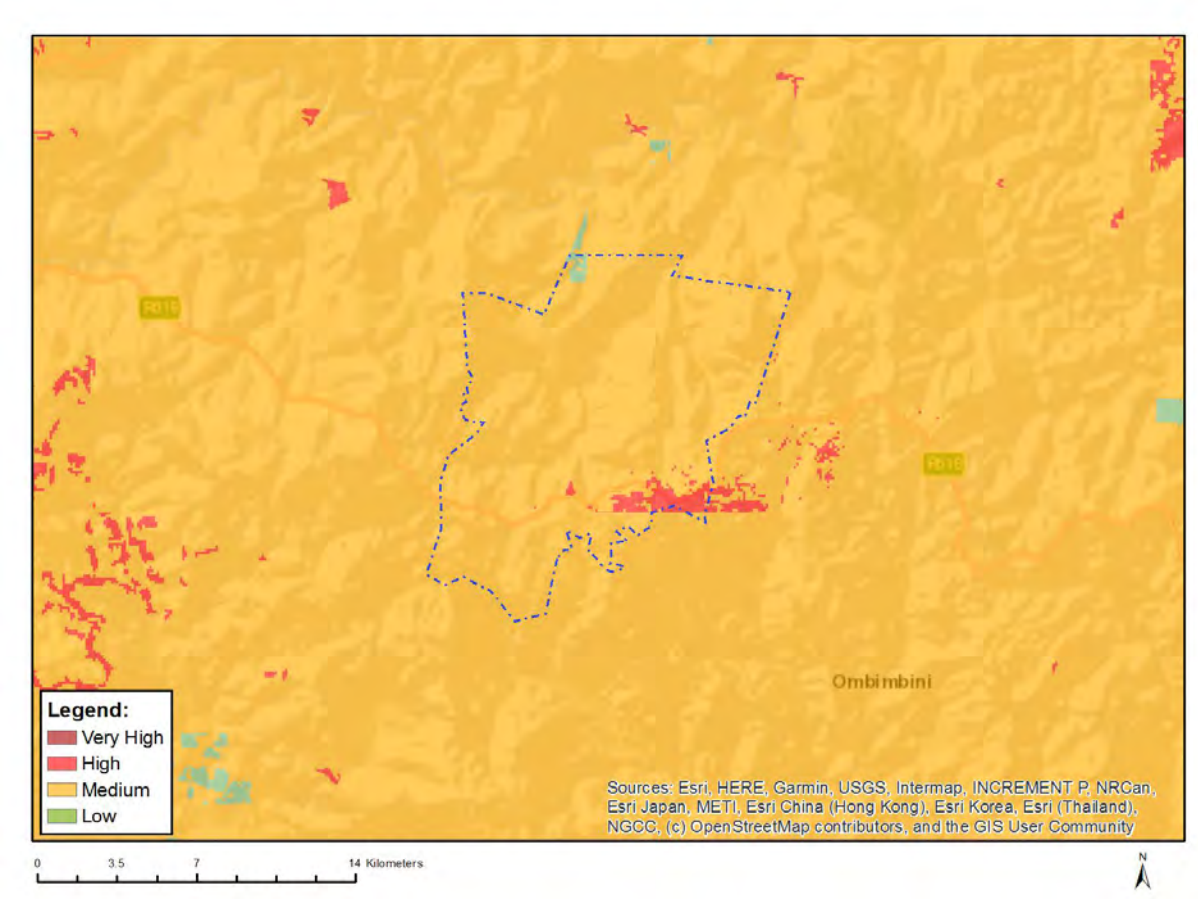


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
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
Very High	Land capability;11. High/12. High-Very high/13. High-Very high/14. Very high/15. Very high

