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BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT,

NORTHERN CAPE PROVINCE

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

NAME OF APPLICANT:	Piledіwa Corporate Trading Cc
TEL NO:	0822535635
POSTAL ADDESS:	4 Apsey Street
	Kuruman
	8460
FILE REFFERENCE NUMBER SAMRAD:	NC12372PR

PREPARED BY: NDI GEOLOGICAL CONSULTING SERVICES (PTY) LTD

DATE: OCTOBER 2019

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1. IMPORTANT NOTICE

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

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

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

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

***It is furthermore an instruction** that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must*

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ensure that the information required is placed correctly in relevant sections of the report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

2. OBJECTIVES OF THE BASIC ASSESSMENT PROCESS

The objective of the scoping process is to, through a consultative process-

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on deter Mining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:

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

(ii) the degree to which these impacts—

(a) Can be reversed;

(b) May cause irreplaceable loss of resources; and

(c) Can be managed, avoided or mitigated;

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

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

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

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

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ACRONYMS AND ABBREVIATIONS

LIST OF ABBREVIATIONS

BID: Background Information Document

DEA: Department of Environmental Affairs

DMR: Department of Mineral Resources

DWS: Department of Water and Sanitation

EA: Environmental Authorisation

EIA: Environmental Impact Assessment

EIAR: Environmental Impact Assessment Report

EMPr: Environmental Management Programme

GN: Government Notice

HIA: Heritage Impact Assessment

I&AP: Interested & Affected Party

MPRDA: Minerals and Petroleum Resources Development Act, 2002

NEM: WA: National Environmental Management: Waste Amendment Act, 2008

NEMA: National Environmental Management Act, 1998 (Act No. 107 of 1998)

NHRA: National Heritage Resources Act, 1999 (Act No. 25 of 1999)

NWA: National Water Act, 1998 (Act No. 36 of 1998)

PPP: Public Participation Process

WUL: Water Use Licence

ZFMDM: ZF Mgcawu District Municipality

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3. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

3.1 Details of the EAP

Pilediwa Corporate Trading Cc (Pilediwa) has appointed Ndi Geological Consulting Services (Pty) Ltd (Ndi Geological Consulting) as an independent Environmental Assessment Practitioner (EAP) to undertake a Basic Assessment Process relevant to the application for the proposed prospecting activities.

Ndi Geological Consulting has experience in providing comprehensive environmental and mining services. Details of the EAP are detailed in Table 1.

Table 1: Details of the EAP

ITEM	**CONSULTANT CONTACT DETAILS (If applicable)**
Name	Ndi Geological Consulting Services (Pty) Ltd
Tel no	053-842 0687
Fax no:	086-538 1069
Cellular no	082-760 8420
E-mail address	E: ndi@ndigeoservices.co.za E: atshidzaho@gmail.com
Postal address	P O Box 10489 Beaconsfield Kimberley 8315
Expertise of the EAP	

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The qualifications of the EAP	BSc (Hons) Earth Sciences in Mining and Environmental Geology. University of Venda
Summary of the EAP's past experience.	
Ndivhudzannyi graduated with an Honours degree in Earth Science majoring in Mining and Environmental Geology. She is a self-motivated and hardworking geologist with 8 years' experience in the environmental, mining exploration, open cast work and consulting in the mining industry. She has proven leadership skills from supervising exploration rigs (Reverse Circulation and Percussion Drilling). Proven field experience in exploration i.e. mapping, borehole logging, borehole sampling, sample preparation for laboratory analysis and supervisory duties in the field. Ndivhudza also has experience in writing geological reports including Prospecting Work Programmes, Mining Work Programmes, Scoping Reports and Environmental Impact Assessment Reports, and handling of DMR documents in general. She has conducted environmental audits for mines. Ndivhudza's expertise also extends across annual reporting assessment, environmental authorizations and conducting public participation processes. Please refer to Appendix 3 for a copy of the EAP's Curriculum Vitae	

3.2 Description of the property

The location of the property with reference to the nearest towns, the details of the farms and the extent of the application area are described in Table 2:

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Table 2: Description of the property

Farm name:	Plaas 589		
Application area Ha	818.6782 ha		
Magisterial district	Kuruman		
Distance and direction from nearest town	The proposed prospecting project is approximately 9 km northeast of Postmasburg as well as approximately 35 km west of Danielskuil towns.		
21 digit surveyor General Code	**Farm name**	**Portion**	**SG Code**
	Plaas 589	Portion 12	C03100000000058900012

The proposed prospecting right application is located approximately 15 km northeast of Postmasburg town and approximately 36 km west of Danielskuil Town.

The application runs on portion 12 of Plaas 589 in the Tsantsabane Local Municipality in the Northern Cape Province. Access to the application area is via the main road that connect from the R325 arterial route from Postmasburg to Sishen (Figure 1).

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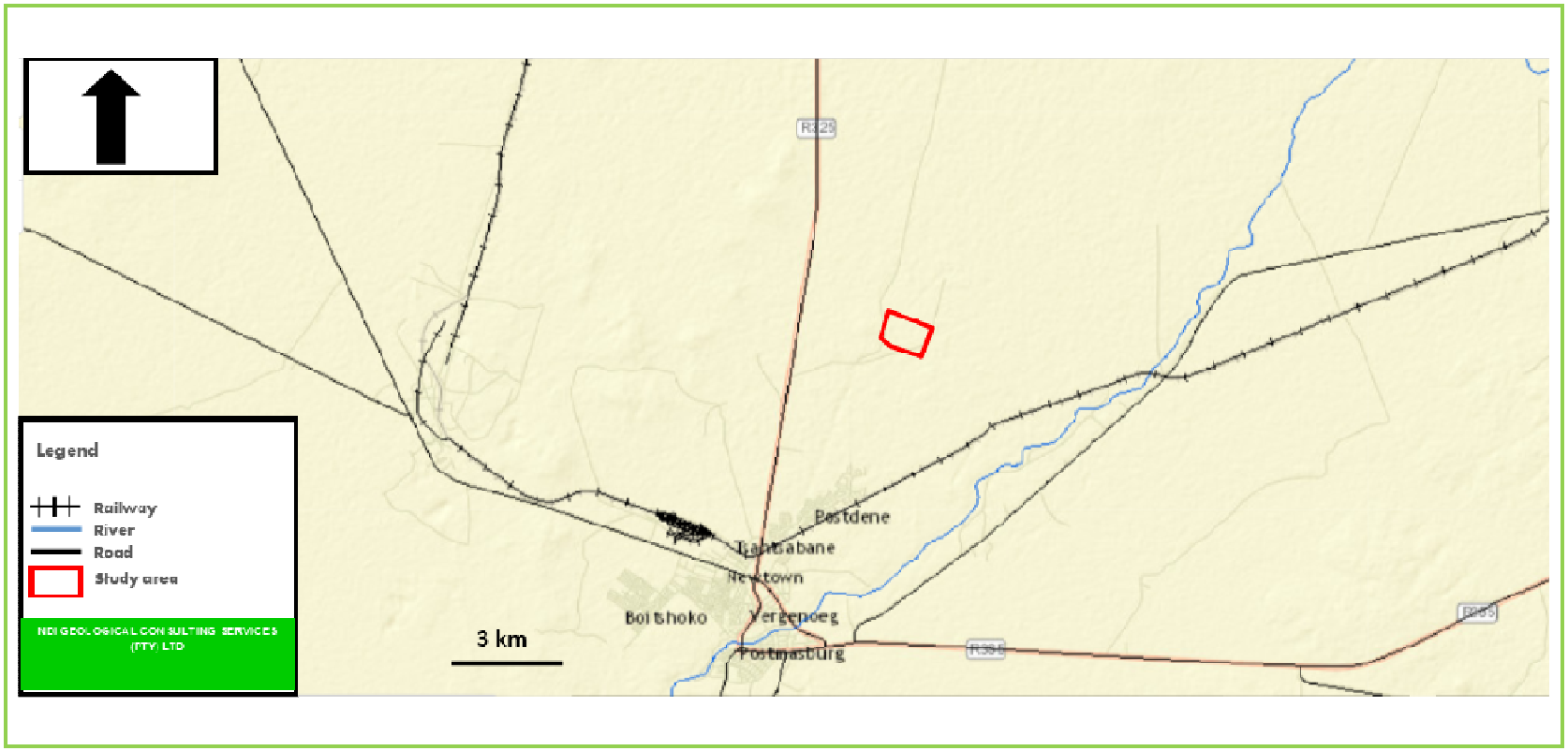

Figure 1: Location of the Piledíwa proposed prospecting project

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Figure 2: The location of the study area

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4. POLICY AND LEGISLATIVE CONTEXT

Applicable legislative and guidelines used to complete this report.

4.1 The constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)

Under section 24 of the Constitution of the Republic of South Africa, it is clearly stated that:

Everyone has the right to (a) 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

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

Public participation process and consultation should be conducted at every stage of the Draft BAR/EMPr phase.

4.2 National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA)

The main aim of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) is to provide for co-operative governance by establishing decision-making principles on matters affecting the environment. In terms of the NEMA EIA regulations, the applicant is required to appoint an environmental assessment practitioner (EAP) to undertake the Basic Assessment and Environmental Management Programme, as well as conduct the public participation process. In South Africa, EIA became a legal

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requirement in 1997 with the promulgation of regulations under the Environment Conservation Act (ECA). Subsequently, NEMA was passed in 1998. Section 24(2) of NEMA empowers the Minister and any MEC, with the concurrence of the Minister, to identify activities which must be considered, investigated, assessed and reported on to the competent authority responsible for granting the relevant environmental authorisation. It was further amended in April 2017.

An application for environmental authorization in terms of Section 24 of NEMA, 1998 (Act 107 of 1998) and related infrastructural activities was lodged on 28 November 2018.

4.3 Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA)

In terms of the MPRDA, an application for a prospecting right must be supported by various documents, including a Basic Assessment Report, EIA and EMP. A BAR and EMP report will thus be compiled to meet the requirements of the MPRDA. This process will however run in parallel to this EIA process undertaken to meet the requirements of NEMA, NEM:WA and the NWA.

In support of the application to obtain the prospecting right, Pilediwa is required to conduct a BAR /EMPr and Public participation consultation process that need to be submitted to the DMR for assessment.

4.4 National Environmental Management: Waste Act (No. 59 of 2008)

Waste management activities in respect of which a Waste Management Licence (WML) is required are to be undertaken in accordance with section 20

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(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA).

The Act lists activities triggered by the prospecting project and for the management of waste that will be generated thereof in order to prevent environmental pollution and littering. On 2 June 2014 the National Environmental Management: Waste Amendment Act came into effect. Waste is now subject to all the provisions of the National Environmental Management. It is now important to consider Section 16 of the NEMWA which states as follows:

A holder of waste must, within the holder's power, take all reasonable measures to-

- "Avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated;
- Reduce, re-use, recycle and recover waste;
- Where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner;
- Manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour, or visual impacts;
- Prevent any employee or any person under his or her supervision from contravening the Act; and
- Prevent the waste from being used for unauthorised purposes."

These general principles of responsible waste management will be incorporated into the requirements in the EMPr to be implemented for the proposed project. The NEM: WA provides for specific waste management

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measures to be implemented; as well as providing for the licensing and control of waste management activities. Waste management activities will be applicable to Category C.

- Category C describes waste management activities that do not require a WML but these activities will have to comply with the prescribed requirements and standards as prescribed by the Minister, which includes the Norms and Standards for Storage of Waste, 2013. These activities include the storage of general waste at a facility with a capacity to store in excess of 100 m^3; and storage of hazardous waste in excess of 80 m^3.

For this application the storage of general and hazardous waste will not exceed 23$m^{3.}$

4.5 National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM: AQA)

The National Environmental Management: Air Quality Act (NEM:AQA) (Act No. 39 of 2004 as amended) provides for the identification of priority pollutants and the setting of ambient standards with respect to these pollutants.

Drilling will result in dust production which will have an impact on ambient air quality. Dust created during the construction and operational phases of the proposed project could influence air quality and thus make this legislation relevant to this development. Air quality management and implementation of mitigation measures during drilling will be considered to be a measure to exercise duty of care, since it aims to minimise volumes of dust emissions emanating from the drilling activities.

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4.6 National Environmental Management: Biodiversity Act (No. 10 of 2004)

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) regulates the protection of species and ecosystems that require national protection and also takes into account the management of alien and invasive species that may be removed or threatened by the proposed prospecting activities.

