TRENTRA (PTY) LTD

Wolvenkop Prospecting Right 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
The application for an Environmental Authorization in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), Environmental Impact Assessment Regulations 2014, Government Notice No. 327 - Government Notice No. 325 - Listing Notice 1 of 2014

Wolvenkop Prospecting Project

DMRE Reference No.: GP 30/5/1/1/2/ (10736) PR

January 2022

Report No: 3947/2022

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

TRENTRA (Pty) Ltd:

Wolvenkop Prospecting Right Application

BAR AND EMPR FOR MINING PERMIT

JANUARY 2022

CONTENTS PAGE

PART A

TABLES

FIGURES

APPENDICES

Appendix #	
Appendix A	Regulation 2 (2) Plan
Appendix B	Environmental Assessment Practitioner Details
Appendix C	Deeds List
Appendix D Screening Report	Department of Forestry' Right s, Fisheries and the Environment

EXECUTIVE SUMMARY

Trentra (Pty) Limited proposes to prospect for coal and pseudocoal on the Remaining Extent and portions 6 and 10 of the farm Wolvenkop 227 JS located in the Magisterial district of Bronkhorstspruit, namely Wolvenkop Prospecting Project. Trentra (Pty) Ltd submitted an application for a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act, 2004 (Act 28 of 2004). See **Appendix A** for the Regulation 2(2) plan for the prospecting right application.

Wolvenkop Prospecting project will be undertaken in three phases. Phase 1 will involve the following activities i.e., gathering of existing geological data in and around the prospecting right area, computer modelling of existing data, geomagnetic survey and modelling. This phase will be used to decide whether to commence with the second phase of the project. Phase 2 will involve the geological core drilling programme. A suitable number of geological core boreholes will be drilled on predetermined positions. The borehole cores will be logged, sampled and analysed. A pre-feasibility study will be compiled based on the results of drilling and the sampled core analyses. Phase 3 will be undertaken should phase 2 indicate the prospecting area to have sufficient coal reserves to warrant a viable coal mining operation. This phase will include drilling of additional geological exploration boreholes logging and analysis of the sampled cores. The entire prospecting site will be rehabilitated. Based on the results of the above prospecting activities, a mining feasibility report will be compiled.

The commencement of the proposed Wolvenkop Prospecting project will result in the undertaking of activities that are considered as listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) as amended (NEMA). In terms of the above-mentioned legislation, an application for an Environmental Authorisation must be submitted to the competent authority which application must be granted before the commencement of the proposed listed activities. In addition to the above, an Environmental Impact Assessment must be undertaken in support of the environmental authorisation application for the proposed listed activities. In view of the above, Trentra (Pty) Ltd 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 Wolvenkop Prospecting Project. An application for an environmental authorisation for the proposed Wolvenkop Prospecting Project was submitted to the Department of Mineral Resources and Energy, Gauteng Regional Office (Competent Authority) for their consideration. The application has ever since been accepted by the Department of Mineral Resources and Energy, Gauteng Regional Office with a reference number GP 30/5/1/1/2/ (10736) PR. In order to comply with the requirements of NEMA, a Basic Assessment Report (BAR) together with an EMPR must be compiled and submitted in terms of the requirements of the EIA Regulations, 2014.

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

Environmental baseline data used in this report has been obtained through desktop assessments for surface water quantities and qualities, geohydrological data, topographical analyses, soil surveys, vegetation surveys, wetland surveys 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 and by visual observations made during a field assessment. 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 Wolvenkop Prospecting area were determined and ranked according to their significance. Based on the impact assessment, recommendations were made for the mitigation of significant negative environmental impacts that will result from the proposed area.

PART A

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.: 0824981847

Email: tshepo@geovicon.co.za

Curriculum Vitae of the EAP is attached as **Appendix B**.

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 twenty-six years' experience in the geological and environmental consulting field. Geovicon Environmental (Pty) Limited has successfully completed consulting areas in the Mining sector (coal, gold, base metal and diamond), Quarrying sector (sand, aggregate and dimension stone), Industrial sector and housing sector. Geovicon Environmental (Pty) Limited has undertaken contracts within all the provinces of South Africa, Swaziland, Botswana and Zambia. During 2001 Geovicon Environmental (Pty) Limited entered the field of mine environmental management and water monitoring.

Geovicon Environmental (Pty) Limited is a Black Economically Empowered Company with the BEE component owning 60% of the company. Geovicon Environmental (Pty) Limited has three members 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 North West'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 (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 Wolvenkop Prospecting area as an environmental assessment practitioner. Mr Shakwane is the environmental assessment practitioner for the environmental impact assessment for the proposed Wolvenkop Prospecting area. He is registered with the South African Council for Natural Scientific Professions as a Professional Natural Scientist in terms of the section 20(3) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003). He is also a member of the International Association for Impact Assessment, South Africa.

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 Wolvenkop Prospecting area's basic assessment process.

1.2 WHO WILL EVALUATE AND APPROVE THE BAR AND EMPR?

Before the proposed project can proceed, an Environmental Assessment Practitioner (EAP) must compile an application for an Environmental Authorisation for triggered listed activities 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 area was submitted to the Department of Mineral Resources and Energy (DMRE), Gauteng 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 area, the EAP will also consult with the below listed state authorities.

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

- Gauteng Department of Agriculture and Rural Development
- Gauteng Department of Tourism
- Department of Human Settlement, Water and Sanitation (DWS) and
- Department of Forestry's, Fisheries and the Environment (DFFE)

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

Trentra (Pty) Ltd

1.3.2 Name of the Area

Wolvenkop Prospecting Right Area

1.3.3 Postal Address of Applicant

P. O. Box 90512

Garsfontein

Pretoria

0004

Tel: 012 347 07609

Fax: 086 575 1718

1.3.4 Responsible Person

Mr. Mojalefa Douglas Mongwe

1.3.5 Contact Person

Cell No. 074 554 1718

Email: douglas@xakwa.com

1.4 DESCRIPTION OF THE PROPERTY (LOCATION OF THE AREA)

1.4.1 Regional Setting

Refer to Figure 1 for the regional setting for the Wolvenkop Prospecting Right Area.

1.4.2 Physical Address and Farm Name of the Prospecting Area

Trentra (Pty) Ltd, Wolvenkop Prospecting Right Area

The Remaining Extent, portions 6 and 10 of the farm Wolvenkop 227 JS

1.4.3 Magisterial District & Regional Services Council

Magisterial: Bronkhorstpruit, Gauteng

District Municipality: City of Tshwane District Municipality

Metropolitan Municipality: City of Tshwane Metropolitan Municipality

1.4.4 Direction and Distance to Nearest Towns

Table 1: Direction and Distance to Nearest Towns.

TOWN	DIRECTION	DISTANCE (KM)
Verena	North East	5.2 km

Bulpan	South East	25 km
Bronkhorstpruit	South West	42.3km

1.4.5 Land Tenure of Immediate and Adjacent Land

The Land tenure plan for the properties within and immediately around the proposed Wolvenkop Prospecting Right area is indicated on

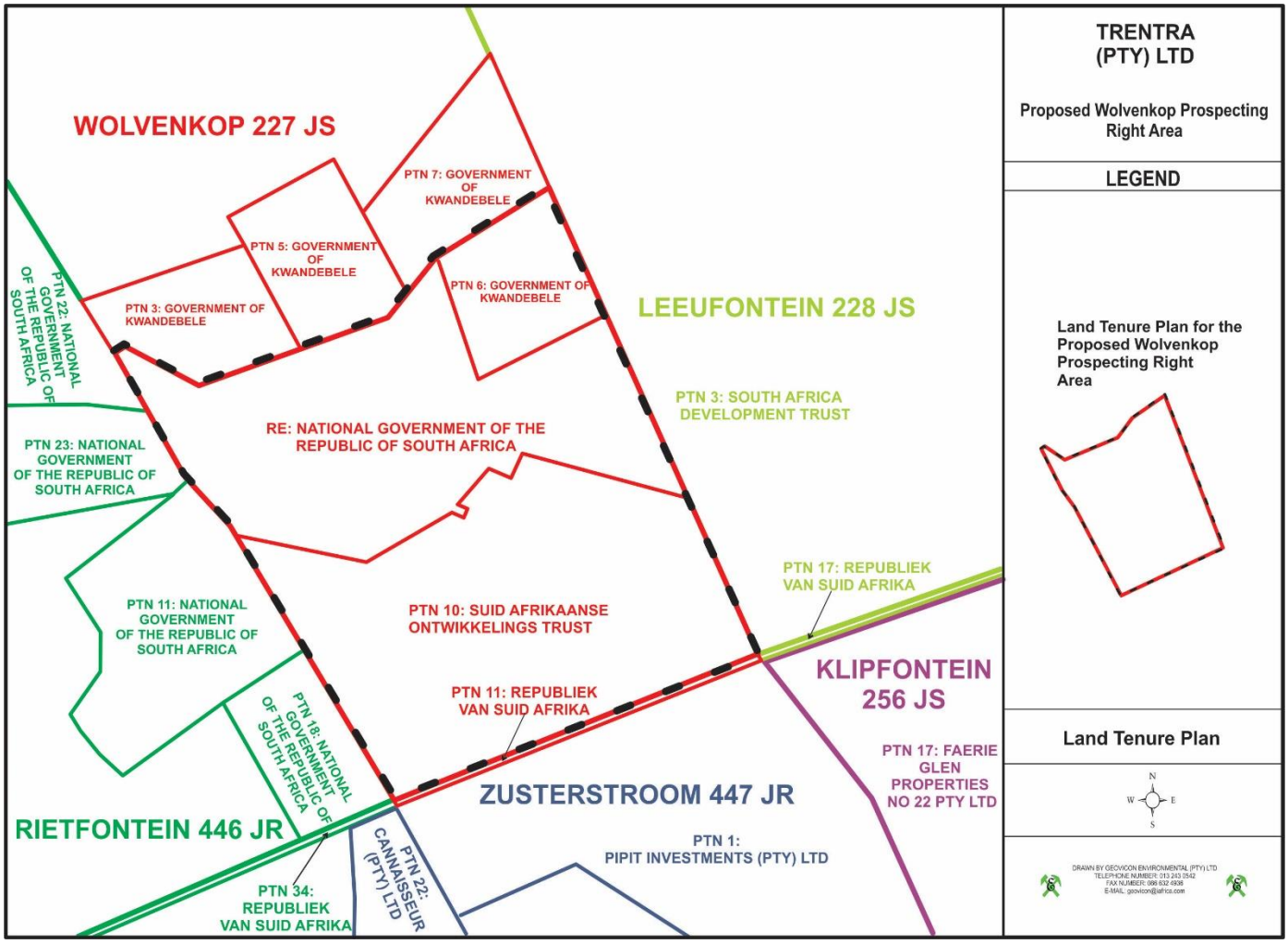

Figure 2 and described in Table 2.

Table 2: Schedule of properties listing surface ownership within Wolvenkop Prospecting Right Area

FARM NAME AND NUMBER	21 DIGIT SURVEYOR GENERAL CODE	DESCRIPTION OF SUB-DIVISION	SURFACE OWNER
Direct Surface Owners			
Wolvenkop 227 JS	T0JS00000000002270000	RE*	NATIONAL GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA
Wolvenkop 227 JS	T0JS00000000002270006	Portion 6*	GOVERNMENT OF KWANDEBELE
Wolvenkop 227 JS	T0JS00000000002270010	Portion 10*	SUID-AFRIKAANSE ONTWIKKELINGS TRUST
Adjacent Surface Owners			
Wolvenkop 227 JS	T0JS00000000002270003	Portion 3	GOVERNMENT OF KWANDEBELE
Wolvenkop 227 JS	T0JS00000000002270005	Portion 5	GOVERNMENT OF KWANDEBELE
Wolvenkop 227 JS	T0JS00000000002270007	Portion 7	GOVERNMENT OF KWANDEBELE
Wolvenkop 227 JS	T0JS00000000002270011	Portion 11	REPUBLIEK VAN SUID AFRIKA
Leeufontein 228 JS	T0JS00000000002280003	Portion 3	SOUTH AFRICA DEVELOPMENT TRUST
Leeufontein 228 JS	T0JS00000000002280017	Portion 17	REPUBLIEK VAN SUID AFRIKA
Klipfontein 256 JS	T0JS00000000002560017	Portion 17	FAERIE GLEN PROPERTIES NO 22 (PTY) LTD
Zusterstroom 447 JR	T0JR00000000004470001	Portion 1	PIPIT INVESTMENTS (PTY) LTD
Zusterstroom 447 JR	T0JR00000000004470022	Portion 22	CANNAISSEUR (PTY) LTD
Rietfontein 446 JR	T0JR00000000004460011	Portion 11	NATIONAL GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA
Rietfontein 446 JR	T0JR00000000004460018	Portion 18	NATIONAL GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA
Rietfontein 446 JR	T0JR00000000004460022	Portion 22	NATIONAL GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA
Rietfontein 446 JR	T0JR00000000004460023	Portion 23	NATIONAL GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA
Rietfontein 446 JR	T0JR00000000004460034	Portion 34	REPUBLIEK VAN SUID AFRIKA

***= Wolvenkop Prospecting Right Project area lies on these portions**

1.4.6 Locality Plan

Refer to Figure 3 for the locality plan of the Wolvenkop Prospecting Right Area.