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



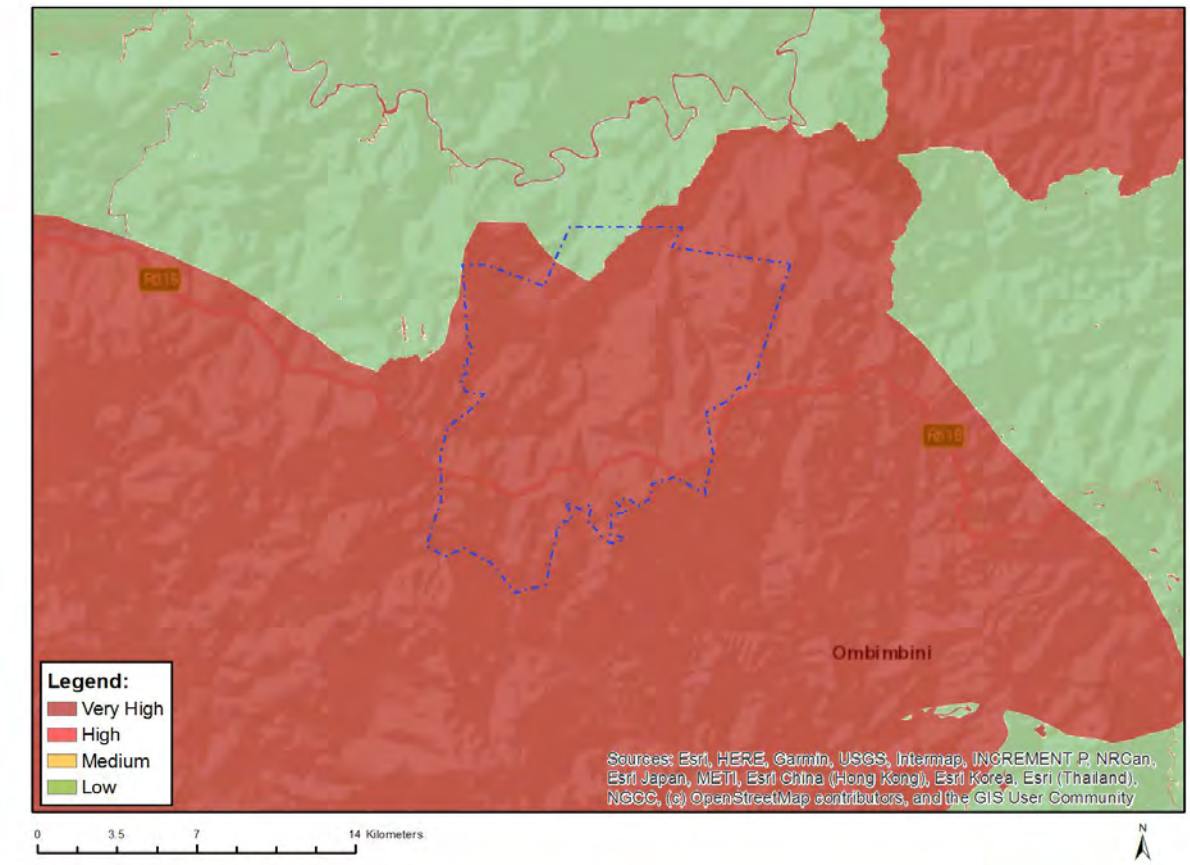
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their 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	Mammalia-Redunca fulvorufula fulvorufula
High	Aves-Columba delegorguei
Low	Low sensitivity
Medium	Reptilia-Kinixys natalensis
Medium	Invertebrate-Physophorina livingstonii
Medium	Invertebrate-Doratogonus avius
Medium	Invertebrate-Forest invertebrate
Medium	Aves-Columba delegorguei
Medium	Insecta-Deloneura millari millari
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Lycaon pictus
Medium	Mammalia-Ourebia ourebi ourebi
Medium	Sensitive species 7