The applicant should apply for tree removal permits prior to removal of any sensitive and/or protected species. No tree removal will be necessary for this project.

4.7 National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)

The National Heritage Resources Act (NHRA) (Act 25 of 1999) clearly specifies that cultural heritage resources may not be disturbed without authorization from the relevant heritage authority. Section 34(1) of the NHRA states that, “no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority”.

Heritage assessment will be conducted once the drilling locations have been determined for it to cover all the affected areas. A Heritage Impact Assessment Permit will need to be obtained before any heritage resource can be disturbed should a need arise.

4.8 National Water Act (No. 36 of 1998)

The National Water Act (Act No. 36 of 1998) (NWA) administered by the Department of Water and Sanitation (DWS) regulates the sustainable and equitable use and protection of water resources.

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Regulations for the use of water for mining and related activities aimed at protected water resources (GNR. 704, June 1999) were promulgated in terms of Section 26 of the NWA. These provide for:

- Restrictions on the locality with respect to residue deposits, dam or reservoirs as well as prospecting/mining activities within the proximity of a watercourse.
- Restriction on the use of material that can pollute a water resource for the purposes of construction.
- Capacity requirements of clean and dirty water systems.
- Protection of water resources from pollution sources at the mine in particular the separation of clean and dirty water and the prevention of spillages from dirty water containment facilities.

In terms of the NWA, any activities undertaken within 500 m of a wetland or within 100 m of a watercourse require a Section 21 (c) and (i) Water Use Licence (WUL).

There will not be a need for a WUL since water will mostly be used for drinking. The water will either be purchased from the municipality or from a farm owner.

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5. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

5.1 Prospecting activities

The proposed overall activity will be in the form of prospecting of iron and manganese. This process aids in determining the potential for iron and manganese before the actual mining process.

The prospecting activities will initially be non-invasive and this will consist of a desktop study which will include a literature survey, plus aerial photograph and satellite image interpretation, ground validation of targets, and geophysical surveys. `

Subsequent phases will be of the invasive-type, typically drilling, a combination of Reverse Circulation (RC) drilling and core drilling (also known as core drilling), aimed at collecting suitably representative samples for analytical and physical test-work at suitably accredited laboratories.

Phase 1: Desktop Study

Existing data on the area of study with relation to the topography, geology, mineralogy, geophysics, hydrology etc. will be analysed. This data will aid in determining the amount of potential that the area carries in terms of iron and manganese mineralisation and the factors that affect it and its extraction thereof. The report that will be produced from this study will inform the next stage which is geological mapping.

Once this information has been assessed in detail, it will be used to further develop and refine the ongoing prospecting activities. Aerial photographs and a high-resolution satellite image will be acquired for the prospecting right

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application so that a target identification process using both desktop study and geological mapping. Both desktop study and geological mapping interpretations will be used to focus future prospecting activities.

Geological mapping

Geological mapping of the study area will be conducted after desktop study as it will be guided by information obtained from the study. This will involve a geologist walking through the area to identify any outcrops and recording the attitude and properties of the rocks. A geological map produced from this exercise will provide detailed information on the iron and manganese potential or nonexistence thereof.

Phase 2: RC Drilling

After geological mapping drilling will then be conducted in order to define the extent of iron ore and manganese mineralisation. This will also aid in determining the continuity of mineralisation along strike and with depth.

The plan is to drill 39 Reverse Circulation (RC) drillholes at a depth of 100 m each. Drillhole positions will be recorded using a handheld GPS in case the panned locations were moved and then later when drilling is complete, a qualified surveyor will survey all the drillholes. A reputable drilling company will be hired to undertake this work. RC drilling is prone to contamination, for that reason a qualified geologist will be on site to oversee the whole drilling process.

During this drilling programme samples are collected every 1 m meter from the cyclone into the sampling bags. The samples are weighed before being split by a riffle splitter into two. The one sample is kept for future reference whereas the other one is washed for logging by the geologist on site. Samples collected are submitted to the laboratory for analysis. The spoil is collected and later

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used to fill the borehole again during rehabilitation. Data obtained from the boreholes together with the analytical results will be used in resource modelling.

Phase 3: Diamond drilling

Four (4) diamond drillholes will be drilled to depths of 100 m and the core produced will be logged by a qualified geologist. After logging, core samples are taken at 1 m intervals and split into two pieces, using a core cutter. The one piece is bagged, labelled and taken to the laboratory for metallurgical testing. The other piece is kept for future reference.

Phase 4: Analytical Desktop Studies and Decision Making

The aim of this stage is to determine the economic viability of the project. This stage involves a multidisciplinary team of specialists who will review the data and the analytical results from the laboratory in order to develop detailed geological and grade resource models. All exploration data will be captured into a database where it will be accessed when needed in the future.

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5.3 Listed and specified activities

Table 3: Listed and specified activities

NAME OF ACTIVITY (E.g. For mining - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	AERIAL EXTENT OF ACTIVITY Ha or m²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (*GNR 544, GNR (GNR 983 GNR 984 or GNR 895)*	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Site establishment.	1 ha	x	GNR 983-Listing Notice 1 Activity No.20	N/A
Vegetation clearance	1 ha	x	GNR 983-Listing Notice 1 Activity No.27	N/A
39 exploration RC boreholes (Drilling) and 4 core drilling.	0.39 ha	x	GNR 983-Listing Notice 1 Activity No.20	N/A
Temporary topsoil storage site	0. 001 ha	x	GNR 983-Listing Notice 1 Activity No.20	N/A
Construction of temporary concrete slab with bund wall for temporary storage of hydrocarbons	0.0025 ha	x	GNR 983-Listing Notice 1 Activity No.20	N/A
Mobile office	0.0025 ha	x	GNR 983-Listing Notice 1 Activity No.20	N/A
Ablution facility	0.0010 ha	x	GNR 983-Listing Notice 1 Activity No.20	N/A
Construction of temporary access road	1000 m^2	x	GNR 983-Listing Notice 1 Activity No.20	N/A

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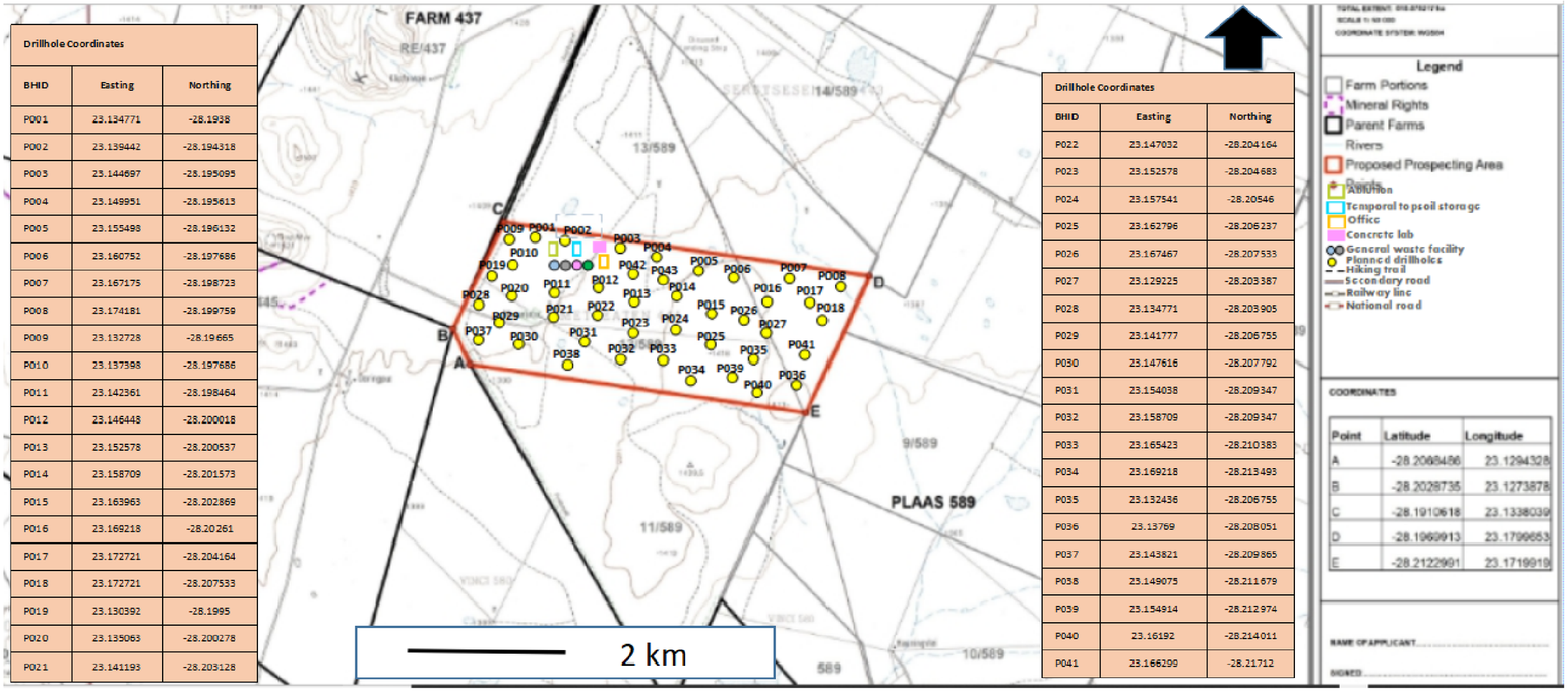

Drillhole Coordinates

BHID	Easting	Northing
P001	23.134771	-28.1938
P002	23.139442	-28.194318
P003	23.144697	-28.195095
P004	23.149951	-28.195613
P005	23.155498	-28.196132
P006	23.160752	-28.197686
P007	23.167175	-28.198723
P008	23.174181	-28.199759
P009	23.132728	-28.19665
P010	23.137598	-28.197686
P011	23.142361	-28.198464
P012	23.146448	-28.200018
P013	23.152578	-28.200537
P014	23.158709	-28.201573
P015	23.163963	-28.202869
P016	23.169218	-28.20261
P017	23.172721	-28.204164
P018	23.172721	-28.207533
P019	23.130392	-28.1995
P020	23.135063	-28.200278
P021	23.141193	-28.203128

Drillhole Coordinates

BHID	Easting	Northing
P022	23.147032	-28.204164
P023	23.152578	-28.204683
P024	23.157541	-28.20546
P025	23.162796	-28.206237
P026	23.167467	-28.207533
P027	23.129225	-28.203387
P028	23.134771	-28.203905
P029	23.141777	-28.206755
P030	23.147616	-28.207792
P031	23.154038	-28.209347
P032	23.158709	-28.209347
P033	23.165423	-28.210383
P034	23.169218	-28.213493
P035	23.132436	-28.206755
P036	23.13769	-28.208051
P037	23.143821	-28.209865
P038	23.149075	-28.211679
P039	23.154914	-28.212974
P040	23.16192	-28.214011
P041	23.166299	-28.21712

Point	Latitude	Longitude
A	-28.2068486	23.1294328
B	-28.2028735	23.1273878
C	-28.1910618	23.1338039
D	-28.1969913	23.1799653
E	-28.2122991	23.1719919

Figure 3: Layout plan

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6. DESCRIPTION OF PROCESS TO BE UNDERTAKEN

Drilling

A total of 43 drillholes is planned to be drilled on the prospecting right property. This will involve the use of diesel powered machinery. Care will be taken to make sure there are very few spillages if any in order to avoid contamination of the soil and the water resources thereof. Concurrent rehabilitation will be practiced to avoid animals falling inside the holes. The drilling crew and other Pilediwa employees will be trained on how to follow proper health and safety procedures.

Access roads

Existing roads will be used to access the drillholes, however should there be a need to construct temporary roads they will be ripped to a depth of 300 mm in order to allow vegetation growth.

Ablution facility

Ablution facilities for the field crew will be in the form of portable chemical toilets.

Concrete wall

A temporary concrete slab with bundwall for the storage of diesel and chemicals that will be used during drilling will be built. This facility will be adequately monitored in order to manage the potential risks of spillages, fire and /or explosion.

Power

The drilling machines and vehicles used during prospecting are diesel empowered. Therefore, no other source of power will be required.

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Topsoil

Topsoil removed in preparation for the prospecting activities will be stored separately for later use during rehabilitation. The soil will be spread on top of rehabilitated areas to allow plant succession.

Topsoil will not be used for construction or maintenance of roads. Stored topsoil areas will not disturbed.