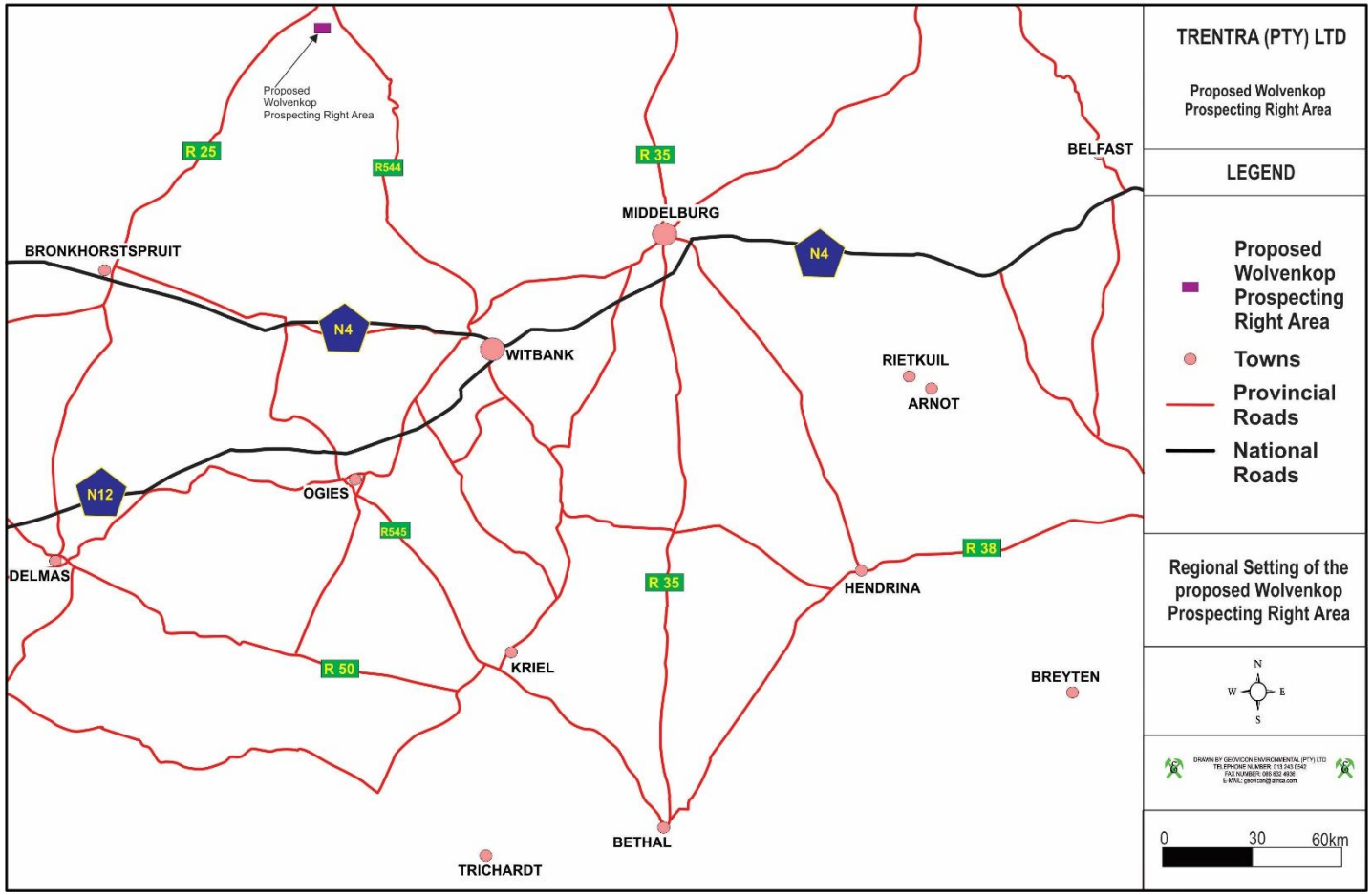

Figure 1: Regional Setting for Wolvenkop Prospecting Right Area

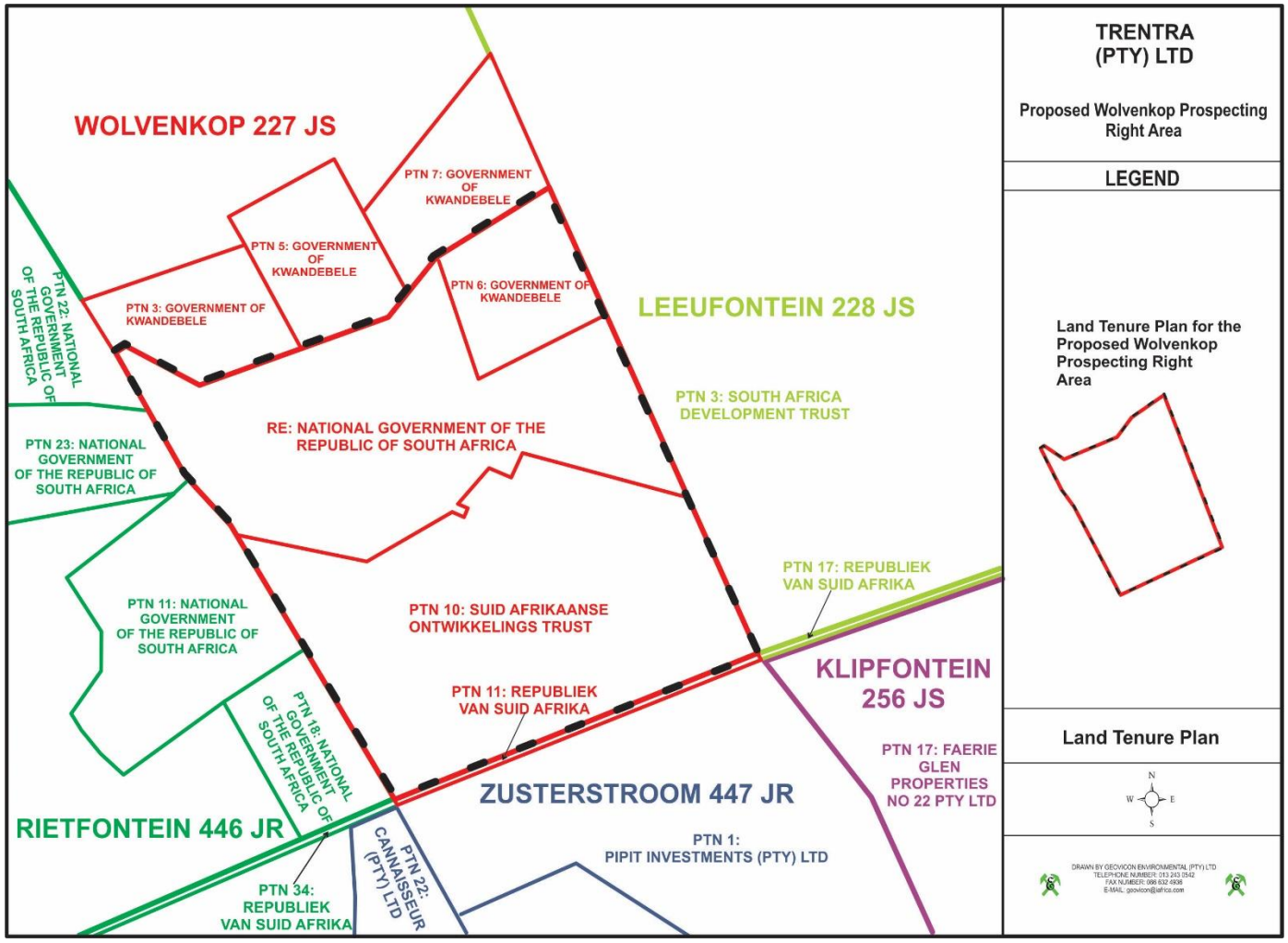

Figure 2: Land Tenure Plan for the proposed Wolvenkop Prospecting Right Area

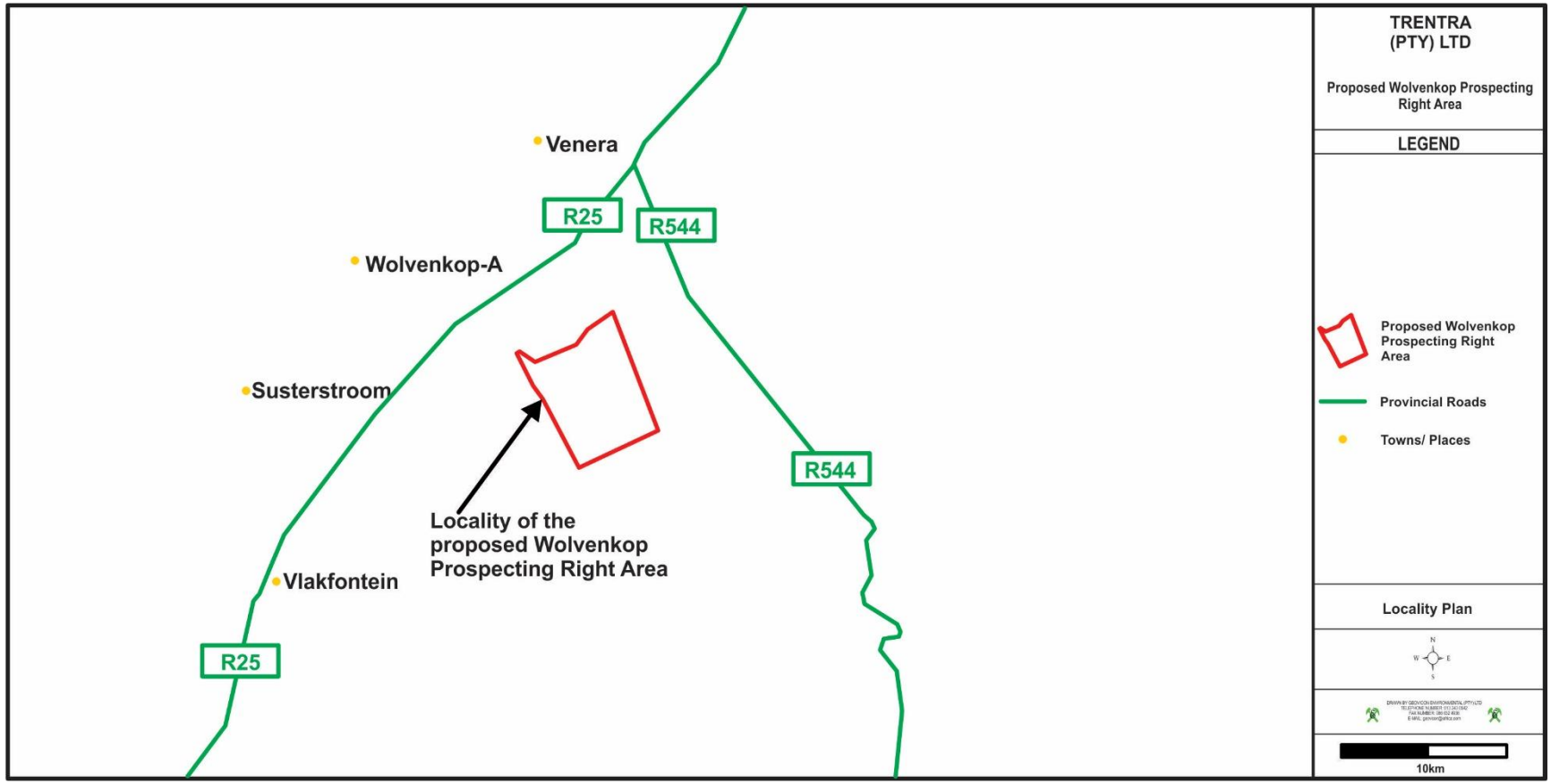

Figure 3: Locality Plan for the proposed Wolvenkop Prospecting Right Area

SECTION TWO

Description of the Scope of the proposed Area

2 DESCRIPTION OF THE SCOPE OF THE PROPOSED AREA

2.1 LISTED ACTIVITIES AND SPECIFIED ACTIVITIES

Trentra (Pty) Ltd proposes to undertake coal and pseudocoal prospecting activities over the Wolvenkop Prospecting Project Area, which occurs on the Remaining Extent, portions 6 and 10 of the farm Wolvenkop 227 JS within the Magisterial District of Bronkhorstspruit, namely the Wolvenkop Prospecting Area. The proposed area entails prospecting for coal using diamond core drilling. Access to the prospecting area will be via existing roads.

Before the proposed Wolvenkop Prospecting Right Area can be commenced with, an Environmental Authorisation must be obtained by Trentra (Pty) Ltd. In view the above, Trentra (Pty) Ltd has applied for an Environmental Authorisation for listed activities within the proposed area. The above-mentioned environmental authorisation application was acknowledged by the Department. This section will indicate the activities that were included in this environmental authorisation application. Table 3 is compiled as prescribed by the DMRE BAR and EMPR template and reflect all Wolvenkop Prospecting Right area activities applied for.

2.2 DESCRIPTION OF THE PROPOSED WOLVENKOP PROSPECTING RIGHT AREA

Trentra (Pty) Ltd proposes to prospect for coal and pseudocoal over the Wolvenkop Prospecting Area. These activities will be undertaken on the Remaining Extent, portions 6 and 10 of the farm Wolvenkop 227 JS. The proposed area entails exploration for coal via the diamond core drilling methods.

Table 3: Proposed Wolvenkop Prospecting Right Area listed Activities

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
PROPOSED MODDERFONTEIN PROSPECTING AREA LISTED AND SPECIFIC ACTIVITIES			
NATIONAL ENVIRONMENTAL MANAGEMENT ACT			
Conducting prospecting activities within the Wolvenkop Prospecting area for the exploration of coal 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.	1258.60 hectares (prospecting right area)	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).	NO. 327

2.2.1 Target Mineral

Coal found within the Witbank Coalfield.