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

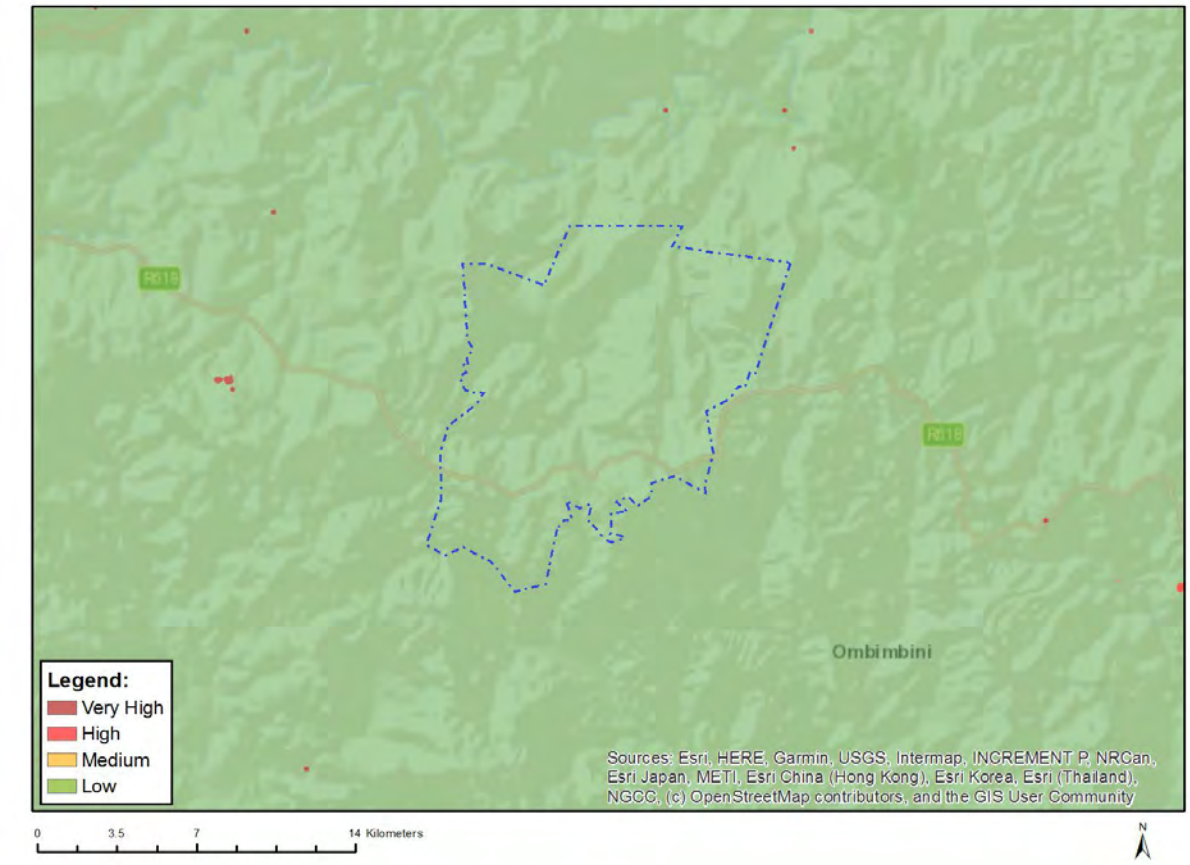


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Aquatic CBAs
Very High	Strategic water source area
Very High	Wetlands and Estuaries
Very High	Freshwater ecosystem priority area quinary catchments