Office site

A mobile container will be used as site office.

Water Supply

Water will be purchased from the municipality or from a farmer . Since RC drilling does not require water; this water will mainly be used for drinking, dust control as well as for the drilling of four diamond drillholes.

Accommodation

All the field staff and crew will be transported to and from the drilling site. Therefore, no accommodation on site will be required. Workers will be accommodated in the nearby town.

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7. NEED AND DESIRABILITY OF THE PROPOSED PROJECT

The mining sector is still viewed as one of the main sectors contributing to the Gross Domestic Product (GDP) (economic growth) in South Africa. The main mining activity in the area of study is that of mining iron ore and manganese. Manganese and iron ore mining continues to be the cornerstone of the FZMDM's economy. The already existing mining of iron and manganese needs more resources that will ensure that mining carries on.

Existing desktop studies and previous mining done in the study area has determined that the area has potential for iron and manganese resources.

Should prospecting be successful and mining of iron and manganese is to be carried out, Pilediwa will be able to mine the deposit thereby continuing to create jobs for the local people as well as contributing to the economy of the province and that of the country.

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8. PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED SITE

Project alternatives must be considered in terms of Section 28 of the EIA Regulations (2010), With reference to the site plan provided as Figure 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

(a) The property on which or location where it is proposed to undertake the activity;

(b) The type of activity to be undertaken;

(c) The design or layout of the activity;

(d) The technology to be used in the activity;

(e) The operational aspects of the activity; and

(f) The option of not implementing the activity or no-go alternative

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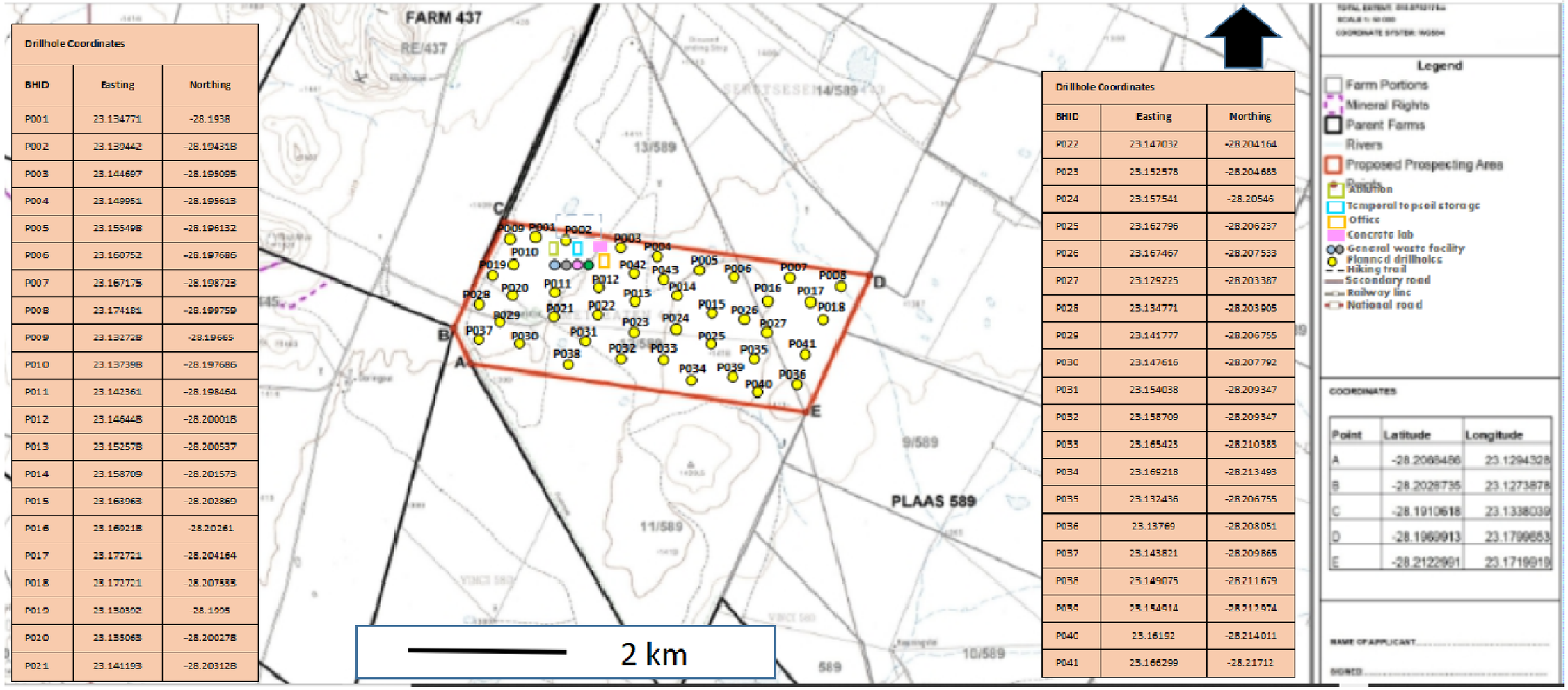

Drillhole Coordinates

BHID	Easting	Northing
P001	23.134771	-28.1938
P002	23.139442	-28.19431B
P003	23.144697	-28.195095
P004	23.149951	-28.195613
P005	23.155498	-28.196132
P006	23.160752	-28.197686
P007	23.167175	-28.198723
P008	23.174181	-28.199759
P009	23.132728	-28.19665
P010	23.137398	-28.197686
P011	23.142361	-28.198464
P012	23.146448	-28.200018
P013	23.151578	-28.200537
P014	23.158709	-28.201573
P015	23.163963	-28.202869
P016	23.169218	-28.20261
P017	23.172721	-28.204164
P018	23.172721	-28.207533
P019	23.130392	-28.1995
P020	23.135063	-28.200278
P021	23.141193	-28.200312B

Drillhole Coordinates

BHID	Easting	Northing
P022	23.147032	-28.204164
P023	23.152578	-28.204683
P024	23.157541	-28.20546
P025	23.162796	-28.206237
P026	23.167467	-28.207533
P027	23.129225	-28.203387
P028	23.134771	-28.203905
P029	23.141777	-28.206755
P030	23.147616	-28.207792
P031	23.154038	-28.209347
P032	23.158709	-28.209347
P033	23.165423	-28.210383
P034	23.169218	-28.213493
P035	23.132436	-28.206755
P036	23.13769	-28.208051
P037	23.143821	-28.209865
P038	23.149075	-28.211679
P039	23.154914	-28.212974
P040	23.16192	-28.214011
P041	23.166299	-28.21712

Figure 4: Proposed site layout plan

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8.1 Location alternatives

Pelidiwa Corporate has applied for a prospecting right on Farm Plaas 589 located within ZF Mgcawu District Municipality(ZFMDM) in the Northern Cape Province. This property has potential for iron and manganese mineralisation due to the nature of the geology in the area.

The current iron and manganese mining in the area also verifies the availability of the minerals. For this reason this location was chosen and no alternatives were considered.

The iron-rich conglomerates of the Gamagara Formation unconformably overlie the supergene-enriched iron formation of the Asbestos Hills Subgroup (Kuruman Formation). Within the Asbestos Hills Subgroup, the ferruginous material, which is highly deformed, comprises lenses of high-grade ore, typically known as the Manganore Iron Formation.

For all the above reasons, no alternatives were considered with regard to location of the activity.

8.2 The type of activity to be undertaken

Activities to be undertaken will include literature review, mapping, Reverse Circulation and Diamond Drilling as well as analytical desktop studies. These activities will be conducted in phases, with each phase results informing the next. The activities have been proven to work in terms of determining the mineral resource and its distribution over the years. No alternative method has thus been considered.

8.3 The design or layout of the activity

Supporting structures such as hydrocarbons storage facilities, an office, ablution facilities etc. will be required for the prospecting process to take place. These structures will however not be permanent. The The plan provided (in

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Figure 3) has been designed in such a way that it does not coincide with any environmental features or infrastructure identified in the area. There were no concerns raised with regard to the design or layout of the activity. No alternative plan was therefore not considered

8.4 The technology to be used in the activity

Vehicles and earth moving machinery such as drilling machines will be used carry out the prospecting work. The machinery is sufficient to conduct drilling and no additional technology have been considered.

8.5 The operational aspects of the activity

Based on the number of drillholes planned for prospecting, not much time will be spent on site during drilling. Therefore no permanent services in terms of water supply, electricity, and or sewage facilities will be required. Temporary access roads will however be constructed in areas where there are no existing access routes. The activities will make use of water mainly for drinking, dust suppression and DD drilling of four holes. This is considered the best operational aspects with regard to the activities to be undertaken and no alternatives have been considered.

8.6 The No-Go alternative

By not prospecting for iron and manganese on the property in question, it means that the current land use of the proposed study area will remain the same. This means that no further disturbance to the environment will be caused by this particular project. Desktop studies showed that there is potential for iron and manganese mineralisation on the properties. If no prospecting takes place, it will result in loss of information with regard to the nature of the potential resource present on the properties which means no mining will take place and therefore an opportunity for large scale mining which has the potential to contribute to the economy in a bigger way will be lost.

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Many people in the ZFMDM area will stay jobless since a chance to create more jobs will have also been lost.

9. PUBLIC PARTICIPATION PROCESS (PPP)

Public Participation is an integral part of the EIA process and is regarded as a way of empowerment and as a vital part of our democratic governance. Ndi Geological Consulting Services (Pty) Ltd has been appointed by Pelidiwa Corporate as a main independent consultant to undertake the Basic Assessment process required in terms of the NEMA.

Public participation is defined as a process that leads to a joint effort by stakeholders, technical specialist, the authorities and the proponent to work together to produce better decisions than if they had acted independently.

9.1 PPP Objectives

Some of the key Basic Assessment and EMP requirements with regards to public participation include the following:

- Prospecting Application, BAR &EMP must be publicly advertised (e.g. on site and or in newspaper);
- Public consultation to identify issues of concern which need to be considered during the Basic Assessment and EMP phase of the project;
- Public to review the BAR/EMPr Report;
- Public may appeal within 21 days after the Environmental Authorization has been issued by the authority.

9.1 Public Participation in Basic Assessment and EMP process

NEMA supports the engagement of all stakeholders in environmental governance. Consultation in the EIA process achieves the following aspects:

- Inform and raise awareness of the proposed project;

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- Increase understanding among stakeholders;
- Identify and learn from local sources of information;
- Inform and improve decision-making.

9.2 Consultation methods

Interested and Affected Parties (I&APs) were notified using relevant guidelines applicable to public participation process as contemplated in section 24J of the Act. Notifications which relate to this prospecting right application were done after the acceptance of the Environmental Authorisation application. I&APs parties were consulted in one of the following forms:

Newspaper advertisement

A newspaper advertisement was published in Kathu Gazette newspaper on the 26th of July 2019 in English. The advertisement was notifying the public of the lodged prospecting right application and requesting I&APs to register with, and submit their comments to Ndi Geological Consulting. I&APs were given 30 calendar days to submit their comments on the proposed prospecting project. A public meeting was also announced to be held on the 6th of August 2019 at the ACVV Hall @ 11:00 in Postmasburg.

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On site notices

A3 laminated notices were placed around the Hotazel Town areas.

Registered letters

Letters notifying the landowners or lawful occupiers of land as well as adjacent farm landowners/occupiers about the project were hand delivered to them. Comments and concerns from the stakeholders will be documented and addressed. Stakeholders requested to be registered as I&APs as well as requested documents relating to the project.

The stakeholders will be notified of the DMR decision. Information on how to appeal the decision made by the DMR will be made available to the stakeholders.

9.3 Summary of issues raised by I&APs

All the issues raised by I&APs will be documented, addressed and attached as part of the Final BAR.

Table 4 exhibits the issues raised by I&APs.

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Table 4: issues raised by I&APs

Interested and Affected parties List the names of person consulted in this column, and mark with x where those who must be consulted were in fact consulted	Date comments received	Issues raised	EAPs response to issues as mandated by the applicant.	Section and paragraphs reference in this report where the issues and or response were incorporated
Interested and affected parties				

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10. ENVIRONMENTAL ATTRIBUTES AND DESCRIPTION OF THE BASELINE RECEIVING ENVIRONMENT

The proposed project is located in the Tsantsabane Local Municipality (TLM) which is located within the ZF Mgcawu District Municipality (ZFMDM). See Figure 5.