2.2.2 Prospecting Method Used at the Wolvenkop Prospecting Right Area

The proposed Wolvenkop Prospecting Right 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, hence will be described in this section of the report.

The field mapping 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 site 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 coal seams and will be logged by the geologist. The coal samples will be sent to the laboratory for quality and washability determination. This data will form the basis for the geological modelling and financial evaluation.

2.2.2.1 Planned Life of Area

The current estimated life of the proposed Wolvenkop Prospecting Right Area is three years.

2.3 WOLVENKOP PROSPECTING RIGHT AREA SURFACE INFRASTRUCTURE DESCRIPTION

2.3.1 Access Roads

There are various main & minor roads passing over the proposed area. Some of these roads will be used to access the proposed Wolvenkop Prospecting Right area. Existing roads to be used for the proposed area include the R25 and the R544 Provincial Roads, a secondary road and a number of dirt roads. Where no roads exist, tracks will be used to access the drilling sites. No clearing of natural vegetation will be undertaken.

2.3.2 Power line Infrastructure

Diesel powered vehicles and machinery will be used for the proposed project.

2.3.3 Water Supply Infrastructure

Water will be required at the proposed project area for the purpose of supplying service water, potable water and fire protection water. Service water will be required for the operation of machinery and dust suppression. Potable water supply will be required for domestic water use within the campsite and drilling sites. Fire water will be required for firefighting purposes. A water tank will be used for the storage of water at the proposed prospecting site.

Water at the drilling sites will be sourced from existing boreholes, from a portable water supplier or local municipality. Water will be trucked with a water cart.

2.3.4 Workshops and Buildings

No workshops and office buildings will be required for this area. 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

Industrial Waste

Hazardous waste to be generated includes mineral residue, hydrocarbon wastes (oil and liquid fuel wastes) and sewage waste.

Mineral residue will include cores, muds and drilling chips generated during the drilling of the exploration boreholes.

Oil waste and liquid fuels waste include used oils from mine machinery and vehicles and diesel/petrol waste.

Waste Water

Polluted water (mud water/sludge from drilling operation) and sewage waste will be generated from the drilling sites and campsite.

General Waste

General waste to be generated from the proposed area include domestic waste.

Domestic waste will include old food, polystyrene, old stationary, discarded PPE and old clothing generated from the drilling and campsites.

2.3.5.2 Waste Management Facilities

Industrial Waste

Mineral residue will be removed from the site and disposed of in a registered waste disposal site.

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.

Waste/Polluted Water

The sludge will be dried and buried in the sump before backfilling and rehabilitation of the sump.

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

General Waste

The general waste that will be generated is domestic waste. This waste will be collected in 210 litre drums and disposed of at a registered domestic waste disposal site.

2.4 WOLVENKOP PROSPECTING AREA METHOD STATEMENT

In terms of DMRE BAR and EMPR template, Trentra (Pty) Limited must describe the methods and technology to be employed for the proposed area. 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 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.

2.4.1.2 Field Mapping

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

2.4.1.3 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/Geomagnetic surveys and data interpretation

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

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

2.4.2 Construction Phase

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

2.4.2.1 Establishment of access

The R544 Provincial Road is situated to the east from the proposed Wolvenkop Prospecting area. A number of unknown dirt roads and tracks lie in close proximity to the proposed prospecting area. Access to the site will hence be through these 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 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 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.

2.4.3.2 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.

2.4.4 Decommissioning phase

2.4.4.1 Final Rehabilitation

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

Post closure, the prospecting area will consist of re-vegetated areas with vegetation cover comparable to the surrounding areas. 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.

2.4.4.2 Pre-feasibility study

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

2.4.4.3 Mining feasibility study

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

2.4.5 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 in to the Department of Mineral Resources and Energy.

SECTION THREE

Policy and legislative context

3 POLICY AND LEGISLATIVE CONTEXT

3.1 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA, 1996 (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 area 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 area that was 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, 1998 (ACT NO. 107 OF 1998)

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, 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 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. 327, 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, 2004 (ACT NO. 39 2004)

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 Trentra (Pty) Ltd 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, 1999 (ACT NO. 25 OF 1999)

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, 2004 (ACT NO. 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 MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002 MPRDA)

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 mining area. 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 area was submitted to the Department of Mineral Resources and Energy as the competent authority.

3.7 NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998 NWA)

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 mining and related activities aimed at the protection of water resources.

No water use licence application will be submitted to the Department of Water and Sanitation for their consideration. However, measures will be undertaken to ensure that requirements in terms of the NWA and the GN 704 are complied with where necessary.

3.8 NATIONAL ENVIRONMENTAL MANAGEMENT, 2008 (ACT NO. 59 OF 2008 WASTE ACT)

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.

No waste management activities are triggered by the proposed area, hence no application in terms of the NEMWA was submitted to the Department of Mineral Resources and Energy.

3.9 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

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.

This section of the BAR and EMPR will indicate the need and desirability for the proposed Wolvenkop Prospecting Right Area.

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

The information that will be obtained from the prospecting to be done will be necessary to determine, should coal be found, how and where the coal will be extracted and how much economically viable coal reserves are available within the proposed prospecting area.

Trentra (Pty) Limited expects that substantial benefits from the area (should coal be found) will accrue to the immediate area, the sub-region and the province of Gauteng. These benefits must be offset against the costs of the area, including the impacts to land owners.

The potential benefits of the proposed area are:

Long-term, national benefits of reliable power supply and the resultant socio-economic benefits.

Highly significant benefits to the province of Gauteng in terms of the coal supply.

Potential reduction in crime because of short-term job creation during construction (providing farm safety and security measures are implemented), but also in the long-term in the region, as a result of job creation.

Local growth in the economy of the towns of Bronkhorstspruit 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.

Trentra (Pty) Ltd to undertake exploration for coal to determine whether or not the area consist of coal and if coal is available whether the coal reserves are found quantities that have economic value. The proposed activity will include the drilling of exploration boreholes. The associated activities/infrastructure will include, an access to the site and a campsite.

5.1.1 Location Alternatives

The location alternative considered for the proposed area 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.

5.1.1.1 Prospecting Sites and Access Routes

Two alternatives were looked into i.e., constructing new roads or using existing roads and establishing tracks.

Based on the impacts on vegetation and potential erosion the construction of new roads will have, the use of existing roads and existing or new tracks was considered.

5.1.1.2 Campsite Location

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

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

5.1.2 Design/Layout Alternatives

Since no complicated surface infrastructure will be required for this area no design and layout alternatives for the proposed area were determined.

5.1.3 Technology Alternatives

Based on the policies of the Department of Water and Sanitation, the local municipalities and the prospecting right area itself, it was determined that the only feasible technological way of undertaking the proposed activities would be to use energy currently available to the applicant (diesel and petrol), water from the landowner or nearby mine and existing waste management facilities from the nearby mine for the operation of the proposed area. In view of the above, no technology alternatives were considered for this area.

5.1.4 Input Material Alternatives

As mentioned above, current water sources used by the nearby mine and currently available energy will be used for the operation of the proposed area. In view of the above, no in-put material alternatives were considered for this area. Note that no new building facilities will be constructed at the area site since existing or movable facilities will be used for the proposed area.

5.1.5 Operational Alternatives

5.1.5.1 Exploration Drilling Methods

Drilling of coal is used to determine the depth, thickness and quality of the coal at any point across a prospecting area. Drilling is also used to determine the strata with which the coal is associated. Drilling can either be done by non-core drilling or core drilling techniques.

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, the preferred drilling methods is the core drilling technique using the diamond drill.

5.1.5.2 Transportation

See access route alternatives.

5.1.6 No Go Option

Trentra (Pty) Ltd intends on exploring the proposed area in order to determine availability of coal. If it can be determined that the area has coal of economic value, potential mining operations undertaken in a sustainable manner, will contribute to job creation within the City of Tshwane Local Municipality and beyond. Potential mining operations will also assist with the establishment of small and medium businesses and infrastructure development, community development and poverty eradication areas 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.

5.2 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 or 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, EMPR, 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 to be 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 area.

Trentra (Pty) Ltd is applying for an Environmental Authorisation for the proposed Wolvenkop Prospecting Right 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 Wolvenkop Prospecting area. The public participation process for the proposed area is 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
- comments on the findings of the EIA.

The following are and will be conducted in undertaking of the public participation process for the proposed area.

5.2.1 Registration and BAR Phase

The public participation process has commenced by providing 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 14th of January and will end on the 14th of February 2022. Note that all parties will be provided enough time (at least 30 days) to comment on the reports.

5.2.1.1 Notification of potential interested and affected parties

The following methods of notification are used to notify the potential interested and affected parties of the opportunity to register and comment on the draft BAR/EMPr during the public participation process for the proposed area:

- On the 13th of January 2022, notices inviting potential interested and affected parties to register and comment on the draft BAR and EMPR for the proposed Wolvenkop Prospecting project were fixed at three sites. The notices were compiled to comply with the requirements of Regulation 41(3) of the EIA Regulations, 2014.
- Written notices were sent to all surface owners and lawful occupiers of the land on which the proposed area will be undertaken, owners/lawful occupiers of land immediately adjacent to the proposed area, the municipal councillors of the ward in which the proposed area is situated, representatives of the City of Tshwane Metropolitan Municipality which has jurisdiction over the proposed area. These notices were used to invite the parties to comments on the draft BAR and EMPR.
- The draft BAR and EMPR is submitted to all the commenting authorities for their comments.
- A copy of the draft BAR and EMPR will be placed in the Verena Public Library for the public to peruse and make comments.

5.2.1.2 Registered Interested and Affected Parties

The following are currently registered as interested and affected parties for the Wolvenkop Prospecting area:

- Department of Mineral Resources and Energy, Gauteng Regional Office (Competent Authority),
- Department of Water and Sanitation, Gauteng Regional Office (Commenting Authority)
- Department of Forestry, Fisheries and the Environment (Commenting Authority)
- City of Tshwane Metropolitan Municipality

- Gauteng Department of Tourism
- Ward Councillors (Ward no. 105- City of Tshwane Local Municipality)
- Land owners and lawful occupiers within the Wolvenkop Prospecting Project Area
- Land owners and lawful occupiers immediately adjacent to the Wolvenkop Prospecting Project area

5.2.1.3 Proof of Consultation

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

5.2.1.4 Finalisation of Interested and Affected Party Database

On expiry of registration period, the database of interested and affected parties will be finalised. All parties who indicated the interest of being registered as interested and affected parties were 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 area and the competent authority are automatically registered interested and affected parties.

5.2.2 Draft Basic Assessment Report

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

5.2.2.1 Comments, Issues and Responses on the Draft Scoping Report

On lapsing of the commenting period, all comments and issues received from the interested and affected parties will be recorded and responses to the comments made. All reactions to the responses to the comments and issues raised will also be recorded.

The comments and issues raised by the interested and affected parties, their responses and reaction to the response will be presented in the final BAR and EMPr.

5.3 Environmental Attributes (Baseline Information)

5.3.1 Geology

The Wolvenkop Prospecting Right area falls within the Witbank Coalfield of the well-known Middle Ecca stage Coal Province. Several coal mines have been, or are operating within this coalfield.

The Wolvenkop Prospecting Right area is situated in close proximity to current small- and large-scale operating collieries, which have an impressive history of exploration and mining activities, associated with them. The geology, sedimentary deposition and mineralogy of the coal seams within the Witbank Coalfield are well understood.

5.3.1.1 Witbank Coalfield

The Witbank coalfield extends The Witbank coalfield extends over a distance of 180 km from Brakpan/Springs in the west to Belfast in the east and about 40 km in a north-south direction. The Witbank Coalfield includes the districts of Benoni, Nigel, Brakpan/Springs, Delmas, Dryden, Bronkhorstspruit, Kendal, Ogies, Witbank, Middelburg, Arnot and Belfast encompassing a surface area of approximately 7 200 km^2. The Witbank Coalfield has a boundary with the Highveld coalfield to the south, the South Rand coalfields to the southwest and the Eastern Transvaal coalfield to the southeast.

The Witbank coalfield is the centre of the coal mining industry in South Africa. It has been mined since 1890 and is presently producing more than 50% of the South African coal production, and will remain of great importance for the economy for a considerable time.

The coal seams of the Witbank coalfield are at a shallow depth, with the lowest seam seldom reaching 100 metres in the deepest lying parts of the field. Due to erosion of the sediments, all that remains of the Karoo System in this area is that portion from the lower part of the Middle Ecca Stage to the Dwyka tillite. Within the Witbank coalfield, the Karoo System un-conformably overlays the Witwatersrand System, the Waterberg System and the Bushveld Igneous Complex.

The strata in which the coal seams occur consist predominantly of fine, medium and coarse-grained sandstone with subordinate mudstone, shale, siltstone and carbonaceous shale. Ideally there are seven coal seams with varying degrees of persistence numbered from below as No. 1, No. 2, No. 3, No. 4 lower, No. 4 upper, No. 4 A and No. 5 Seams.

5.3.1.2 Description and distribution of the coal seams within the Witbank sector.

The coal seams in the Witbank Coalfield area mainly flat lying to gently undulating. The coal seam topography and aerial distribution are commonly controlled by pre-Karoo topography. Steep dips are encountered where seams abut against pre-Karoo hills. The distribution of some 7 of the coal seams (No. 4 and No. 5 coal seams) is largely limited by present-day surface topography.

The Karoo strata in the Witbank coalfield are virtually unfolded and have not been subjected to marked displacements, except where intersected by dolerites. Faults do occur in the coal seams and where faulting occurs it is usually associated with steeper dips on the flanks of pre-Karoo valleys or hollows. Dolerite intrusions, in a form of sills and dykes, have adversely affected the most areas of the coalfield.