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

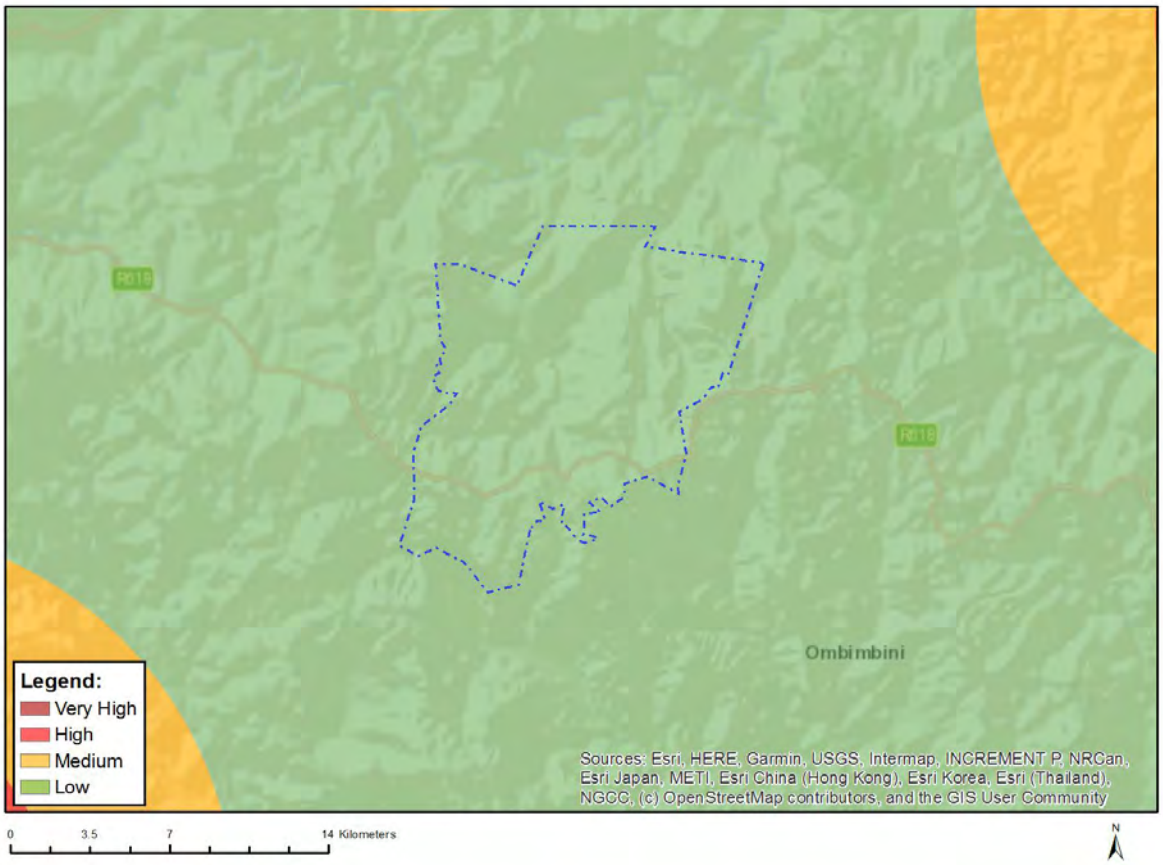


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

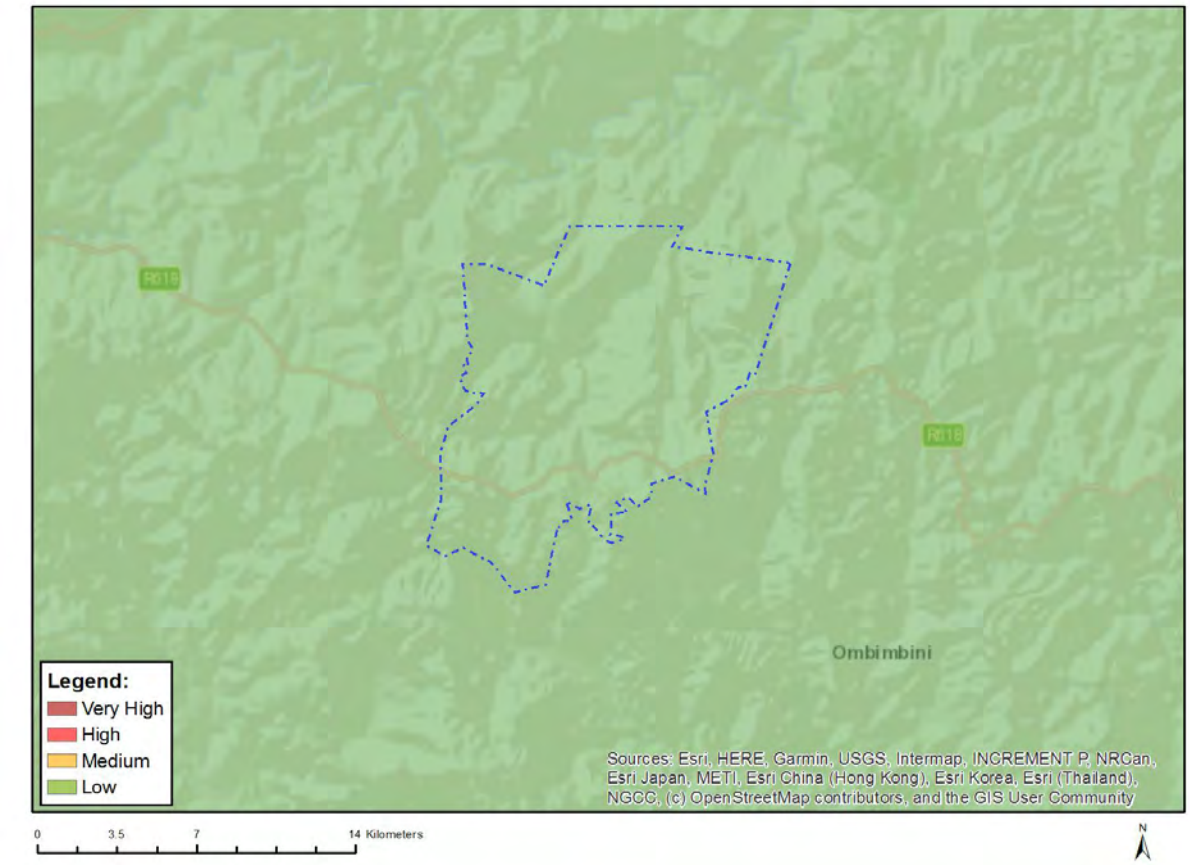


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

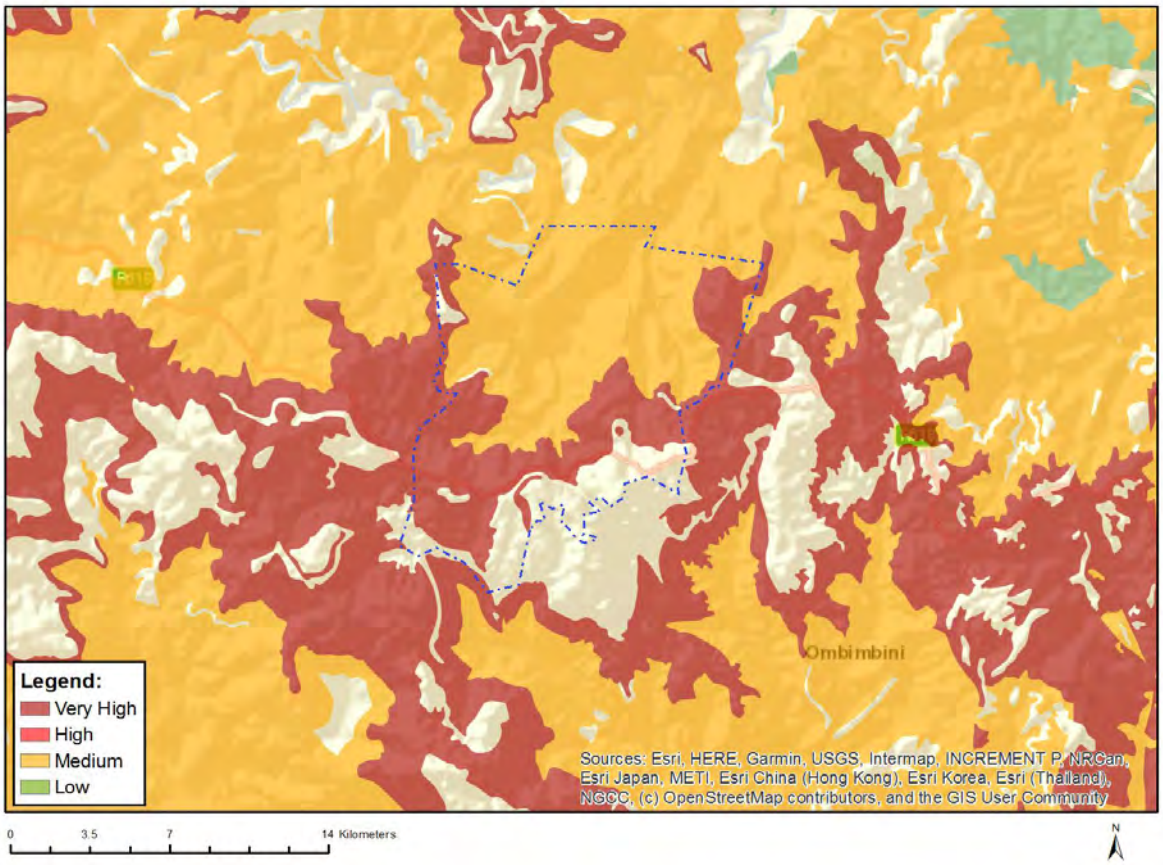


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

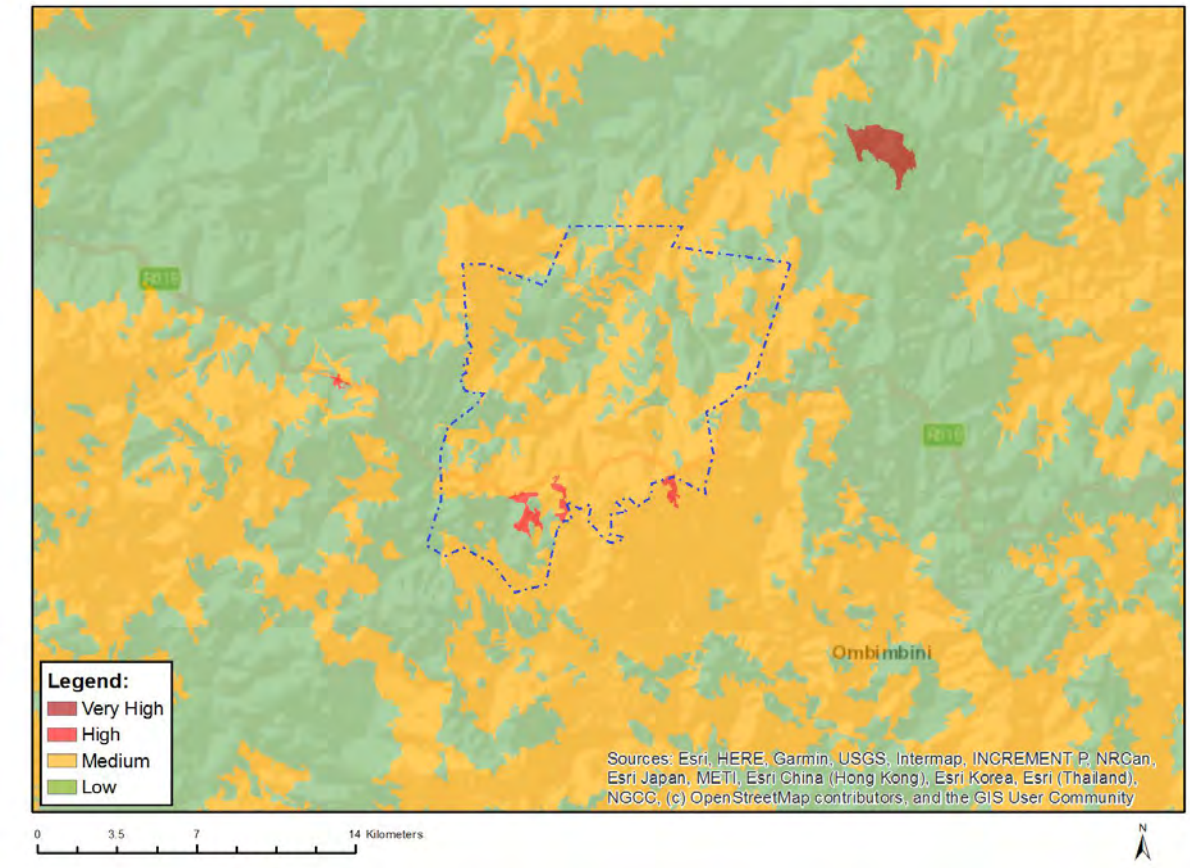


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

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