The ZFMDM forms the mid-northern section of the province on the frontier with Botswana. It covers an area of more than 100,000 km^2 (almost 30% of the entire Province) out of which 65 000 km^2 compromise the vast Kalahari Desert, Kgalagadi Tran frontier Park and the former Bushman Land.

ZF Mgcawu District comprises six Local Municipalities namely: Mire; Kai! Garb; Kara Hails; Tsantsabane, Kheis and Kgatelopele. Upington is the district municipal capital where the municipal government is located. The whole area is managed by the ZF Mgcawu District Municipality, which is classified as a category C Municipality.

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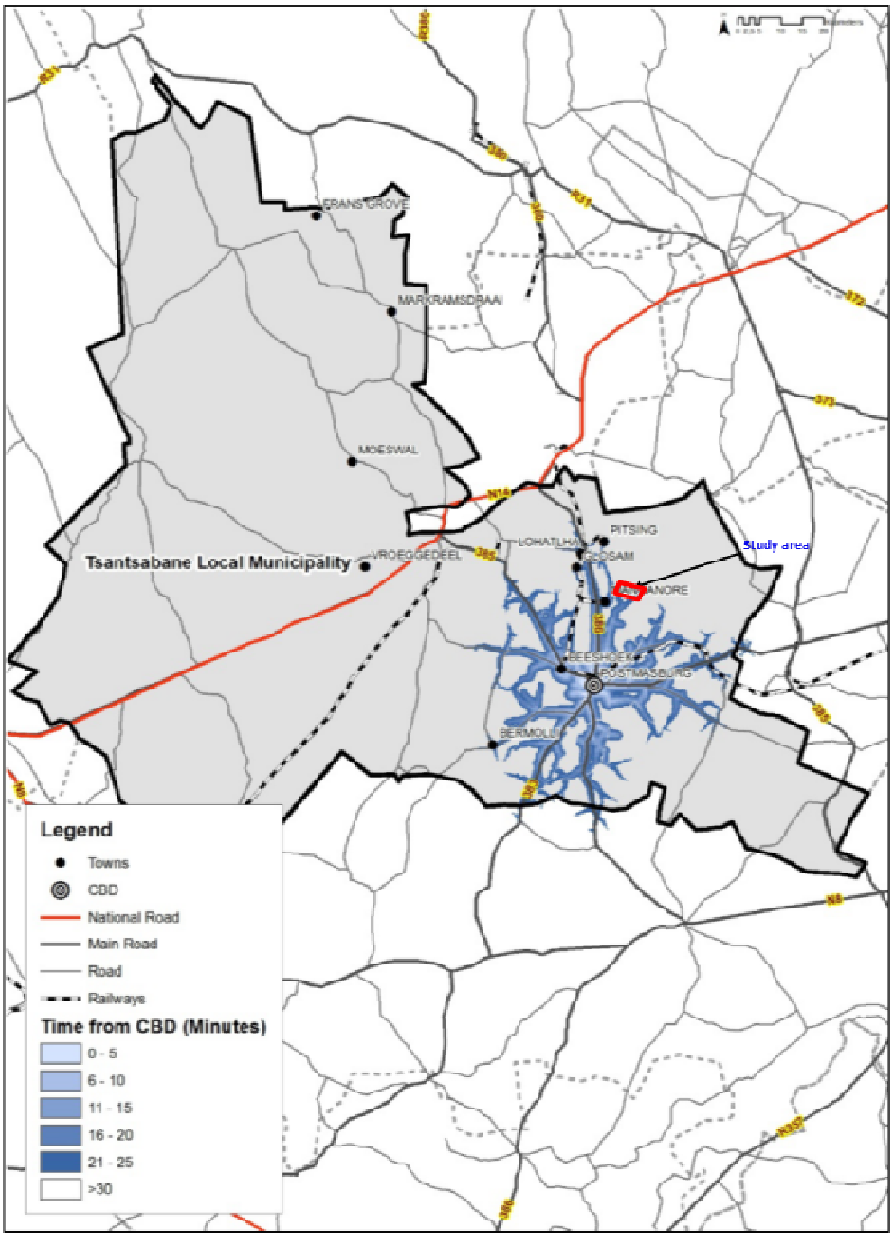

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Figure 5: Tsantsabane Local Muncipality Location Map

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10.1 Geology

10.1.1 Regional geology

The proposed prospecting right property falls geologically within the Neoarchaean to Palaeoproterozoic Transvaal Super-group in the Griqualand West region. The Transvaal Supergroup in the Griqualand West region is subdivided into the Ghaap and Postmansburg Groups. These two groups are equivalent to the Chuniespoort and Pretoria Groups, respectively, in the Transvaal region.

The Gamagara Formation (Olifantshoek Supergroup) and the Asbestos Hills Subgroup (Manganore Iron Formation & Wolhaarkop Breccia) of the Ghaap Group (Griqualand West/Transvaal Supergroup) are the primary ore bearing units. The ore bearing units can be summarised as follows: the iron-rich conglomerates of the Gamagara Formation unconformably overlie the supergene-enriched iron formation of the Asbestos Hills Subgroup (Kuruman Formation). Within the Asbestos Hills Subgroup, the ferruginous material, which is highly deformed, comprises lenses of high-grade ore, typically known as the Manganore Iron Formation.

Manganese is widely distributed in the terrestrial crust. It is usually associated with the iron ores, in relatively small concentrations. The principal manganese ores are pyrolusite (MnO_2), psilomelane, manganite (MnO(OH)), braunite ($3Mn_2O_3.MnSiO_3$) and hausmannite (Mn_3O_4).

The area lies on the western margins of the Kaapvaal Craton, in the Postmasburg Iron and Manganese Fields. Dolomites of the Transvaal System underlie the region, with superficial deposits of the Kalahari covering it in most parts(Mudau and Grobbellar, 2012).

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10.1.2 Local geology

Two arcuate belts known as the Eastern and Western belts of deposits extend from Sishen in the north and Postmasburg in the south, hosting two types of ore. The ferruginous type contains mainly braunite, partidgeite and bixbyite (Gutzmer, 1996) and occurs along the centre of the Gamagare Ridge, or western belt. The siliceaus type of ore consists of braunite, quartz and minor partidgeite and occurs in deposits along the eastern belt, as well as at the extremities of the Gamagara Ridge. The dolomite palaeo surface is karsted, leading to collapse structures where iron and manganese formation has fallen into these karst cavities to form the well-known Wolhaarkop Becciated body.

Farm 589 is located in the Gamagararand (Western Belt). The distribution of manganese ores is strictly controlled by the composition of the underlying dolomites. Ferruginous manganese ores occur at Bishop, Lohatla and Glosam along the centre of the Gamagara Ridge (Western Belt), where the unconformity cuts through the most manganiferous members of the Campbellrand Dolomites (Reivilo and Fairfield Formations (Gutzmer and Beukes, 1997)). The dolomitic limestone dominates the study area (Figure 6), nevertheless there are portions of red to flesh coloured windblown sand in the middle of the farm with some surface limestone at the southeast boundary of the farm. The rock types on the farm and its surroundings are dolomitic limestone (**Vgl**); shale, flagstone, quartzite, conglomerate (**Vg**); banded ironstone with bands of amphibolite and lenses of flat pebble conglomerate; crocidolite; tuff (**Vak**) as well as red to flesh coloured windblown sand (**Qs**).

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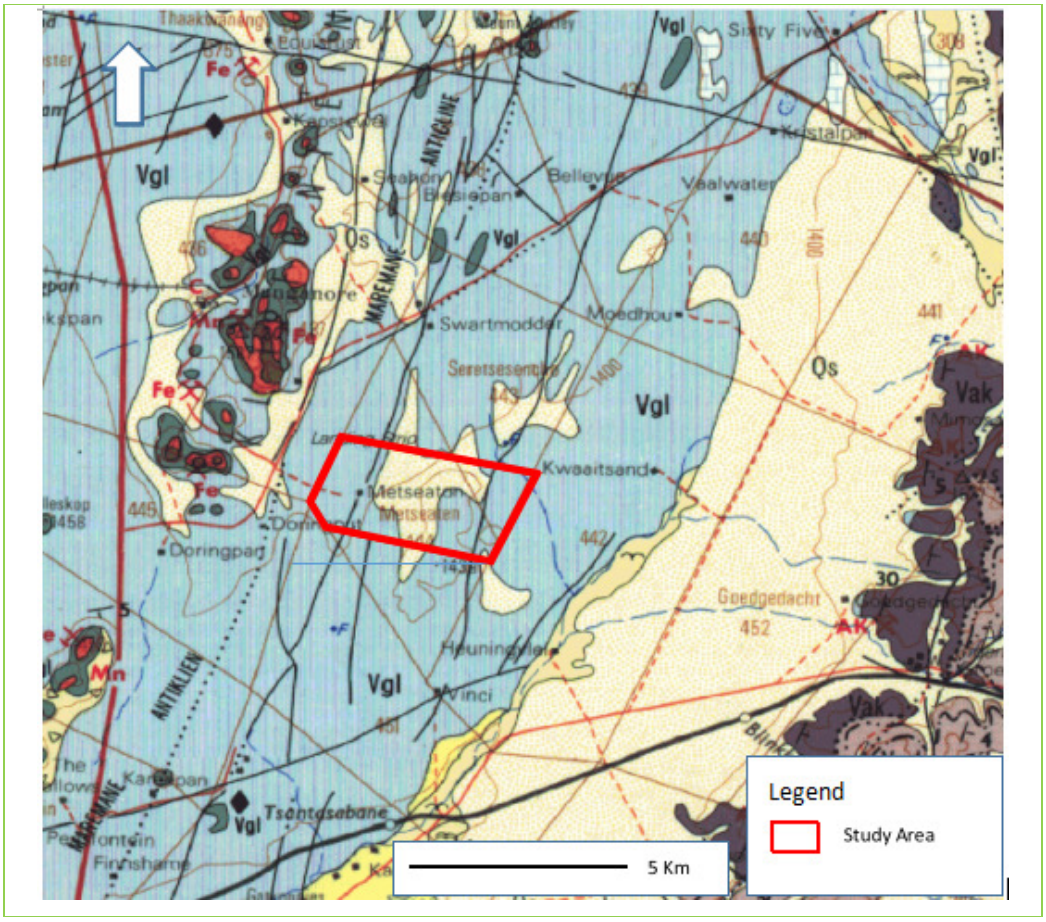

Figure 6: Geological map of Postmasburg (Council for Geoscience, Pretoria) showing approximate location and geology of Portion 12 of Farm 589 north of Postmasburg, Northern Cape Province.

10.2 Climate

The Northern Cape is known for its extreme climate conditions and the ZF Mgcawu District Municipal area is by no means an exception to the rule. The weather data for ZF Mgcawu Municipality is obtained from weather stations at Augrabies Falls, Postmasburg, Twee Rivieren, Upington and Van Zylsrus. The Northern Cape is characterised by a harsh climate and many more Rainfall and prolonged droughts. This added climate is accompanied by high evaporation due to the intense heat of the dry summer months. (Mukheibir,

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2007) .The Orange River flows from east to west through the Municipal Area, with a large amount of dry rivers also intersecting the area.

The surrounding landscape is characterized by the Kalahari Desert, wavy hills, sand plains, red sand dunes, agricultural farms and beautiful cultivated land along the Orange River. The area is a semi-desert area, with low summer rainfall levels. The average summer temperatures differ between 18^0C and 36^0C, with extremes of up to 43^0C. Winter temperatures are moderate and differ between 3^0C and 20^0C.

The area falls within a rain shadow. Rain generally occur early in spring and then again between February and April. Average rainfall of the area, differs between 150 and 200 mm per annum. Relating to the above-mentioned, the area has a typical continental climate with extreme high temperatures and rainfall in the form of thunderstorms, mainly occurring during the summer months. Of the highest summer day temperatures in South Africa occur in this area – temperatures of more than 40^0C are measured during November, December, January and February. On the other hand the winters are extreme with temperatures often below 0^0C experienced during June, July and August.

10.3 Water resources

10.3.1 Rivers

Figure 7 shows a network of rivers covering most of the western and eastern portions of the ZFM. The Kai! Garib and Kheis have the densest with Khara Hais and Mier the most dispersed concentration of rivers in the ZFM. The three main rivers are the Orange, Hartebees and Molopo Rivers. The Orange River is under severe pressure from agriculture and the encroachment of alien vegetation. The other main rivers in the study area include: Kaboep; Tuins; Gamagara rivers. All rivers in the ZFM, except the Orange River, are

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non-perennial rivers. (EMF, n.d.) There are no significant dams on the Orange River in the ZFM. A number of containment dams such as Boegoeberg (Groblershoop), Neusberg (Kakamas) and Rooiberg (Kenhardt) help to serve the agricultural areas.