Dykes are ubiquitous throughout the area, the main trends being east, north-east and north. The most prominent of all is the Ogies dyke, which has been traced on surface over a strike length of approximately 100 km. Two main dolerite sills are known in this coalfield i.e. non-porphyritic (attains thickness of up to 50 m) and porphyritic type (attains thickness of up to 15 m).

The proposed Wolvenkop Prospecting Right area falls within the Witbank Coalfield of the well-known Middle Ecca stage Coal Province. Several coalmines have been, or are operating within this coalfield.

The proposed Wolvenkop Prospecting Right area is situated in close proximity to small and large-scale collieries, which have an impressive history of exploration and mining activities, associated with them. The geology, sedimentary deposition and mineralogy of the coal seams within the Witbank Coalfield are well understood.

Dykes are ubiquitous throughout the area, the main trends being east, northeast and north. The most prominent of all is the Ogies dyke, which has been traced on surface over a strike length of approximately 100km.

Two main dolerite sills are known in this coalfield i.e. non-porphyritic type (attains thickness of up to 50m) and porphyritic type (attains thickness of up to 15m).

The host rocks of the coal seams comprise of a sequence from the base of the Karoo sequence upwards, a diamictite of probable glacial origin, proglacial varved siltstone and pebbly mudstone, and paraglacial gravel and conglomerate, overlain by swamp, fluviodeltaic, and shoreline deposits. The total thickness of the Middle Ecca is up to 180 meters and the coal zone has a stratigraphic thickness averaging approximately 70 metres.

The No. 1 seam

This coal seam is the least important of the economically mineable coal seams. It is generally better developed in the northern and eastern parts of the coalfield. Elsewhere the coal seam is patchily developed and thin. The coal seam typically consists of lustrous to dull coal with local shaly sandstone partings giving rise to a local No. 1 Lower Seam.

In areas where this seam is developed to a mineable thickness, the inherent qualities of this coal allow for beneficiation to a good quality low ash metallurgical coal and steam coal.

The No. 2 seam

This coal seam contains approximately 70% of the Witbank coalfield and also contains some of the best quality coal. In the main central part of the coalfield it attains an average thickness of 6.5 metres. In some areas of the coalfield the No. 2 coal seam may commonly attains a thickness of approximately 8 metres. A thick sandstone parting occurs locally in the upper parts of the seam, splitting the seam into a No. 2 and a No. 2 Upper Seam.

The No. 2 coal seam consists of good quality low ash metallurgical coal and steam coal for export.

The No. 3 seam

The No. 3 coal is very thin usually less than 0.5 metres thick and has in the past been considered uneconomic. Although considered uneconomic it is locally of high quality and where it attains a thickness of >0.8 meters, it could represent an important opencast resource.

The No. 4 seam

This seam contributes about 26% to the coal resources of the Witbank coalfield. It varies in thickness from 2.5 metres in the central Witbank area to 6.5 metres elsewhere where it contains numerous shale and sandstone partings. In addition to the No. 4 seam, the coal zone generally contains a 4 Upper and 4A seam, neither of which are at present of economic importance due to thinness, sporadic development, and poor quality. This seam contains dull to dull lustrous coal. The No 4 seam is mostly suitable for power generation.

The No. 5 seam

The No. 5 coal seam contributes only approximately 4% of the coal resources of the Witbank Coalfields. This coal seam has been largely eroded over large areas. It attains on average a thickness of 1.8 meters. The seam consists of mixed, mainly bright, banded coal, with thin shale and mudstone partings in a few localities.

Coalfields of South Africa

Figure 4: Coalfields of South Africa

5.3.2 Climate

5.3.2.1 Regional Climate

The proposed Wolvenkop Prospecting Right area is characterised by summer rainfall with very dry winters. Effectively three seasons, namely a cool dry season from May to mid-August, a hot dry season from mid-August to about October and a hot wet season from about November to April. MAP from about 500–700 mm. Frost fairly infrequent. Mean monthly maximum and minimum temperatures for Goedehoop (in the northern part of this vegetation unit) 35.3°C and –3.1°C for November and June, respectively.

Mean annual Rainfall is given below in table 4:

Table 4: The mean annual precipitation (MAP) at Bronkhorstspruit is 680.7 mm. The mean monthly rainfall depths of Wolvenkop Prospecting Right Area – Bronkhorstspruit

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
154.97	90.34	74.04	46.82	4.67	3.13	2.39	3.22	15.73	70.88	118.93	134.15

5.3.3 Topography

The area is characterised by a gentle undulating topography. The elevation ranges between about 850 up to 1 450 metres above mean sea level.

5.3.4 Soil

Well-drained, deep Hutton or Clovelly soils often with a catenary sequence from Hutton at the top to Clovelly on the lower slopes; shallow, skeletal Glenrosa soils also occur. Land types mainly Bb, Fa, Ba, Bd and Ac.

5.3.5 Current Land Use

Within and immediately adjacent to the prospecting right area, the land use includes agricultural activities (crop cultivation and grazing), livestock drinking, farm dams, residential areas(Communities and farmsteads) and an institutional area (Wolvenkop Special School).Figure 5 below visually indicates the current land uses in relation to the proposed Wolvenkop prospecting area.Figure 5: Current Land Use Map of the proposed Wolvenkop Prospecting Project area

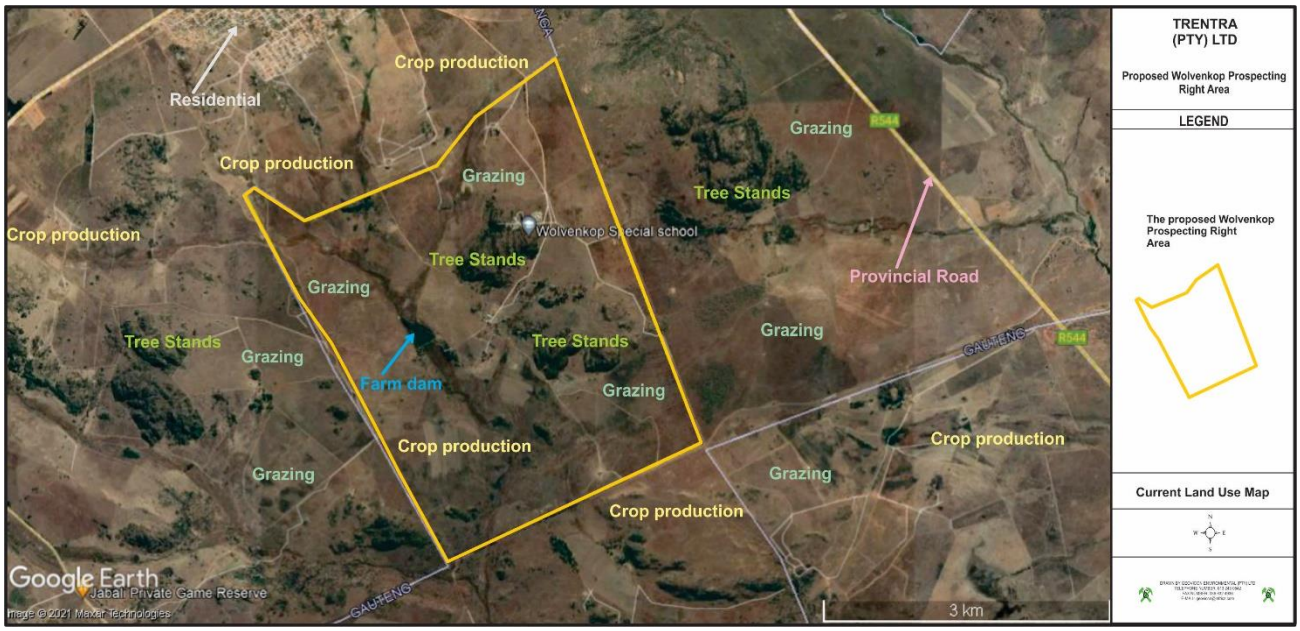

Figure 5: Current Land Use Map of the proposed Wolvenkop Prospecting Project area

5.3.6 Natural Vegetation/Plant Life

Mucina et al., (2006), is the most recent vegetation unit book for South Africa, Lesotho and Swaziland, it describes the vegetation type of the proposed Wolvenkop Prospecting area as 'Central Sandy Bushveld" or SVcb 12. This vegetation type occurs in the provinces of Limpopo, Mpumalanga, Gauteng and North-West, on low undulating areas, sometimes between mountains, and sandy plains and catenas with some low hills and pan depressions. The climate is temperate with strongly seasonal summer rainfall and very dry, cold winters.

Important Taxa Tall Trees: *Acacia burkei* (d), *A. robusta*, *Sclerocarya birrea* subsp. *caffra*.

Small Trees: *Burkea africana* (d), *Combretum apiculatum* (d), *C. zeyheri* (d), *Terminalia sericea* (d), *Ochna pulchra, Peltophorum africanum*, *Rhus leptodictya*.

Tall Shrubs: *Combretum hereroense*, *Grewia bicolor*, *G. monticola*, Strychnos pungens.

Low Shrubs: *Agathisanthemum bojeri* (d), *Indigofera filipes* (d), *Felicia fascicularis*, *Gnidia sericocephala.*

Geoxylic Suffrutex: *Dichapetalum cymosum* (d).

Woody Climber: *Asparagus buchananii*.

Graminoids: *Brachiaria nigropedata* (d), *Eragrostis pallens* (d), *E. rigidior* (d), *Hyperthelia dissoluta* (d), *Panicum maximum* (d), *Perotis patens* (d), *Anthephora pubescens*, *Aristida scabrivalvis* subsp. *scabrivalvis*, *Brachiaria serrata*, *Elionurus muticus*, *Eragrostis nindensis*, *Loudetia simplex*, *Schmidtia pappophoroides*, *Themeda triandra*, *Trachypogon spicatus*.

Herbs: *Dicerocaryum senecioides* (d), *Barleria macrostegia*, *Blepharis integrifolia*, *Crabbea angustifolia*, *Evolvulus alsinoides*, *Geigeria burkei*, *Hermannia lancifolia, Indigofera daleoides*, *Justicia anagalloides*, *Kyphocarpa angustifolia*, *Lophiocarpus tenuissimus*, *Waltheria indica*, *Xerophyta humilis*.

Geophytic Herb: *Hypoxis hemerocallidea*.

Succulent Herb*:* *Aloe greatheadii* var. *davyana.*

Biogeographically Important Taxa (Central Bushveld endemics) Graminoid: *Mosdenia leptostachys*. Herb: *Oxygonum dregeanum* subsp. *canescens* var. *dissectum*

Conservation Vulnerable. Target 19%. Less than 3% statutorily conserved spread thinly across many nature reserves including the Doorndraai Dam and Skuinsdraai Nature Reserves.

5.3.7 Surface Water

For the purpose of the National Water Resource Strategy, a requirement of the National Water Act (Act 36 of 1998), Department of Water Affairs and Forestry has delineated the entire country into representative water management areas with respective drainage regions i.e., primary, secondary, tertiary and quaternary drainage regions. The proposed Wolvenkop Prospecting area falls within the Olifants catchment management area. Primary drainage region B. Secondary drainage region B2. Tertiary drainage B20. Quaternary drainage region B20J (Figure 6).

Within the quaternary drainage region, the Wolvenkop Prospecting Project is situated within the catchment of the Wilge River. A tributary of the Wilge River drains Wolvenkop Prospecting Project area. The Wolvenkop Prospecting Project area is bisected (north-south) by the above-mentioned tributary of the Wilge River, which confluence with the Wilge River approximately four (4) kilometres of the proposed project.

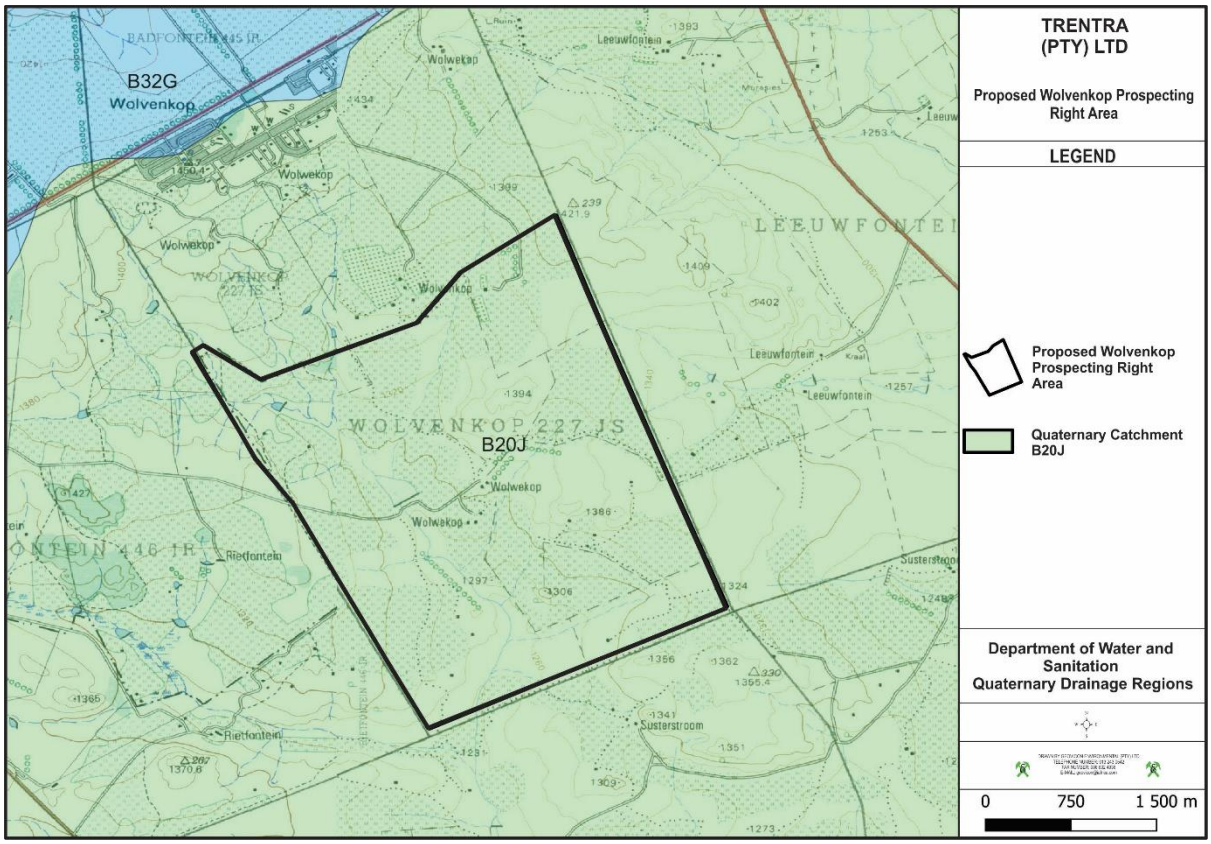

Figure 6: Drainage Regions within vicinity of the proposed Wolvenkop Prospecting Area

Table 5: Summary of the surface water attributes of the B20J quaternary catchment

Quaternary Catchment	Area km^2	MAP (mm)	PE_mm (mm)	MASR_mm (mm)
B20J	410	696,90	2165	65

5.3.8 Sensitive Landscapes

Trentra (Pty) Ltd recognises that all streams, rivers and wetlands should be treated as sensitive landscapes. To this extent, Geovicon Environmental (Pty) Limited, an independent environmental consulting company, undertook a desktop study over the prospecting right area to determine the presence of sensitive landscapes. See **Appendix D** for the Environmental Screening Report.