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



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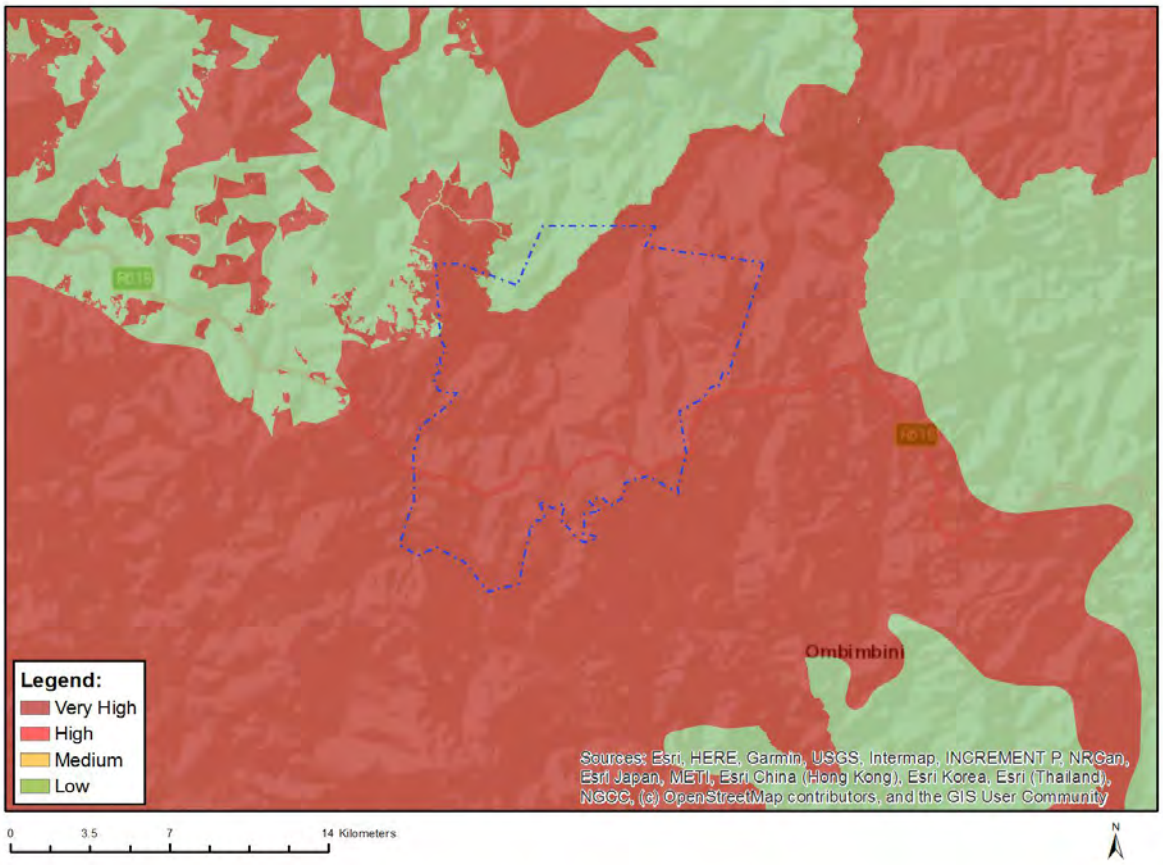
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Ocotea kenyensis
High	Dierama erectum
High	Sensitive species 658
High	Helichrysum ingomense
High	Sensitive species 311
High	Gerbera aurantiaca
Low	Low Sensitivity
Medium	Faurea macnaughtonii
Medium	Sensitive species 1252
Medium	Ocotea kenyensis
Medium	Sensitive species 89
Medium	Dierama erectum
Medium	Dracosciadium italae

Medium	Sensitive species 658
Medium	Schizoglossum ingomense
Medium	Schizochilus gerrardii
Medium	Helichrysum ingomense
Medium	Sensitive species 738
Medium	Cassipourea gummiflua var. verticillata
Medium	Sensitive species 609
Medium	Sensitive species 1168
Medium	Sensitive species 1083
Medium	Sensitive species 814
Medium	Sensitive species 1152
Medium	Sensitive species 311
Medium	Sensitive species 313
Medium	Sensitive species 401
Medium	Gerbera aurantiaca
Medium	Sensitive species 191
Medium	Prunus africana

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)

Low	Low Sensitivity
Very High	Critical biodiveristy area 1
Very High	Critical biodiveristy area 2
Very High	Ecological support area
Very High	Ecological support area: species
Very High	FEPA Subcatchments
Very High	National Forestry Inventory
Very High	Ntendeka Wilderness Area
Very High	Endangered ecosystem
Very High	Vulnerable ecosystem
Very High	Protected Areas Expansion Strategy
Very High	Strategic Water Source Areas