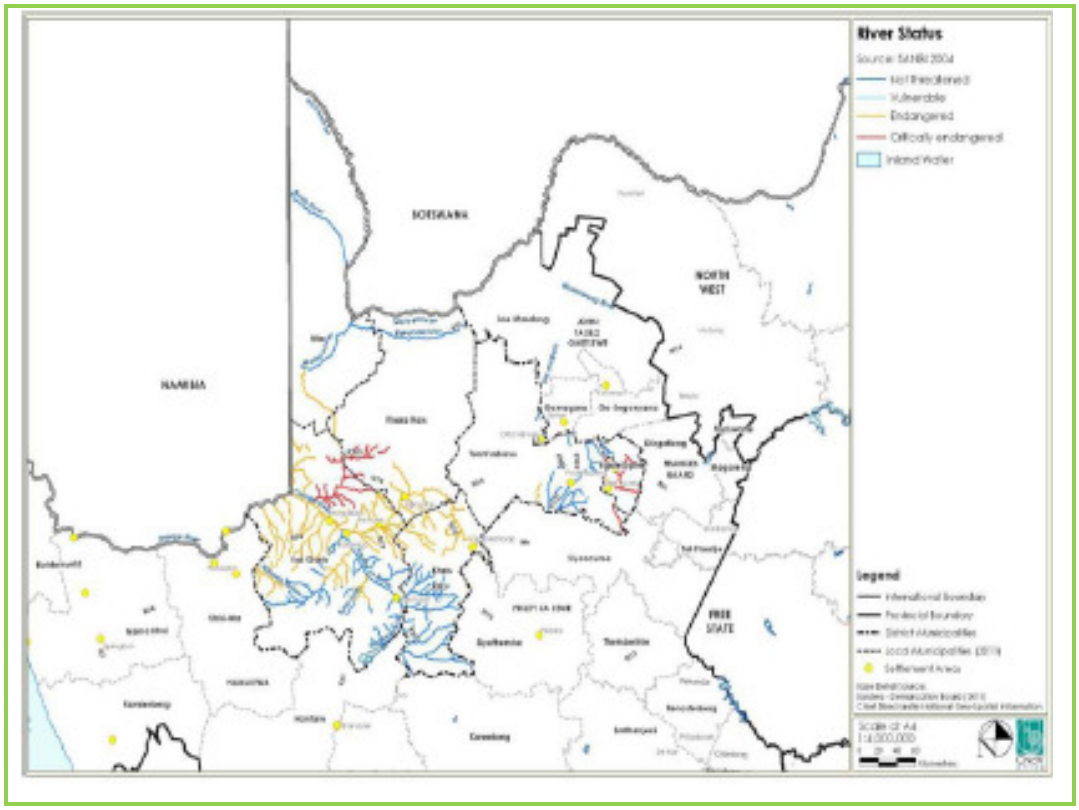

Figure 7: River network in the ZFMDM

10.3.2 Ground water

Ground water not very commonly found in this area. Various farms in this area are uninhabitable because of the absence of good quality underground water. The underground water usually lies very deep beneath the surface and is often too brackish for use, even by animals. The water table becomes deeper the further you move from the river. The water levels of the underground water in many places often subside rapidly because of over-pumping, and rainfall is too

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low to refill the underground sources. Ground water utilisation constitutes the only water source for the majority of the rural areas in the ZFM. The ground water is mainly used for rural domestic water supplies, stock, watering and water supplies between towns. Due to the geological formations is a low most of the municipal area, the characteristics of the aquifer the generally unfavorable except for in the Western parts of the ZFM that underlain by dolomitic Karst aquifers. (EMF, n.d.)

The Orange River tributaries are generally supplied by groundwater sources. This constitutes a very important source of water for the rural areas. More than 50% of the rural water supply is dependent on groundwater for domestic use. The significant amount of groundwater extracted near the Orange River is replenished by means of inducing charge from the river. The arid climate in the region and limited potential water resources will result in ground water to fully developed and utilised.

10.3.3 Surface water

The most important river in the region is the Orange River. Without this river very little development would be possible. The Orange River is perennial with a flow which varies between 50 and 1800 cubic meter per second (cum/s) depending on the season. The flow of the river is largely controlled by the releases of the dams upstream, like the Bloemhof, Gariep and Van der Kloofdams.

The Hartbees River runs past Kenhardt and flows into the Orange River. This is a river which only flows after heavy rainfall.

The Molopo River and its tributary, the Kuruman, which previously used to flow into the Orange River is situated in the north of the area. A sand dune cut the river off and it can no longer flow through. After a flood a large swamp forms

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near the junction of the two rivers. There are also other small rivers which only flow after heavy rains and are therefore rather inconsistent.

The quality of the water from the Orange River has systematically been degrading. Reasons for this are the increasing agricultural and industrial activities which are upstream from Upington, as well as the lessening of the inflow of high quality water from Lesotho. At present the analysis of the water is as follows.

- pH 7.5
- conductivity 34 ms/m
- total hardness (as $CaCO_2$) 152 mg/l
- Chrorine 120 mg/l

The quality of the water varies with the seasons, as well as depending on which river feeds the main inflow. If it is the Orange River, the turbidity, sand and salt content is usually high. If the inflow comes mainly from the Vaal River one finds a light nutrient content which leads to algae growth. The blue-green algae (nucro-systis) are typically found. The removal of large concentrations of both silt/sand and algae is problematic at times.

Dams

Within the region there are no significant dams on the Orange River. There are however various containment dams from which water for irrigation or urban settlement is diverted through canals. Examples of these are Boegoeberg Dam near Groblershoop and the Neusberg Dam near Kakamas. The Rooiberg Dam at Kenhardt is fed by the Hartbees River and is sometimes empty because of the inconsistency of the river flow. In the north of the region is the Leeubos Dam in the Swartbees River.

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Although the amount of silt in the Orange River has decreased since the construction of the Gariep Dam, the Boegoeberg Dam was already covered by silt before the building of the Gariep Dam.

Surface Water (rainfall)

Upington, situated in the centre of the region, has an average annual rainfall of 189 mm, which falls mainly between September and March. The average annual evaporation is 3400 mm pa. The quality of the rain water is good since there is no significant air pollution in the area which could result in acid rain.

10.4 Vegetation

As a result of the low rainfall, the area has a unique vegetation since two field types are found in the area, i.e. the Orange River scattered field and the Kalahari-Dune field, with a large bio-diversity of plants and animal species, which are endemic to the respective field types.

Furthermore, an interesting blend of hydrous and drought resistant plant species appears, due to the Orange River flowing through a semi-arid area. In this way contrasts in plant life occur, e.g. Wild Olive and River Willow, versus Aloe, Quiver and Camel Thorn Tree.

The northern part of the area consists of Bushveld while the southern parts have Karoo type vegetation, which could be described as desert-like. The Kenhardt areas' vegetation is also a Karoo type vegetation with various types if succulents. Various Quiver Trees are also found in the area.

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Vegetation Status

SANBI's classification of the vegetation status of the entire ZFM as Least Threatened suggests there is little that threatens the ecosystem's integrity. The area along the N10 and N14, which coincides with Orange River, is classified as Endangered. Notwithstanding the Least Threatened status, the poor status of the rivers, namely, either Critically Endangered or Endangered suggest there are problems in the catchments. The EMF records a number of alien species that occur, and species that might occur in the ZFM. These include the following (EMF, n.d.):

Vegetation Types

The different biomes and respective different vegetation types under these biomes are shown below (Figure 8) : (EMF, n.d.)

- Savanna Biome
- Ghaap Plateau Vaalbosveld
- Gordonia Duneveld
- Gordonia Kameeldoring Bushveld
- Gordonia Plains Shrubland
- Kathu Bushveld
- Koranna-Langeberg Mountain Bushveld
- Kuruman Mountain Bushveld
- Kuruman Thornveld
- Molopo Bushveld
- Nossob Bushveld
- Olifantshoek Plains Thornveld
- Postmasburg Thornveld
- Auob Duneveld
- Nama-Karoo Biome
- Blouputs Karroid Thornveld
- Bushmanland Arid Grassland
- Bushmanland Basin Shrubland
- Bushmanland Sandy Grassland

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- Kalahari Karroid Scrubland
- Lower Gripe Broken Veld
- Northern Upper Karoo
- Atonal / Wetland Biome
- Bushmanland Vloere (salt pans)
- Southern Kalahari Mekgacha
- Southern Kalahari Salt Pans
- Lower Gariep Alluvial Vegetation
- Desert Biome
- Bushmanland Inselberg Shrubland

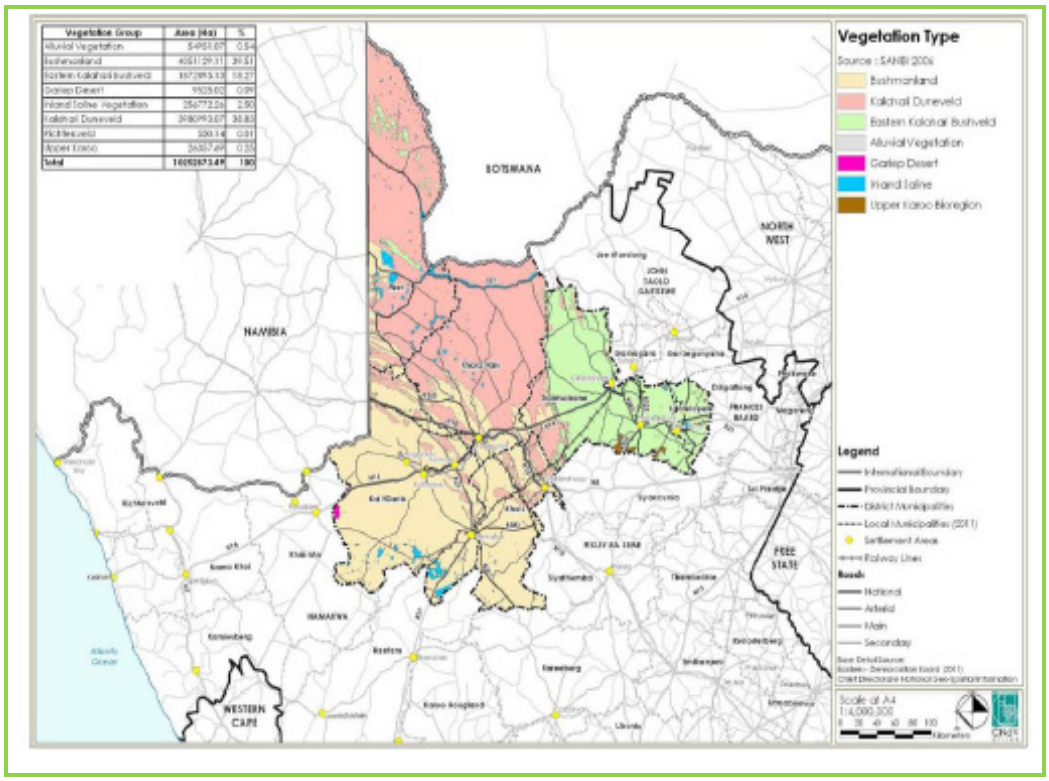

Figure 8: Vegetation type map of the ZMFDM

The exact location of the proposed project seems to be dominated by the Kuruman Thornveld which is least threatened. Adjacent to it is the Postmasburg Thornveld and a little bit of Kuruman Mountain Bushveld towards

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the west. The Southern Kalahari Salt Pans can also be observed towards the southeast of the area. Figure 9 shows the vegetation type of the property in question.