The proposed Wolvenkop Prospecting Right area is situated in the Central Sandy Bushveld / ecosystem in the Mesic Highveld Grassland bioregion (South African National Biodiversity Institute – SANBI) (Figure 7).

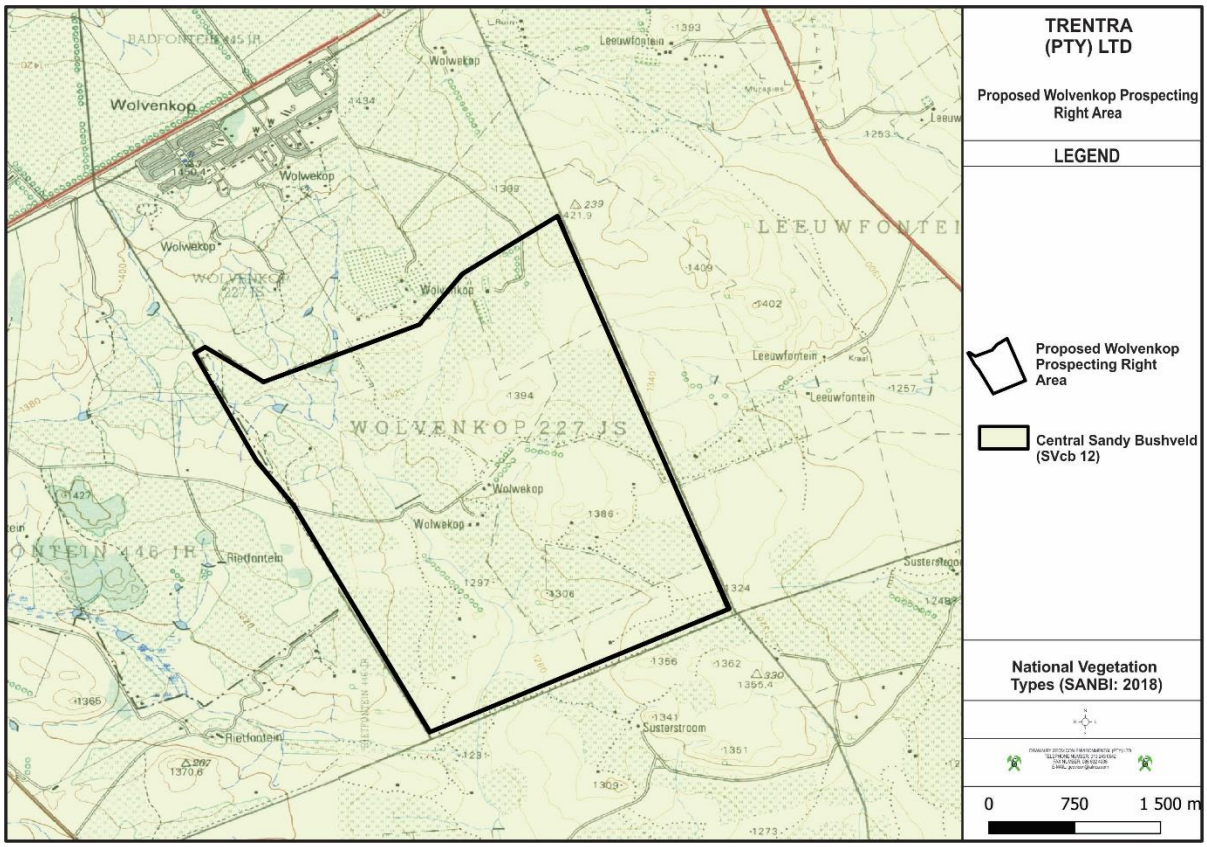

Figure 7: National Vegetation Map for the proposed Wolvenkop Prospecting Right Area

The proposed Wolvenkop Prospecting Right Area is not considered as threatened, since the ecosystem threat status confirms that the ecosystem has no threat status, see Figure 8 for a visual illustration of the aforementioned statement.

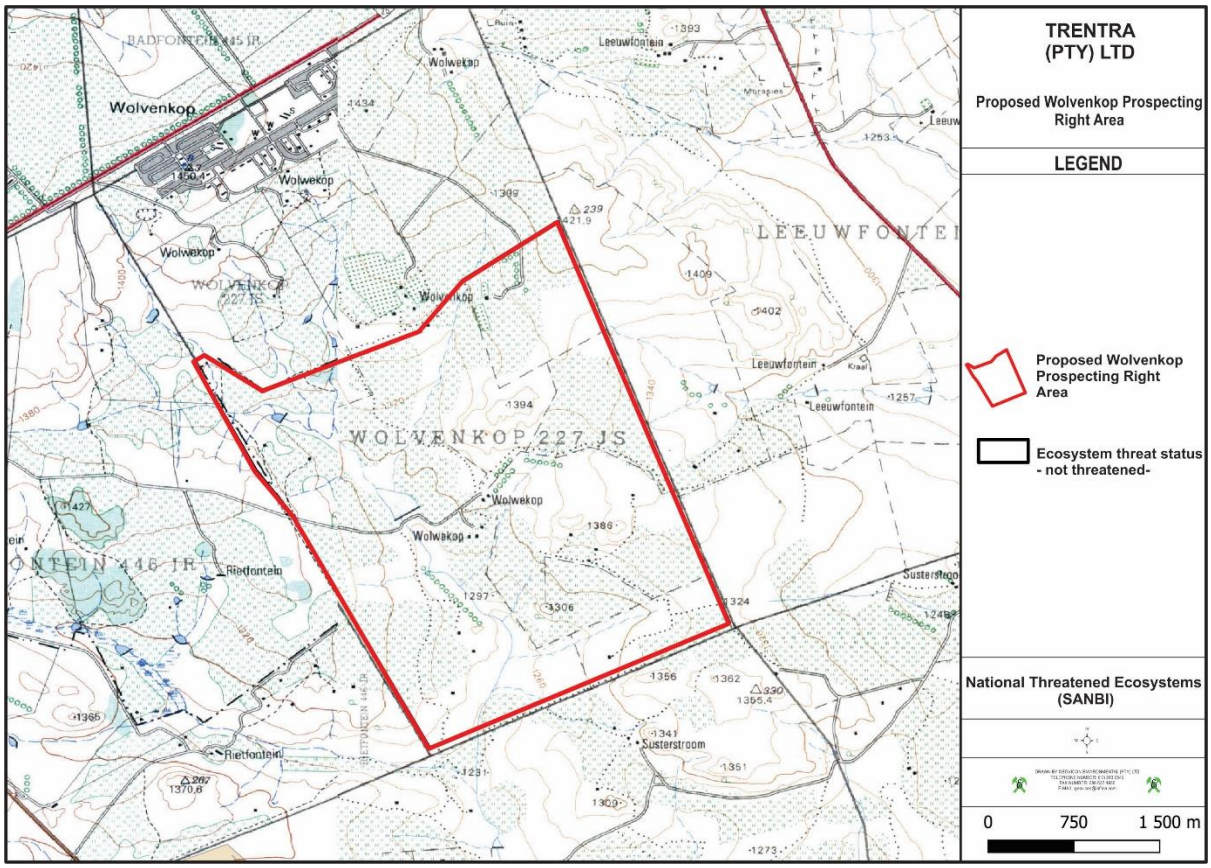

Figure 8: Threatened ecosystems in the vicinity of the proposed Wolvenkop Prospecting Right Area

The proposed Wolvenkop Prospecting Right area contains channelled valley bottom wetlands as well as seepage wetlands, for a visual illustration, see Figure 9 below.

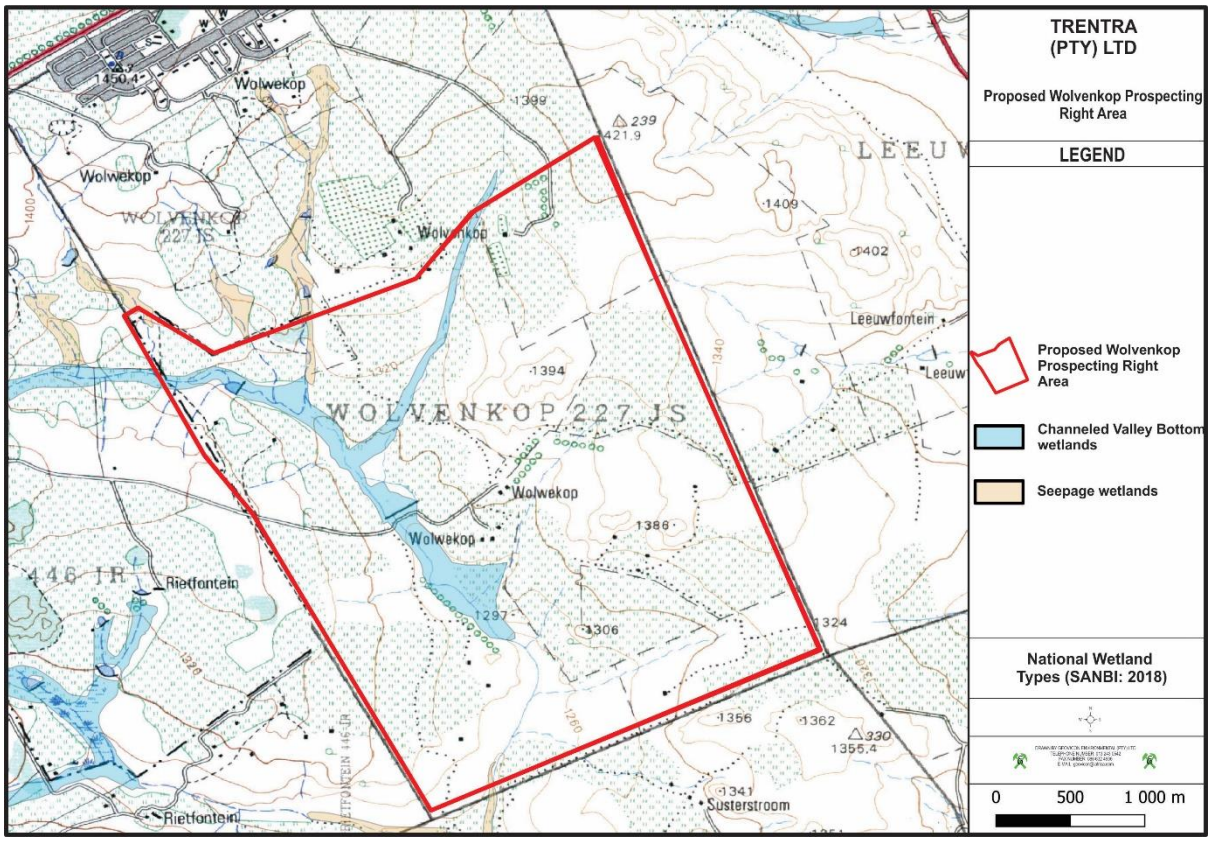

Figure 9: National Wetland Types in the vicinity of the proposed Wolvenkop Prospecting Right area (SANBI, National Wetland Map 5)

The proposed Wolvenkop Prospecting Right area is not situated in any River - National Freshwater Ecosystem Priority Area or in a Strategic Water Source Area (SANBI). The proposed Wolvenkop Prospecting Right area is associated with the Central Bushveld Group 3 wetland vegetation type, (Figure 10).

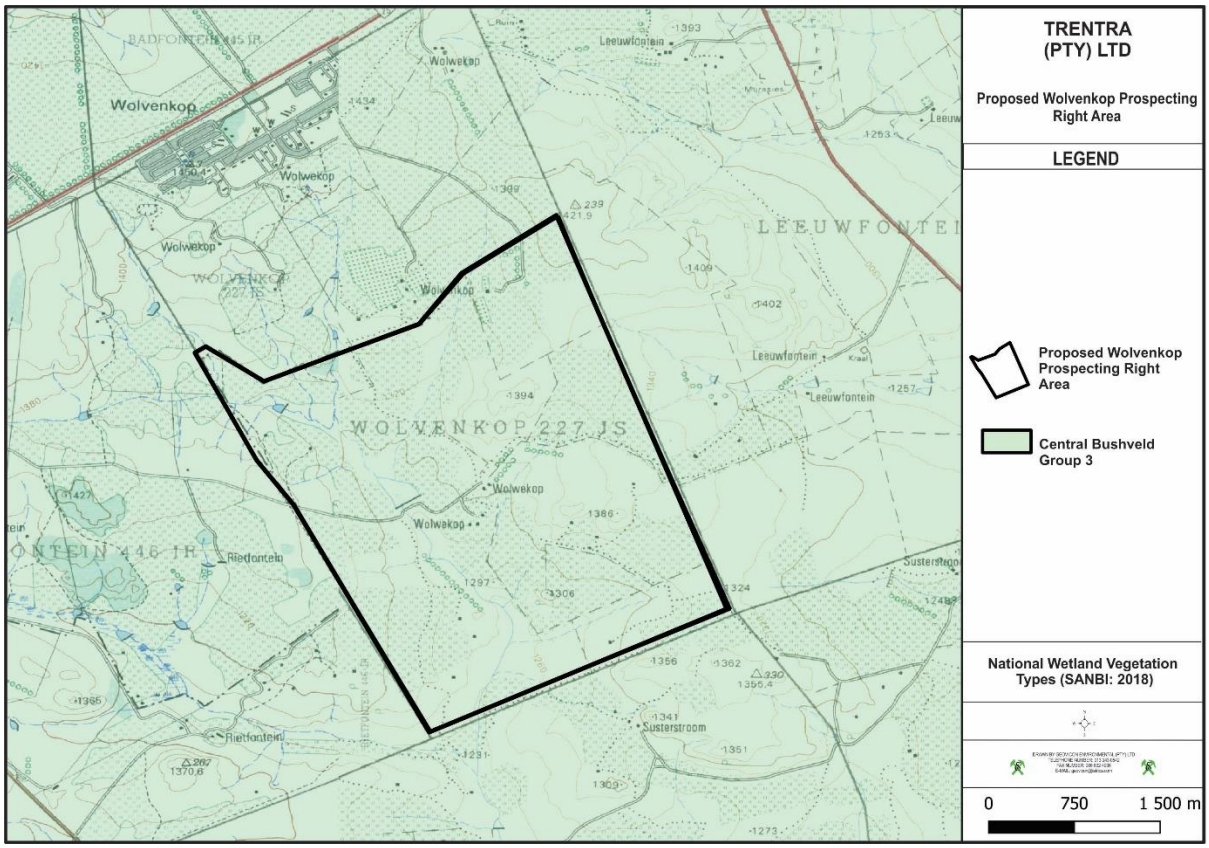

Figure 10:National Wetland Vegetation types (SANBI) associated with the proposed Wolvenkkop Prospecting Right Area

According to the **Gauteng Conservation Plan version 3.3 (2011)**, the proposed Wolvenkop Prospecting Right Area is situated in Critical Biodiversity Areas and Ecological Support Areas. According to the GIS data that was obtained, areas that are described as Critical Biodiversity Areas are characterised by the following factors; areas that may serve as habitats for Red Listed plant species, areas that are considered priority catchments, primary vegetation areas as well as bioclimatic zones. Figure 11 below is an illustration of the Gauteng Conservation Plan version 3.3 in relation to the proposed Wolvenkop Prospecting Right Area.

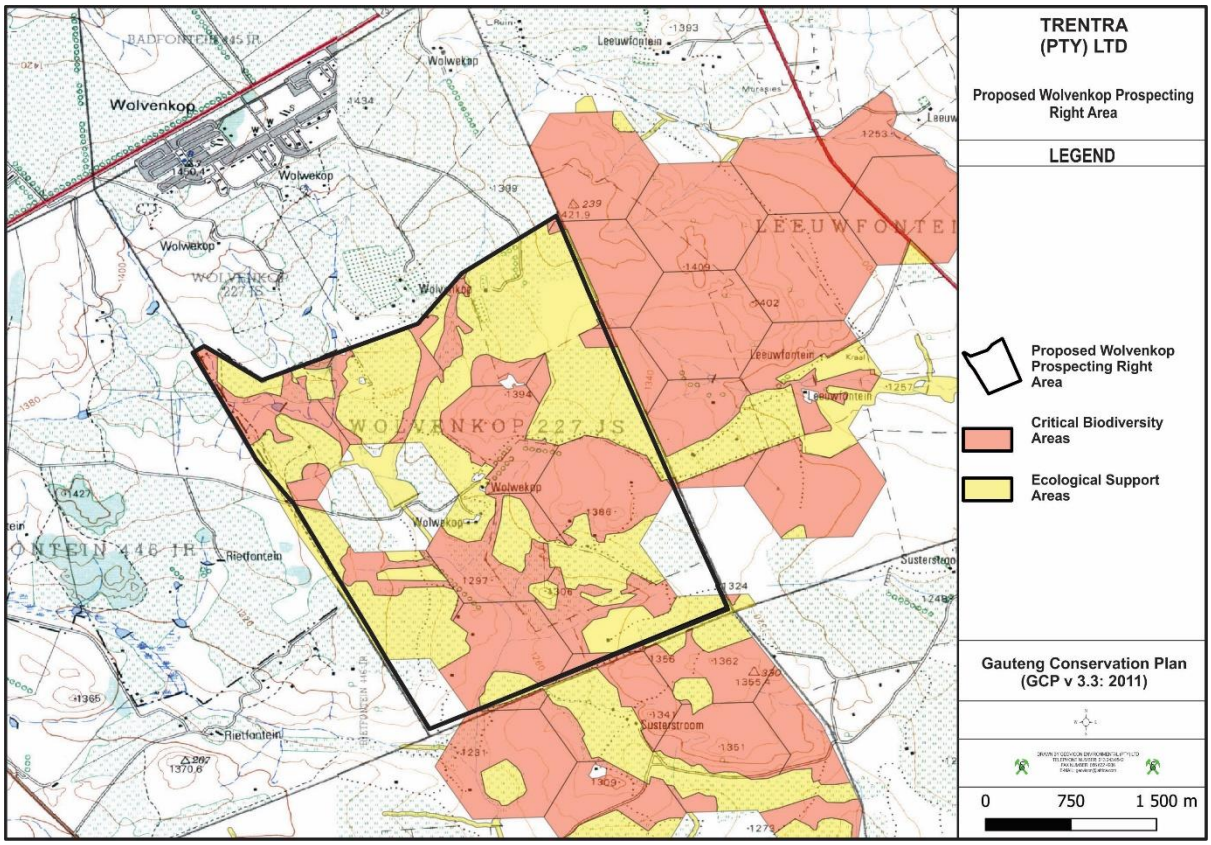

Figure 11: Gauteng Conservation Plan version 3.3 (2011)

5.3.9 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.

5.3.10 Noise

The proposed 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.

5.3.11 Socio-Economic Status

The proposed Wolvenkop Prospecting Area is situated in the City of Tshwane Metropolitan Municipality and is part of the City of Tshwane District Municipality, which is in the Gauteng province.

5.3.11.1 Population density, growth and location

City of Thswane Metropolitan Municipality is located in the City of Tshwane District Municipality of the Gauteng province, South Africa. The seat of City of Tshwane Local Municipality is Pretoria. According to the 2011 Census data, the City of Tshwane is home to approximately 2,9 million people. Tshwane's population is predominantly black Africans representing 2,2 million people, followed by a White population of approximately 600000 people, 59 166 Coloured individuals and 51 547 Asian individuals. About 37% of the population is classified as youth, making Tshwane one of the youngest cities in South Africa.

5.3.11.2 Major economic activities and sources of employment

The municipality's main economic sectors are community services and government, followed by finance and manufacturing. Metal products, machinery and household products are the largest sub-sectors within manufacturing. The City has a well-established manufacturing sector, with the automotive industry representing the most significant component.

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 area from the beginning and helps to ensure that the area, 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, Trentra (Pty) Ltd is obliged to comply with provisions of Chapter 4 for the intended environmental authorisation application for the activities (listed activities) within the proposed area.

Part 2 of chapter 4 of the EIA Regulations, 2014 contemplate process to be undertaken for the application for environmental authorisation for the proposed area, 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 area was submitted to the Department of Mineral Resources and Energy (DMRE), Gauteng 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, pertaining to surface water, geohydrological data, topographical analyses, soil surveys, vegetation surveys, wetland surveys and geological conditions. Weather data was acquired from the South African Weather Service. Historic land use was determined through available data and by visual observations made during various field studies. 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&EMPR 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 Wolvenkop 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.

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).

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 area unacceptable if they cannot be reduced or counteracted by significantly positive impacts, and management of these impacts is essential

Positive (No risk identified)	The impact, although having no significant negative impacts, may in fact contribute to environmental or economical health

6.3 RESULTS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

6.3.1 Assessment of the Wolvenkop Prospecting Area impacts/risks

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 sites, 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	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
The proposed prospecting activities will be undertaken concurrently with most of the current land uses over the area to be used for site establishment. 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.	Land use	Without mitigation					Use sites that are unused and that are in the degraded state for the proposed development. Use of the land will be done in agreement with the land owners. 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. All buffer zones instituted over the affected properties (residential and institutional areas) must be adhered to. No prospecting activities will be undertaken within the instituted buffer zones.
		S	M	S	M	M	
		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.	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							
							Any red listed plant species that may occur in the proposed prospecting project area, will be recorded and pictures will be taken and sent to the drilling crew to know which plants to avoid when drilling boreholes.
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	
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 32 meters will be created between the sites and the sensitive landscapes. 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.
		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							
							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.
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 Wolvenkop 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	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
The activities undertaken during the construction and the associated infrastructure will be visible from the nearby roads and properties. However, due to the undulating topography, visibility for the most part will most probably be restricted to short distances.	Visual Aspects	Without mitigation					Inform the land owner on the type of machinery and equipment to be used at the prospecting site. Ensure that lighting is conducted in manner that will reduce the impacts on visual aspects at night times.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
The site may be located in close proximity to a heritage site and may result in the destruction of the identified heritage site.	Sites of Archaeological and Cultural Importance	Without mitigation					The establishment of the Prospecting activities 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. Possible chance finds, encountered during the project development, must not be disturbed. The sites will be assessed by professionals.
		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	Socio economic aspects	Without mitigation					Recruitment will not be undertaken on site.
		S	L	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
PRE-CONSTRUCTION AND CONSTRUCTION PHASES							
the 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.		With mitigation					Farm labourers will not be employed unless agreed to with the farm owners.
		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	Natural Vegetation and Soils	Without mitigation					The drilling machinery will be maintained in good working order Ensure that the drilling of the exploration boreholes are 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.
		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							
may render the land not usable after the backfilling operation.							All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a licensed waste disposal facility. 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, sold waste disposal site or hydrocarbon recycling or treatment facilities.
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 exist 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.
		S	L	S	L	L	
		Without mitigation					
		S	L	S	L	N	
	Surface Water	Without mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
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.		S	L	S	M	L	No prospecting operations will be undertaken within 100 metres from the nearby steams and 32 meters from the nearby wetland areas. Sumps will be excavated for the collection of 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.
		With mitigation					
		S	L	S	L	L	
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.	Groundwater	Without mitigation					Ensure that the land owners' borehole yield are 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	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
This may even spread beyond the backfilling site via plume migration.							
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 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	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 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.
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
		S	M	S	H	H	
		With Mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
		S	S	S	L	L	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.

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					
		Without mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
DECOMMISSIONING AND CLOSURE PHASES							
The use of vehicles/machinery during the rehabilitation of the exploration sites may result compaction of soils and in the spillages of hydrocarbon liquids from the vehicles and machinery. This will result in the contamination and destruction of the vegetation cover and soils.	Soils and Natural Vegetation	S	M	S	M	M	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.
		With mitigation					
		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	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							
may have elevated silt load, which may cause pollution of the nearby water environment.							
Rehabilitation and removal of the prospecting sites and equipment will require vehicular movement. This will result in the generation of dust by movement of vehicles and due to blowing winds. Vehicles and machinery will also 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 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

Since desktop information was used, no specialist studies were conducted for the proposed area.

6.5 ENVIRONMENTAL IMPACT STATEMENT

Trentra (Pty) Ltd has applied for a prospecting right over the Wolvenkop Prospecting Project area. The prospecting operation will involve the exploration for coal 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 area is situated within the Ermelo Coalfield. The proposed area is situated in area encompasses slight to moderate undulating plains, including surface water features such as rivers, streams and pan depressions. A variety of soil types were identified within the area, which include recharge, interflow and responsive soils. The land uses over the area correspond to the soils found in the area and include mainly agriculture (crop cultivation and grazing) with limited residential stands as well as farm dams and tree stands. Due to the above land uses significant change has occurred on the natural vegetation, with most of the area being land that are used for grazing. Sensitive landscapes identified within the proposed prospecting right area include streams (tributary of the Wilge river and its tributaries) and wetlands.