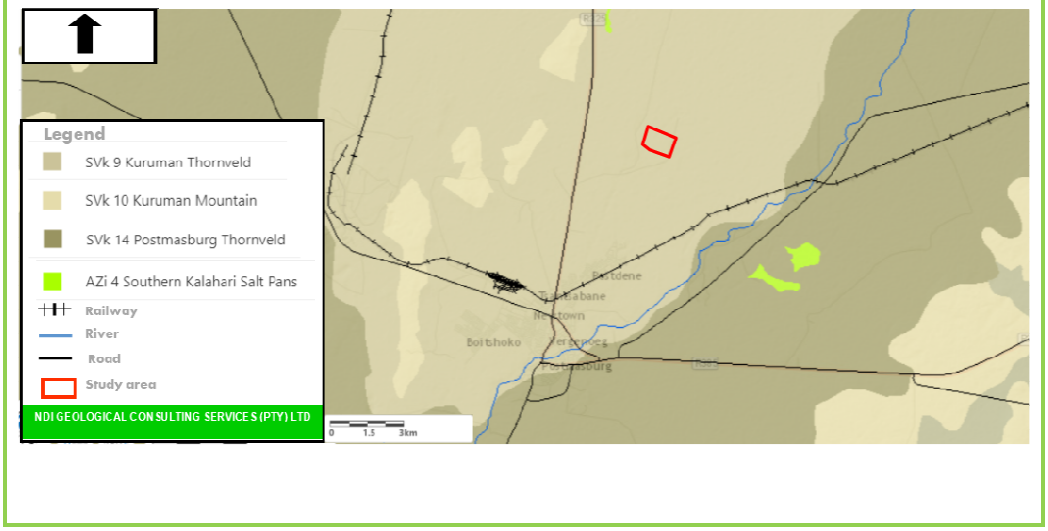

Figure 9: Vegetation type map of the Pilediwa proposed project.

10.5 Soils

The study area is characterised mainly by Soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime is generally present in part or most of the landscape (Figure 10). The east of the area is covered by rock with limited soils whereas towards the west soils of red, yellow and/or greyish colour are observed.

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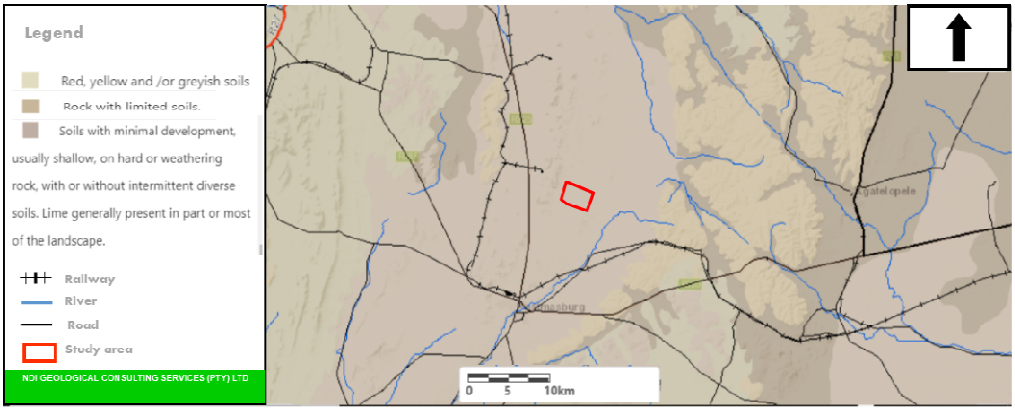

Figure 10: Pelidiwa project soil map

10.5 Air quality

The air quality of the area can be described as good because there is very little air pollution compared to urban areas. Problems such as acid rain do not occur in the area. The few cases of air pollution which occur are mostly as a result of smoke from the burning of vegetation such as reeds along the river, and, to a lesser extent, from certain households.

Legislation relating to air pollution (Part III of Act 45 of 1965) is applicable to the region and was promulgated in the Government Gazette R1255 of 19 July 1978. This act is specifically applicable to households with coal stoves, as well as any fuel burning appliance installed at a business or any other property which would make use of it.

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10.6 Agriculture

The economic characteristics of a region are of utmost importance for any future planning. Before the present situation, with regard to aspects such as the nature and extent of economic activities in the region is not established, it is impossible to plan for the future of the region.

Agriculture compromises grape production, which is mainly exported to Europe, owing to peculiar grapes that are ripe and ready for export before the grapes of other countries can reach these markers, as well as livestock and game farming.

Agriculture has undergone extensive restructuring since the opening up of the South African economy and substantial growth took place between 1998 and 2002. This growth was however impacted due to mounting pressures from market competition and legislative changes.

Agricultural Enterprises

The Orange River over area delivers a major part is that South Africa's table grape production. The Orange River Producers Alliance is a table grape industry that is renowned in as supplier of fresh table grapes to Europe with an output of more than 20 million cartons. (OABS, 2012)

More than 90% of Africa's total dried vine fruit arm production is produced through 1250 sultana grape growers in the Northern Cape who produced more than 50,000 tons in 2010. The sultanas produced here comprise more than 80% of that which is exported primarily to Europe and other eastern countries. (OABS, 2012)

SAD Vine Fruit Pty (Ltd) is located in Upington and owns the largest dried vine fruit processing and packaging plant in South Africa, employing more than 350

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persons. It has intakes at Groblershoop, Mylpaal, Louisvaleweg, Keimoes, Kakamas and Vredendal. (OABS, 2012)

The Orange River Wine Cellars Co-op, also based in Upington, is the second largest winemaking cooperative in the world and has wine cellars are at Groblershoop, Grootdrink, Upington, Keimoes and Kakamas. This co-op has more than 740 members who produce wine grapes and 445 farmers who produce grape juice. (OABS, 2012)

Livestock Farming

Livestock farming occurs mainly on large farms where farming is extensive. The larger majority of these farms are privately owned.

In the jurisdiction of the ZF Mgcawu District Municipality there are approximately 1600 farm land units, which belong to 890 owners. Because of the difference in the carrying capacity of the field, there are fairly large differences in the sizes of the farms. The carrying capacity of the field in this area can differ considerably between (for instance) a 10ha stock unit and 65ha stock unit further westwards.

The central parts of the region consist mainly of semi-desert areas and are therefore, with a few exceptions, mainly suitable for extensive livestock farming.

Lastly, it should be mentioned that a large variety of game can be found on both private and conservation areas in the Region, forming an important base for the well-established game industry in the region. More than 1000 game farmers have been registered with the Department of Nature Conservation which is also an indication of the extent of the industry in the region.

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10.7 Tourism & Heritage in the district

The tourism industry plays a key role in the South African economy, both from its contribution to GDP and from its contribution to employment and tourism is dependent on both domestic and foreign visitors both in the sense of domestic to the ZFM and Northern Cape and also in the sense of national as well as international visitors. Tourism is one of the most important economic sectors in the Northern Cape as well as within the ZF Mgcawu District Municipal boundaries. The industry is noted as the fastest growing component of the economy by the ZFM IDP (2012– 2017).

National Parks and Reserves

The world famous Kgalagadi Transfrontier Park is found in this region. This tourist destination attracts thousands of tourists to the region on an annual basis and has thus a very positive influence on the smaller local tourist enterprises in the area. About 13 km outside of Upington is the Spitskop Nature Reserve, which is managed by the //Khara Hais Municipality. Although this reserve does not fall specifically under the ZFM management, it plays a role in the tourism industry of the region. The Augrabies National Park which, like Spitskop, is not managed by ZF Mgcawu District Municipality, but which has an important influence on tourism in the region.

Figure 11 shows the National Protected areas in the proposed project location and its surroundings.

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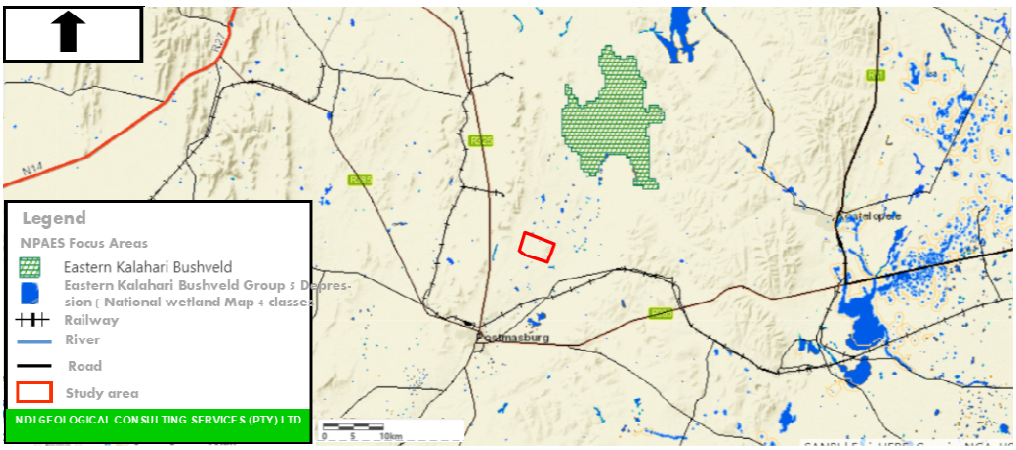

Figure 11: Pilediwa project sensitivity map

10.8 Minerals and mining in the district

ZF Mgcawu District Municipality accounts for about 30% of the Northern Cape economy. ZF Mgcawu's economy is largely dominated by mining and agriculture

As far as can be established, no economically viable mineral resources have been found in the Area, except for recent findings in the Rietfontein (Dawid Kruiper Municipality) area. There are however small pockets of various minerals. The largest are copper and zinc of Areachap north of Upington. Various small concentrations of calcite, lead, fluorspar, barite, wolfram and amethyst have been mapped but not really at a notable scale.

At the moment salt is being mined at two pans, namely Groot Witpan, 95 km northwest of Upington and at Witpan, 115km northwest of Upington. South of the above-mentioned pans are two smaller pans which were mined in the past,

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Klein Witpan and Lankpan. A third non-productive pan, which was mined in the past, is Soutpan, which lays 3,5km Southwest of Askham.

If one takes into account that there is a total of 110 Saltpans in the interior (69 coastal saltpans, as well as sea salt plants where salt is produced), the importance of the two pans north of Upington is clear. It might seem as if South Africa has inexhaustible reserves because of the great number of pans, but available information indicates that the production at most pans are small and uncertain. Climatic factors are very important. During the rainy season it is virtually impossible to produce salt and some pans have to stop production for years after a good rainy season.

Mining activity occurs in the local municipalities of Tsantsabane and Kgatelopele, where manganese, diamonds and the raw materials (ash) for producing cement are found.

Mining

Figure 12 shows the distribution of mining activities within the Municipality. Mining is one of the major sectors in the ZFM and is found in all municipalities. The greatest concentration is in the western municipalities although Lime Acres, Danielskuil and Postmasburg (Beeshoek) are also renowned mining areas. Copper and Tungsten are of the more prevalent minerals being mined in the ZFM. Lime Acres is a mining town in the Kgatelopele Municipality. The three major mines in this area include PPC, Idwala and Khumba. Danielskuil has a mine close to town. The occurrence of mineral deposits in the ZFM. This indicates the following types of minerals (EMF, undated):

a. Limestone and Asbestos– Lime Acres and Postmasburg;
b. Salt – Dawid Kruiper Municipality;
c. Copper, Zinc and Lead – in Kai! Garib, south west of Kakamas;

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d. Iron and Manganese – around Beeshoek and up to Sishen (outside the ZFM);
e. Gemstones- around Olifantshoek (outside the ZFM);
f. Copper and Nickel – north-west of Groblershoop
g. Lead and Copper – Upington; and
h. Uranium – west of Kenhardt.

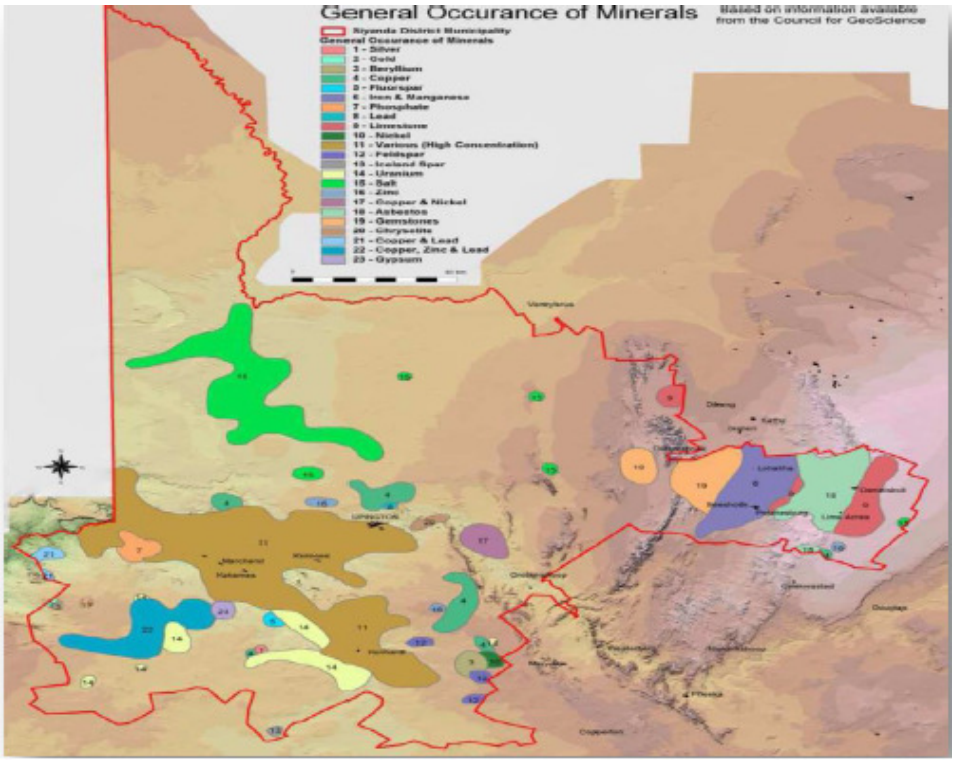

Figure 12:Occurrence of minerals in the ZFMDM

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10.9 Socio-economic environment

10.9.1 Population

The Census report of 2001 showed a population of 202 160 and 238 063 in the 2007 Community Survey. (Census, 2001; Community Survey, 2007).