6.5.2 Summary of key findings of the environmental impact assessment

During the proposed prospecting operation impacts may only 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. Trentra (Pty) Ltd 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 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 Wolvenkop Prospecting Right area, the following conditions should form part of the environmental authorisation:

- Trentra (Pty) Ltd may not alter the location of any of the area activities included in this environmental impact assessment without obtaining the required environmental authorisation to do so under NEMA.
- Trentra (Pty) Ltd 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.
- Trentra (Pty) Ltd must, where necessary, undertake specialists' studies, management procedures and method statement should the need arise.
- The EMPR must be implemented fully at all stages of the proposed area
- Trentra (Pty) Ltd must limit night-time operations. This would be relevant for all work taking place at night within 150m 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 EIA 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 AREA 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 three years.

6.10 UNDERTAKING

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

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 provide 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 with by Trentra (Pty) Ltd.

PART B

Environmental Management Programme

1. DETAILS OF THE EAP

The details of the EAP are provided in section 1.1 of part A of this document

2 DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

The requirements to describe the aspects of the activity are covered by the environmental management programme and are included in PART A of the document under section 1. The reader is therefore referred to section 1 of PART A of this document.

3 COMPOSITE MAP

The map superimposing the proposed area, 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 map.

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 Wolvenkop Prospecting Right 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;
- Treatment of mine-affected water to ensure compliance with all relevant standards and supply
- 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 WOLVENKOP PROSPECTING RIGHT AREA ACTIVITIES

The following actions will be undertaken by Trentra (Pty) Ltd to ensure that the closure objectives are attained.

4.1.1 4.2.1 Infrastructure Areas

- All infrastructure and equipment used during the prospecting operation will be removed from the site.
- All tracks that were used for access the drilling sites 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.

4.2.2.1 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 engineering and designs solutions to be implemented to avoid or remedy 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 AREA

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 6: Environmental Management Programme for the proposed Wolvenkop Prospecting Right 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
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. All instituted buffer zones will be respected and adhered to. An agreement will be undertaken with the landowners to minimise the impact of the prospecting activities on their livelihoods.	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.				
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.	A reconnaissance survey will be undertaken for possible red listed plant species and species of conservation concern, take place prior to any prospecting activities 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.	Appointed Biodiversity Specialist 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.	ECO monthly. ECO monthly. ECO monthly.	During construction phase. During construction phase. During construction phase. During construction phase.
Migration of animal life due to disturbance caused proposed area	Animal Life	Ensure that the animal life within in the area is not affected by the proposed area	Maintenance of the current status on animal life within the area	Establishment of the site will be undertaken according to the prospecting method statement. No soil stripping will be allowed during site establishment. Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery. Use sites with most degraded environment for the site development.	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 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
				Poaching will be prohibited at the prospecting site.	Appointed contractor and site manager.		ECO monthly.	During construction phase.
Deterioration of water quality in in the nearby steams and within the groundwater regime.	Surface and Ground Water.	Ensure that the establishment of the area and its associated infrastructure does not have detrimental impact on nearby stream and the groundwater regime.	The quality of streams and groundwater within the site will comply with the target DWS target water quality objectives. Construction will be in compliance with the regulations under the GN704.	Site establishment will not be undertaken within sensitive landscapes. These areas will be avoided. A distance of 32 meters will be created between the sites and the sensitive landscapes. 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. Appointed contractor and site manager.	Regular inspections Regular inspections Regular inspections Regular inspections Regular inspections	ECO monthly. ECO monthly. ECO monthly. ECO monthly. ECO monthly.	During construction phase. During construction phase During construction phase During construction phase During construction phase.
Wetland destruction and loss of habitat.	Sensitive Landscapes.	Ensure that the construction activities do not have detrimental impacts on the sensitive landscapes.	Maintain the current state of the sensitive landscapes within the area (farm dams and seepage zone).	Construction activities will be limited to be more than hundred meters from the edge of the dams and seepage zone.	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.	Wet suppression using will be conducted at areas with excessive dust emissions.	Appointed contractor and site manager.	Visual inspections of areas with possible dust emissions.	ECO monthly.	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
				Traffic will be restricted to demarcated areas and traffic volumes and speeds within the construction site will be controlled.	Appointed contractor and site manager.	Regular inspections.	ECO monthly.	Throughout the construction phase.
Increased noise levels.	Noise aspects.	Ensure that the noise levels emanating from the construction sites will not have detrimental effects on the mine employees and surrounding communities/land owners.	The noise levels from the construction sites will be managed and measures will be taken to ensure that noise levels are below the National Noise Control Regulations, SANS10103:2008 guidelines.	Limit the maximum speed to 60 km/h or less, subject to risk assessment. Less noisy equipment will be used, the equipment will be kept in good working order and the equipment will be fitted with correct and appropriate noise abatement measures. Ensure that the employees are issued with earplugs and that they are instructed to use them. Educate employees on the dangers of hearing loss due to mine machinery noise.	Appointed contractor and site manager. Site manager. Site manager.	Undertake site checks on speeds used. Speed checking will be conducted. Use of earplugs will be checked and reported.	Site manager. Site manager checking as regularly as possible. Site manager will check the use of the earplugs as regularly as possible.	Throughout the construction phase. Throughout the duration of the construction phase Throughout the duration of the construction phase.
Visual impacts on the surrounding communities and road users from the construction.	Visual aspects.	Ensure that all operations during the construction phase do not result in detrimental visual impacts on surrounding properties, communities and road users.	Measures will be undertaken by the mine to ensure that the visual aspects from the site are complying with the relevant visual standards and objectives.	The land owner will be informed on the type of machinery and equipment to be used at the prospecting sites. Lighting will be conducted in manner that will reduce the impacts on visual aspects at night times.	Applicant and site manager. Appointed contractor.	The constructed perimeter berms will be inspected for compliance with the design specifications. Night time inspection of the site will be undertaken.	Mine Engineer on a monthly basis. The site manager once	Throughout the construction phase. During construction phase.
Damage or destruction of sites with archaeological and cultural significance.	Sites of archaeological and cultural importance.	Ensure that the construction activities do not have detrimental impacts on the heritage sites.	The construction will be undertaken in compliance with the requirements of the National Heritage Resources Act, 1999 (Act 25 of 1999) and	Should any heritage sites or archeological sites be identified within the proposed Wolvenkop prospecting project area, a detailed study wil be done by the heritage specialist. The establishment of the sites will be away from any identified grave site or heritage sites. A buffer of hundred	Appointed Heritage Specialist Appointed contractor and site manager.	The site will be monitored for any damages on a regular basis.	ECO monthly	Throughout the construction phase when activities are in close proximity to the heritage sites.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions And Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
			recommendations from the specialist.	meters will be created between the sites and the proposed camp and drilling sites.				
Impact from the influx of job seekers and employment of farm labourers.	Socio-economic aspects.	Ensure that measures are taken to discourage influx of job seekers and employment of farm labourers.	Measures taken will be in line with the company's recruitment policies.	Recruitment will not be undertaken on site. Farm labourers will not be employed unless agreed to with the farm owners.	Appointed contractor and site manager.	Visual monitoring.	Site manager	Throughout the pre-construction and construction phase.
OPERATIONAL PHASE								
Diamond Core drilling of the exploration boreholes, use of campsite and rehabilitation of the drilling sites								
Soil profile disruption, contamination of soils, destruction of natural vegetation and loss of land use.	Soils, Natural Vegetation, Land Use and Land Capability.	Ensure that the operation of the drilling sites and use of campsite and rehabilitation of drilling site do not have detrimental impacts on the soils, natural vegetation and current land use.	The land use and capability of the sites where the operations will be undertaken will continue after the proposed area.	Ensure that the drilling of the exploration boreholes are done in such a manner that the environment is protected from probable spillages and contamination by carbonaceous material.	Appointed contractor and site manager.	Regular inspections	ECO monthly.	During the operational phase of the area.
				All boreholes and sumps will be rehabilitated to pre-drilling conditions.	Appointed contractor.	Regular inspections	ECO monthly.	During the operational phase of the area.
				Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a licensed waste disposal facility.	Appointed contractor.	Regular inspections.	ECO monthly.	During the operational phase of the area.
				All waste generated from the drilling sites 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	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
				hydrocarbon recycling or treatment facilities.				
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.	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 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. Ensure that the land owners' borehole yield are 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	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. Regular meetings with landowners	ECO monthly. ECO monthly. ECO monthly. Site manager	During operational phase. 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
				water resources, the affected parties must be compensated.				
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. Correct speed will be maintained at the proposed area site. Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.	Appointed contractor and site manager. Appointed contractor and site manager. Appointed contractor and site manager.	Visual inspections of areas with possible dust emissions. Regular speed checks. Regular inspections.	ECO monthly. Site manager monthly. ECO monthly.	Throughout the operational phase. Throughout the operational phase. 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 the sensitive landscapes.	Appointed contractor.	Inspection to ensure compliance with the action plan.	ECO monthly.	During operational phase.
Increased noise levels.	Noise aspects.	Ensure that the noise levels emanating from the operational sites will not have detrimental effects on the mine employees and surrounding communities/land owners.	The noise levels from the sites will be managed and measures will be taken to ensure that noise levels are below the National Noise Control Regulations, SANS10103:2008 guidelines.	Limit the maximum speed to 60 km/h or less, subject to risk assessment. Less noisy equipment will be used, the equipment will be kept in good working order and the equipment will be fitted with correct and appropriate noise abatement measures. Ensure that the employees are issued with earplugs and that they are instructed to use them.	Appointed contractor and site manager. Site manager. Appointed contractor.	Site checks regularly. Regular monitoring and site check.	Site manager. Site manager. Site manager.	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
				Educate employees on the dangers of hearing loss due to mine machinery noise.		Use of earplugs will be checked and reported.		
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. Lighting will be conducted in manner that will reduce the impacts on visual aspects at night times.	Applicant and site manager. Appointed contractor.	The constructed perimeter berms will be inspected for compliance with the design specifications. Night time inspection of the site will be undertaken.	Mine Engineer on a monthly basis. The site manager once	During operational phase. 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 landowners and occupiers.	Socio-economic aspects.	Ensure that the drilling operation does not significantly disrupt the daily living and movements of the land owners and occupiers.	The mine will ensure that all safety standards are met and that access to landowners and occupiers are not detrimentally affected.	Announce any road closures and other disruptions and maintain roads used for the operation in good order. Keep communication with land owners and land occupiers open during the operational phase of the area. Ensure that negotiations on compensation are undertaken before the drilling programme can commence. This will include any other conditions that the landowner may deem necessary for the prospecting operation.	Appointed contractor and site manager. Applicant and site manager.	Liaison with affected parties. Meetings with the landowners. Minutes of any meeting held with landowners and agreements will be recorded and filed.	Site manager as and when necessary. Site manager as and when meetings are held.	Throughout the operational phase. 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
				Ensure that safety measures are implemented to prevent impacts on land owners and occupiers.	Site manager.	Regular checks and inspections.	Site manager.	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 topographical patterns.	Soils, Land Capability, Land Use and Topography.	Ensure that the rehabilitation of the sites re-instate the soil productivity, land capability, land use and topographical patterns	Rehabilitated areas will be maintained to comply with the closure objectives.	All infrastructure will be removed from the site in accordance to the rehabilitation plan.	Appointed contractor.	Removal of the infrastructure will be inspected.	Site manager will conduct the inspections.	During decommissioning phase.
Pollution of surface water environment.	Surface Water.	Ensure that the rehabilitation of the site does not have detrimental impacts on the surface water environment.	The surface water leaving the rehabilitation site will comply with the DWS target water quality parameters.	The site area will be rehabilitated to be free draining. Erosion protection measures such as the use of contour berms and repair of	Appointed contractor. Appointed contractor.	Progress of rehabilitation will be monitored. Areas where grass has not yet been established will be	ECO will conduct monitoring of the	Throughout the decommissioning and closure phases.

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions And Interventions	Responsibility For Actions/Intervention	Monitoring Action	Responsibility and Frequency For Monitoring	Time period for Management Action
				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.	Rehabilitation officer.	monitored for excessive erosion. Rehabilitation site will be inspected for misuse.	rehabilitation annually.	
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 does 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.
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. Trentra (Pty) Ltd has undertaken the financial provision determination in line with the requirements of section 11 of the Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations (GNR 1147). The financial provision determination for the proposed area is submitted to the Department of Mineral Resources and Energy 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 area 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 area. Note that the consultation of interested and affected parties included the owners of the properties directly affected by the proposed area and owners of land immediately adjacent the proposed area.

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

6.3 REHABILITATION PLAN FOR THE PROPOSED AREA

In terms of Regulation 23 of NEMA EIA Regulations, 2014, an EMPR must address the requirements as determined in the regulations, pertaining to the financial provision for the rehabilitation, closure and post closure of the proposed operations. In view of the above, a rehabilitation plan must be provided to the DMRE in support of the financial provision determined for the proposed operations. Since no disturbance has results on site due to the proposed area no annual rehabilitation plan was compiled.

6.4 COMPATIBILITY OF THE REHABILITATION PLAN WITH THE CLOSURE OBJECTIVES

The rehabilitation plan has been 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 Wolvenkop Prospecting area is 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 provide by a Mine, revision 1.6, September 2004, DMRE. See Table 7 for the calculated financial provision.