An increase of 35 903 people that represents a 17, 8% increase in overall population when comparing the 2001 Census and 2007 Community Survey was recorded. Note the DMA has since been incorporated into the neighboring municipalities. The majority of the population is located in the //Khara Hais Municipality (42%), followed by the Kai! Garib Municipality (24%) and the Tsantsabane Municipality (12%). The Main settlements in the aforementioned municipalities are: Upington, Keimoes; and Postmasburg, respectively.

Tsantsabane Local Municipality has a population of 35 091 people (StatsSA, 2011). Although the population density has increased since 2002, it is still well below the metro average (Table 5).

Table 5: Tsantsabane Local Municipality Population (Stats SA, 2011)

Year	RSA Population	Tsantsabane LM	%
1996	40 583 573	28 058	0,07%
2001	44 819 778	26 729	0,06%
2011	51 770 560	35 091	0,07%

10.9.2 Monthly income

Households in Tsantsabane Local Municipality are relatively poor with almost 13,10% earning no income at all. 82,75% of the households earn less than R12 800/month. There has been significant growth in the income bracket earning between R3 500 and R12 800/month – a clear signal for rental or gap market housing options (Figure 13).

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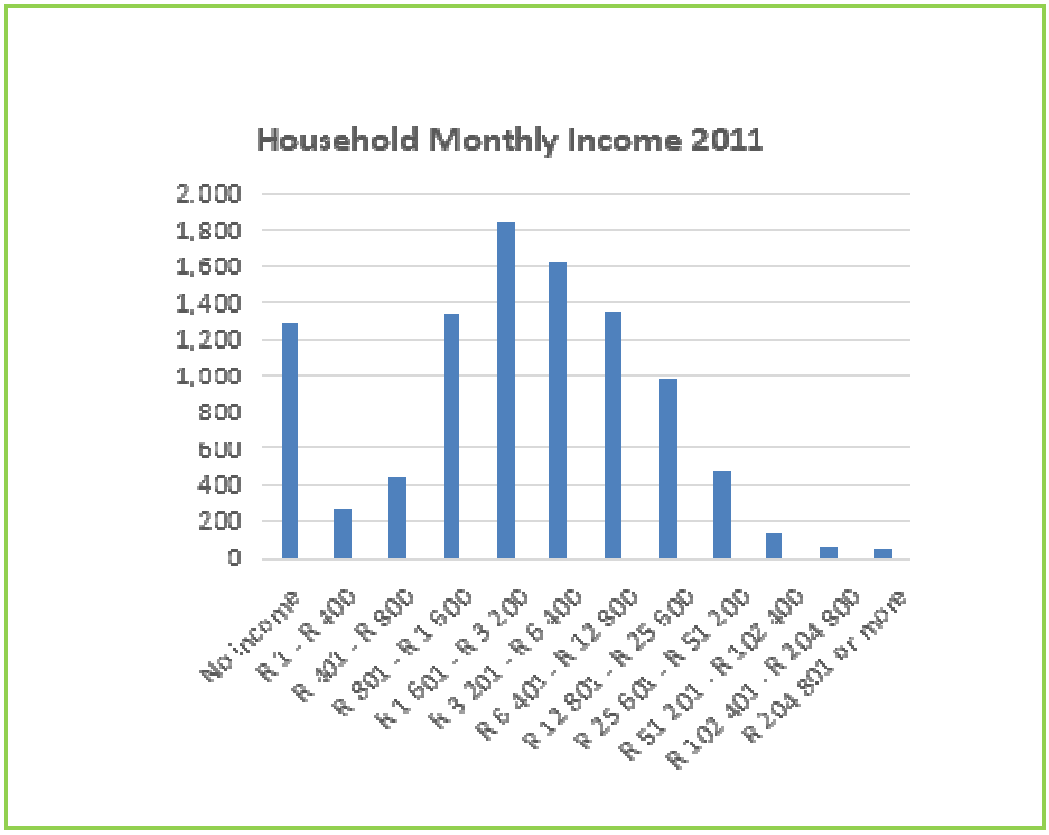

Figure 13: Household monthly income

10.9.3 Level of education

The level of education for the people in Tsantsabane Local Municipality is displayed in Figure14.

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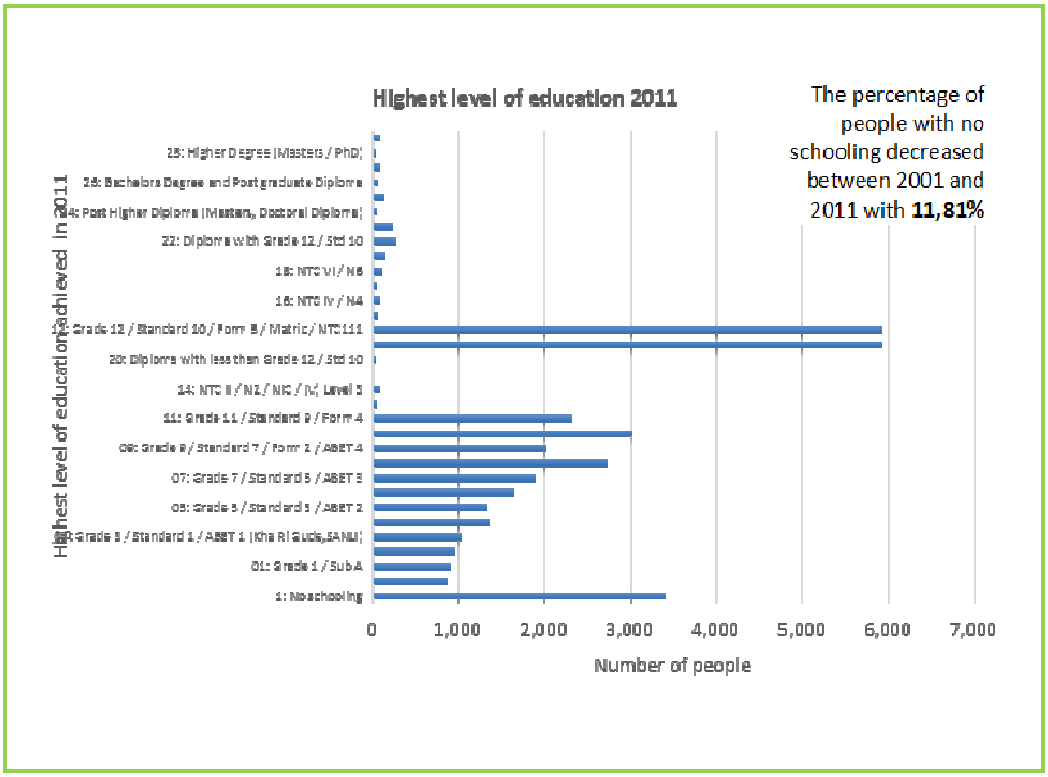

Figure 14: Level of education in the Tsantsabane Local Municipality

10.9.4 Gender distribution

The population has always been dominated by females until 2011 where things have taken a sudden turn into a male dominated one (Figure 15). This is a common trend in the mining towns where the majority of people are men working in the mines.

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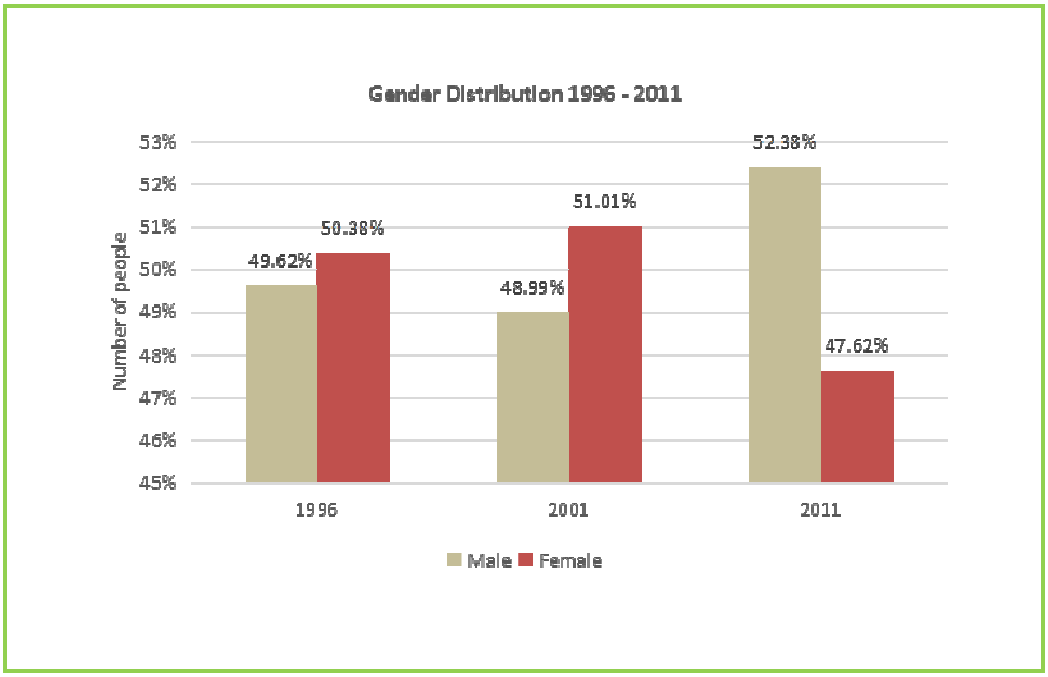

Figure 15: Gender distribution in the Tsantsabane Local Municipality

10.9.5 Health

Health facilities are distributed throughout the various municipalities in the ZFM. The health facilities, namely the community health centers and hospitals are located in the south of the N14, the main freeway connecting Springbok and Kuruman.

Hospitals are located in Kakamas (Kai! Garib), Keimoes (Kai! Garib), Upington and Gordonia (Dawid Kruiper) and Postmasburg (Tsantsabane). There are five hospitals in the ZFM. There are only two Community Health Facilities in the ZFM and Kenhardt (Kai! Garib) and Rietfontein (Mier) are the only settlements that have these facilities.

The clinics are generally located in settlements along the main routes through the municipality, namely the N14 and the N10 in the case of Kai !Garib and

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!Kheis. There are 52 clinics in the ZFM. Kai !Garib has the most clinics, 18, followed by Dawid Kruiper that has 14 clinics. Kgatelopele and Mier have the least amount of clinics, namely 3 and 4, respectively. It should be noted that medical staff are not stationed at all these facilities on a full time basis and in some cases the staff are on site only once a month. (IDP, 2007-2011)

Tuberculosis and HIV/AIDS are some of the infectious diseases that are receiving priority attention and that a shortage of staff hampers the delivery of health services in the ZFM. (ID, 2007-2011). In 2005 10.8% of the total population was diagnosed as HIV positive. The Northern Cape experienced a steady growth of the number of people infected with HIV between 1996 (6.6%) and 2006 (17.6%) (Stabilis Development, 2007).

In this region the greatest social problems are illiteracy and poverty. According to the last socio-economic survey in 2000, approximately 60% of the inhabitants have a monthly household income of between R0 – R800.