Table 7: Financial Provision for the proposed Wolvenkop Prospecting Project Area

"Rules-based" assessment of the quantum for financial provision							
CALCULATION OF THE QUANTUM							
Mine:	Wolvenkop Prospecting Project - Trentra(Pty) Limited	**Location:**	Wolvenkop Prospecting Project				
Evaluators:	O.T Shakwane of Geovicon Environmental (Pty) Limited	**Date:**	10-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	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	0.04	R 178 800.11	1.00	1.10	R 7 867.20
8 (B)	Rehabilitation of processing waste deposits & evaporation ponds (basic)	ha	0.00	R 222 692.31	0.80	1.10	R 0.00
8 (C)	Rehabilitation of processing waste deposits & evaporation ponds (acidic)	ha	0.00	R 646 804.03	0.80	1.10	R 0.00
9	Rehabilitation of subsidised areas	ha	0.00	R 149 733.48	1.00	1.10	R 0.00
10	General surface rehabilitation (Plugging of 10 boreholes)	ha	0.10	R 141 639.86	1.00	1.10	R 15 580.38
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	0.04	R 18 849.42	1.00	1.10	R 829.37
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 24 276.96**
	Multiply by Weighting factor 2	1.1		R 2 427.70			R 2 427.70
1	Preliminary and general	Add 12% if subtotal 1 is less than R100,000,000.00					R 2 913.24
2	Contingencies	Add 10% of subtotal 1					R 2 427.70
						Sub Total 2	
						(Subtotal 1 plus sum of management & contingencies)	**R 32 045.59**
						VAT (15%)	R 4 806.84
		(Subtotal 2 plus VAT)			**GRAND TOTAL**		**R 36 852.43**

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.

Trentra (Pty) Ltd has opted to use a financial guarantee to provide for the determined quantum for financial provision.

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 an environmental authorisation and in order to ensure compliance with the EMPR and to assess the continued appropriateness and adequacy of the EMPR, Trentra (Pty) Ltd will:

- Conduct monitoring on a continuous basis (see EMPR).
- Conduct performance assessments of the environmental management programme once in every two years.
- 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

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 **Trentra (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
- Transportation accident

Trentra (Pty) Limited has developed procedures for environmental related emergencies for the Wolvenkop Prospecting area, which is explained in more detail below.

Introduction

This procedure describes the process to be followed to report and deal with emergencies, which may occur on the prospecting site. An effective, comprehensive, well-considered and tested environmental emergency preparedness and response plan has the potential to save lives, prevent unnecessary damage to company and other property and to manage environmental risk.

This standard procedure aims 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. Below are the objectives of the above-mentioned procedure:

- To ensure quick and controlled response to environmental emergencies through the use of correct personnel and equipment.
- To prevent incidents from becoming more extensive through the timeouts contact and arrival of trained personnel on site.
- To establish a management mechanism from which a range of safety, environmental and health issues can be dealt with should they arise.

Purpose of the procedure

To provide guidance to all drilling crew in the event of an environmental emergency at Wolvenkop Prospecting Right area or related to its activities. This procedure is developed so as to provide guidance to ensure that:

- Danger to the environment, personnel, contractors and non-employees are minimized.
- Legal liability is managed and minimised.
- Public relations are effectively managed during and following an emergency.
- Reporting is effective and corrective/follow-up actions are implemented.

This procedure contains information relevant to all drilling crew of the prospecting site. It is the responsibility of all employees to familiarize themselves with the contents of this procedure. Furthermore, site manager should ensure that all contractors have access to this procedure and the requirements contained herein.

Legal requirements

The following below listed legislations were identified for the emergency response activities in the mining industry. The legislation requires that governmental department be kept informed of incidents and accidents:

- Regulation 51 of Regulations under the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) – PROCEDURE FOR ENVIRONMENTAL RELATED EMERGENCY AND REMEDIATION
- Mine Health & Safety Act 29 of 1996 – MANNER OF REPORTING AND KEEPING OF INFORMATION REGARDING INCIDENTS & EMERGENCIES
- Occupational Health & Safety Act 85 of 1993 – EMPLOYEE REQUIREMENTS TO REPORT INCIDENTS WHERE ACTIVITY HAS OCCURRED

Responsibilities

Site Manager

Trentra (Pty) Limited is responsible for the safety and well-being of employees working at Wolvenkop Prospecting Right area as well as the protection of the environment from unnecessary negative impact. The Site Manager has a responsibility to initiate a warning process should an emergency occur or should something at the prospecting site deteriorate in an uncontrolled manner presenting a risk to employees, the public or the environment.
Site Manager

It is the responsibility of the Site Manager to appoint a person or persons to review and audit the activities as covered by the scope of this Procedure. The Site Manager or his appointed representative shall ensure that the audits are being conducted systematically and at regular defined intervals. The Site Manager shall further ensure that the person nominated to perform audits of the emergency system, are given all the necessary assistance and facilities to conduct the task effectively.

Local Government

Local governments have the responsibility to warn residents of a hazardous situation, these warnings must be based on information provided by the site manager.

All employees, contractors and other relevant parties

All employees, contractors and other relevant parties should ensure that they are familiar with this procedure.

Description of Possible Emergencies and Remedial actions.

The following define most likely potential environmental emergencies. The Site Manager will be contacted in all emergencies. In all the cases the surrounding area must be cordoned off in a safe and efficient way. Emergency equipment for direct incidents must be available on the prospecting site at all times.

Hydrocarbon spills,

These are typically spillages or leaks of hydrocarbon liquids from containers and pipelines. The hydrocarbon liquids involved in these emergencies are diesel, new and used oils and paint. The spillages of hydrocarbon liquids may potentially contaminate the groundwater regime, surface water and soils over the affected areas. These, if not remediated properly, may have permanent detrimental effects environmental components.

All hydrocarbons will be stored in well enclosed containers. Emergency telephone numbers with contact persons will be placed near the containers. Credible company will be called, if a carbon spill occurs, they will assess the situation and take the necessary steps.

Transportation accident,

The drilling crew uses various machinery and vehicles such as drill rig and light vehicles for the transportation of material around the prospecting site. During an accident, while transporting these materials, both the material and the liquids within the vehicles may cause detrimental damage to the environment. Liquids will include diesels, petrol and oils from the vehicles.

Speed limits will be place around the prospecting site. The employees will be made aware of the speed limits and the reasons for having them. The following procedure will be implemented.

- Spillages will be rectified as soon as possible.
- Type of spillage must be identified.
- Clean-up will be done by credible company.
- If outside the prospecting site, the traffic department will be notified.

Surface fires, including veld fires.

These include any fires within the Wolvenkop Prospecting Right area. These fires may emanate either from the prospecting site or outside the prospecting site. The fires are considered emergency situations since they put lives of employees at risk and result in the destruction of environmental components such as natural vegetation (grasses, trees), animal life (wild and domestic livestock) and air quality. It is for this reason that fires have been identified as a potential emergency situation.

- Firefighting equipment will always be kept at the prospecting site ready, in a good working condition and at an accessible location. Correct fire extinguishers will be used to extinguish the fire. Note that no water on electrical and liquid-based fires will be used. The employees will be trained on dealing with fire situation. First aid equipment will be made available at all times. Site Manager will assemble the fire team and combat the fire.
- If the fire seems to go out of control, the Fire Brigade from the nearby town will be contacted. Wolvenkop Prospecting Right area will establish a working agreement with the Fire Brigade from the nearby town (Tweefontein) to make themselves available at any time in case fires are out of control.
- All affected farmers will be contacted.

At any prospecting site and at any works:

a) No person shall place, throw or leave, or cause or permit to be placed, thrown or left, any naked light or flame or any burning lighting torch, match, cigarette, tobacco, paper or other burning material on or near any combustible material or inflammable substance where this may cause danger from fire or explosion;

b) No waste material of a combustible nature shall be stored anywhere in quantity sufficient to create a fire hazard;

b) no welding, flame-cutting or flame-heating shall take place unless adequate means are immediately available for extinguishing any fire which may result from such operation;

c) on completion of any welding, flame-cutting or flame-heating, an examination shall be carried out by a competent person to ensure that no fire will result from such operation;

d) all machinery shall be so constructed, installed, operated and maintained as to prevent as far as practical, dangerous heating.

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

Emergency equipment and supplies

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

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 will be available on site will include:

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

Training

The site manager will ensure that employees are trained on emergencies that might occur at Wolvenkop Prospecting area.

Method of emergency activity identification

During the prospecting operation at the said site, the site manager will ensure that measures are put in place to ensure that other possible environmental emergency activities are identified.

Review and revision

During the course of the prospecting operation a number of emergency response drills will be carried out and recorded (minimum of one per every year). Emergency response drills will normally be carried out during operational hours to best evaluate the response and involve the highest number of employees. These are at the discretion of the Site Manager and may involve one or more of the emergency activities listed in this standard procedure. Emergency response drills should not be of the same type unless significant problems were experienced with the previous drill.

Regular auditing and questioning of the key personnel involved in emergency response will also be conducted. This will take the form of planned task observations (PTO). It is the responsibility of the Site Manager to undertake these PTO's on a regular basis and record the response.

Information from PTO's and drills will be collated and assessed. Alterations and modifications to the Emergency Response Procedure will also be conducted after the response drill evaluation. This task will be performed in co-ordination with the Site Manager to which the drill applies.

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), Wolvenkop Prospecting Right 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 Wolvenkop Prospecting Right 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 Wolvenkop Prospecting Right area as required by the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

In view of the above, Wolvenkop Prospecting Right area has developed an environmental awareness plan for the proposed Wolvenkop Prospecting Right area, which is explained in more detail below.

Note that the responsible person will revise these environmental awareness procedures from time to time. The date of commencement of the revised procedure will always be indicated to prevent confusion, in this case after the issuing of prospecting right to Wolvenkop Prospecting Right area.

This Environmental Awareness (Standard Training Procedure) sets out the training objectives regarding to environmental awareness. It is a stand-alone procedure, which serves to improve awareness, training and competency in the environmental field. It contains no detail on the actual training initiatives but rather serves to ensure that a responsible person is appointed to deal with and increase environmental awareness on the prospecting site.

Scope

This Environmental Training Standard Procedure sets out the prospecting site's training objectives regarding environmental awareness. It is a stand-alone procedure, which serves to improve awareness, training and competency in the environmental field. It contains no detail on the actual training initiatives but rather serves to ensure that a responsible person is appointed to deal with and increase environmental awareness on the prospecting site.

Objectives

The following are the objectives set for this standard procedure:

- To explain and aid the personnel involved in training with regards Environmental Management System (EMS);
- To clarify the EMS training and ensure that all employees are correctly instructed with regards to the environment.

Safety risks associated with activity

There were no hazards identified in applying this standard procedure.

Responsibilities

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

Legal requirements

The following legislation and standards apply to this Standard Procedure:

* Employment Equity Act 55 of 1998 – AREAS WHERE EMPLOYMENT EQUITY ARE DEFINED, INCLUDING TRAINING & DEVELOPMENT.
* National Environmental Management Act 77 of 1998 – RECOMMENDATIONS FOR INSTITUTIONAL CO-OPERATION.
* Minerals and Petroleum Resources Act, 2002 (Act 28 of 2002) – DEVELOPMENT OF AN ENVIRONMENTAL AWARENESS PLAN.

Induction Programme

An Induction Programme, which will include environmental awareness programme will be established for Wolvenkop Prospecting Right area. During the training sessions various topics will be discussed such as, but not limited to: Water Pollution Prevention, Good Environmental Housekeeping, etc. Through the Induction Programme, the site manager, or any other responsible appointed person shall ensure that all staff receives training in:

Administrative requirements and procedures, which will include the Environmental Emergency.

Procedures

Resource conservation and environmental reporting and general environmental awareness for prospecting site related environmental issues.

All employees (including contractor employees) will undergo induction. Wolvenkop Prospecting area induction includes training and awareness on environmental issues on the drilling site and is compulsory for all new employees. The induction programmes will as be mentioned above, have an environmental management component. On an annual basis the environmental section of the induction gets updated to ensure that it is up to date. Consideration should be given to:

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

Trainee needs

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 Wolvenkop Prospecting Right area. The following categories are considered, viz:

- Site Management.
- Supervisors.
- Operators.
- Visitors and contractors.

Each of these categories has different responsibilities and therefore has different knowledge requirements and environmental awareness training needs to obtain that knowledge.

Training Planning

Identified and agreed training needs shall be included in budgets. Course attendance (other than at the internal induction courses) shall be scheduled on the basis of the importance of task contribution to the maintenance, effectiveness and improvement of the objectives.

General environmental awareness training

General awareness training will be offered to operators, processors during the safety toolbox talks. This will be 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 will be undertaken to ensure that the above awareness training is conducted:

- A monthly environmental awareness topic for discussion will be distributed to the prospecting site. These topics will be discussed at the safety toolbox talks, by SHE (Safety, Health and Environmental) site manager /Environmental officers if available.
- The topics will also be displayed on the notice boards of the prospecting site.
- Ad hoc environmental awareness sessions to the prospecting site will be conducted on request. The presentations will focus on the environmental issues relevant to individual tasks.

Job specific environmental awareness training

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

Waste prevention and control (implementation of the waste management procedure).

Hydrocarbon and chemical spill reporting and clean up.

Storing and handling of chemicals.

Rehabilitation.

Supervisory staff within specific drilling site will be equipped with the necessary knowledge and information to guide their employees on environmental aspects applicable in performing a specific task.

Competency training

Site manager (training official/environmental officer if available) is responsible for the environmental competency and awareness training of middle management and supervisors. This training will be conducted on both a one-to-one basis and through workshops. If required, external organizations may be requested to provide training to selected employees (e.g., EMP auditing).

Competence and the effectiveness of training and development initiatives will be 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 prospecting site.

Certification

Photocopies of certificates issued after completion of a training course shall be maintained in the staff member’s file and Training Department’s records.

Records

Environmental awareness and training records will be kept at a safe and accessible place on site.

7.5 UNDERTAKING TO COMPLY

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

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

.....

Signature of applicant Designation

APPROVAL

Approved in terms of Section 39(4) of the Mineral and Petroleum Resources Development Act, 2002 (Act 29 of 2002)

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

.....……..

REGIONAL MANAGER

REGION:……