As a result of the above-mentioned factors there is a close correlation between poverty and health. Generally speaking the poorer people are the worse is their health. This includes malnutrition of children as a result of a lack of money to buy enough and/or nutritious food. The person receiving it must understand the health message, which is received. This is directly affected by literacy and education. Malnutrition is the result of illiterate mothers.

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11 DESCRIPTION OF CURRENT LAND USE

Tsantsabane Local Municipality is located within the north eastern parts of the Northern Cape Province, and falls within the boundaries of the ZF Mgcawu District. The nearest business centre is Kimberley, which is about 200km away. The municipality's main town is Postmasburg. Economically Tsantsabane is known for being rich in minerals, and for its mining, agriculture, manufacturing and farming sectors (Figure 16). Mining seems to be dominant in the vicinity of the proposed project location as can be seen in Figure 17.

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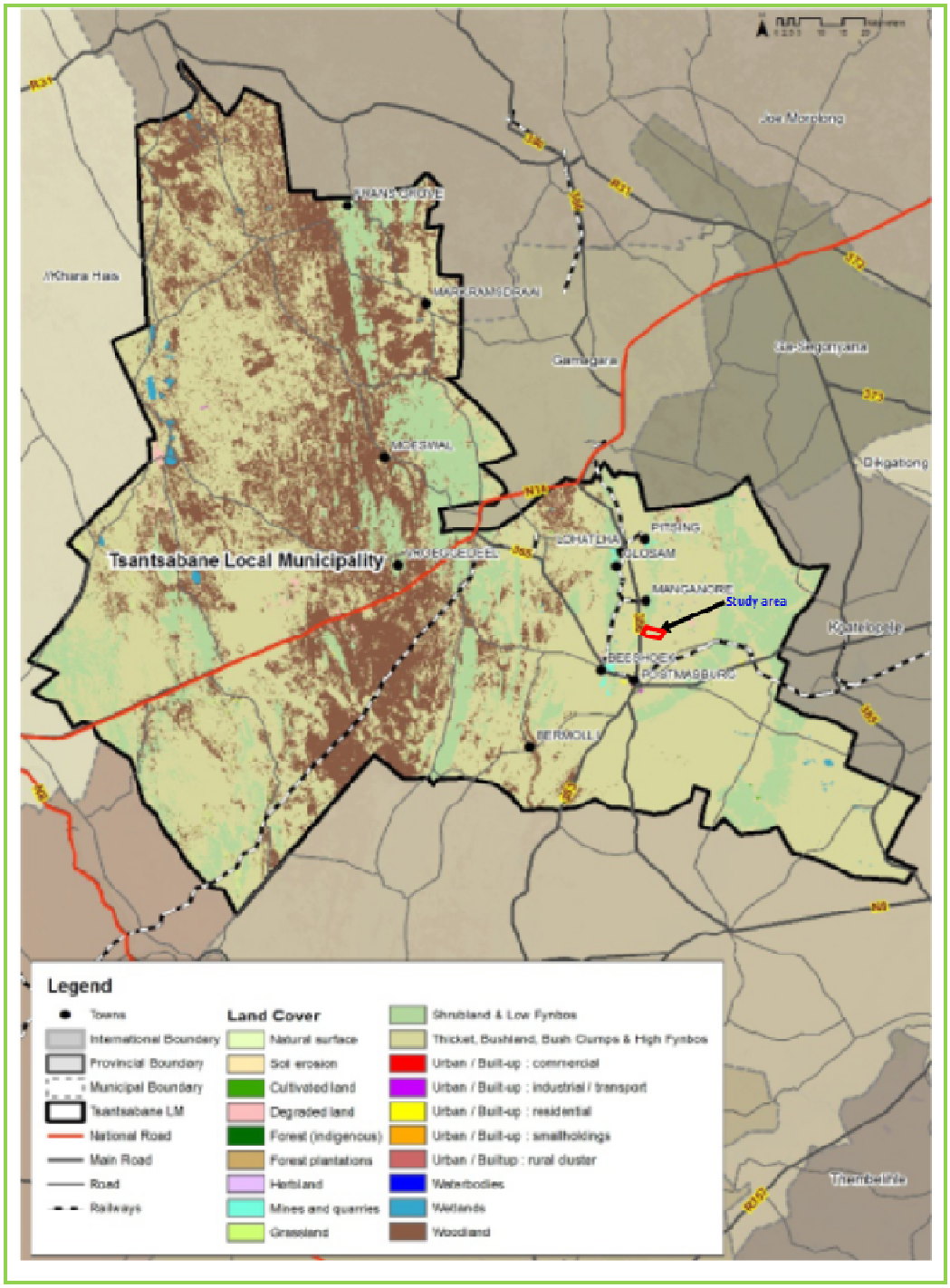

Figure 16: Land use in the Tsantsabane Local Municipality

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11.2 Description of specific environmental features and infrastructure on the site.

Railway lines are 8 km and 10.5 km south and west of the property, respectively. The property is accessed via a road that connects to an arterial route (R325) from Postmasburg to Kathu in the north. The road is about 4.9 km west of the property. The Beeskhoek South Beeshoek North mines are 19 km and 15 km southwest of the property respectively. Environmental features and infrastructure and land use is shown on the layout map in Figure 17.

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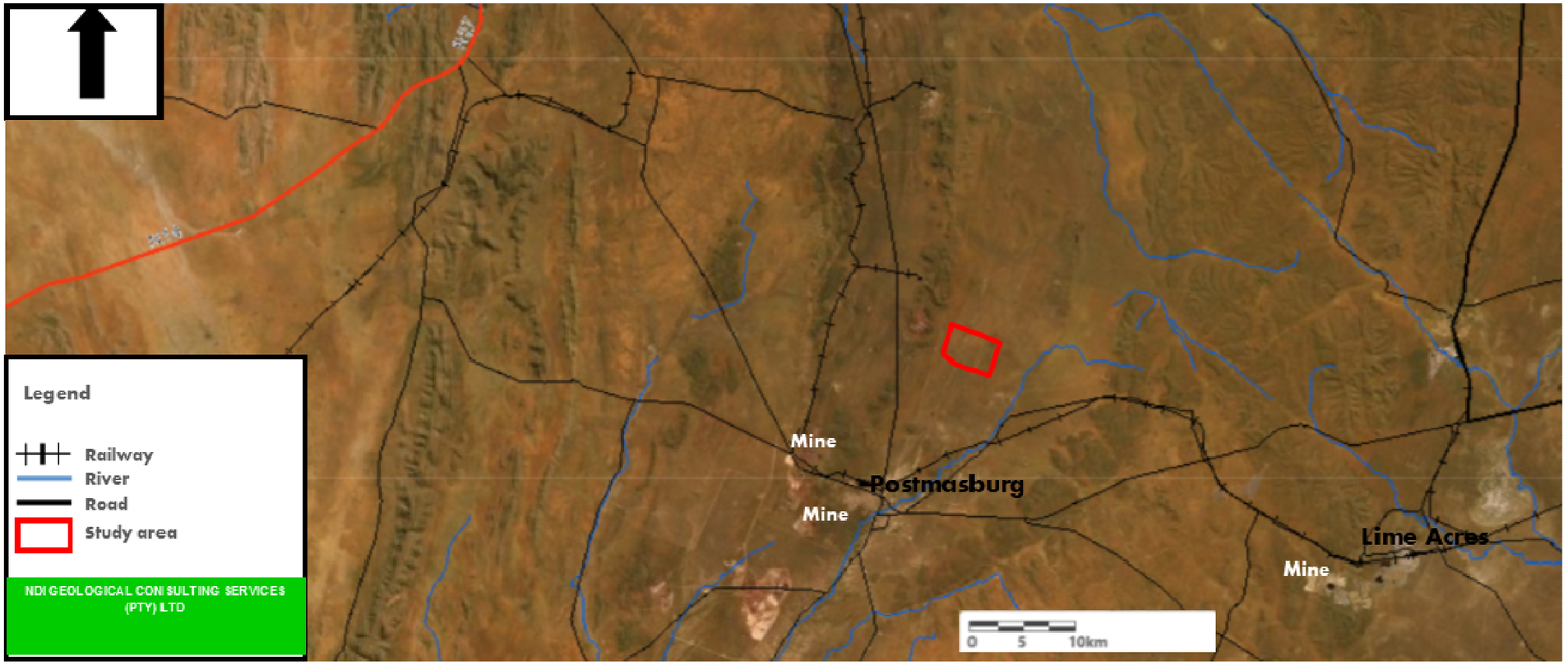

Figure 17: Land use map of the study area

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12 IMPACTS ASSESSMENT

12.1 Methodology

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

Criteria of assigning significance to potential impacts

The assessment of the impacts has been conducted according to a synthesis of criteria required by the integrated environmental management procedure (Table 6).

Nature of impact

This is an appraisal of the type of effect the activity would have on the affected environmental component. Its description should include what is being affected, and how. The impact may be positive or negative.

Extent

The physical and spatial size of the impact. This is classified as follows:

Local

The impacted area extends only as far as the activity, e.g. a footprint.

Site

The impact could affect the whole, or a measurable portion of the property.

Regional

The impact could affect the area including the neighbouring farms, transport routes and the adjoining towns.

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Cumulative

The impact could have a cumulative effect with the surrounding land uses.

Duration

The lifetime of the impact which is measured in the context of the lifetime of the proposed phase (i.e. construction or operation)?

Short term

The impact will either disappear with mitigation or will be mitigated through natural process in a short time period.

Medium term

The impact will last up to the end of the prospecting or mining period, where after it will be entirely negated.

Long term

The impact will continue or last for the entire operational life of the mine, but will be mitigated by direct human action or by natural processes thereafter.

Permanent

Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

Intensity

This describes how destructive, or benign, the impact is. Does it destroy the impacted environment, alter its functioning, or slightly alter it. These are rated as:

Low

This alters the affected environment in such a way that the natural processes or functions are not affected.

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Medium

The affected environment is altered, but function and process continue, although in a modified way.

High

Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases. This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

Probability

This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:

Improbable

The possibility of the impact occurring is very low, due either to the circumstances, design or experience.

Probable

There is a possibility that the impact will occur to the extent that provisions must be made therefore.

Highly probable

It is most likely that the impacts will occur at some or other stage of the development.

Definite

The impact will take place regardless of any preventative plans, and mitigation measures or contingency plans will have to be implemented to contain the impact.

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Determination of significance

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The classes are rated as follows:

No significance

The impact is not likely to be substantial and does not require any mitigatory action.

Low

The impact is of little importance, but may require limited mitigation.

Medium

The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.

High

The impact is of great importance. Failure to mitigate, with the objective to reduce the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

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Table 6: Criteria of assigning significance to potential impacts

INTENSITY OF IMPACT	RATING
Insignificant: impact is of a very low magnitude	1
Low: impact is of low magnitude	2
Medium: impact is of medium magnitude	3
High: impact is of high magnitude	4
Very high: impact is of highest order possible	5

EXTENT OF THE IMPACT	RATING
Limited: impact affects the project site	1
Small: impact extends to the boundaries of the prospecting area	2
Medium: impact extends to neighbouring properties	3
Large: impact affects the surrounding communities	4
Very Large: The impact extends beyond the neighbouring communities	5

DURATION OF THE IMPACT	RATING
Very short-term: impact lasts for a very short time (less than a month)	1
Short-term: impact lasts for a short time (months but less than a year)	2
Medium-term: impact lasts for the for more than a year but less than the life of operation	3
Long-term: impact occurs over the operational life of the proposed extension.	4
Residual: impact is permanent (remains after mine closure)	5

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PROBABILITY	RATING
Highly Improbable: Likelihood of the impact arising is estimated to be negligible; <5%. 1	1
Improbable: Likelihood of the impact arising is estimated to be 5-35%. 2	2
Possible: Likelihood of the impact arising is estimated to be 35-65% 3	3
Probable: Likelihood of the impact arising is estimated to be 65-95%. 4	4
Highly Probable: Likelihood of the impact arising is estimated to be > 95%. 5	5

PROBABILITY	SEVERITY				
	1	2	3	4	5
1	L	L	L	L-M	L-M
2	L	L-M	M	M	M-H
3	L	M	M	M-H	H
4	L-M	M	M-H	H	H
5	L-M	M-H	H	H	H

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12.2 Identified impacts

During this phase the following environmental aspects have been considered and potential impacts identified. Some of these may require further investigation

Air pollution;

Dust emissions from vehicle and machinery movement as well as vegetation clearance where necessary will affect the quality of the air. There could be an increase in carbon emissions and ambient air pollution due to the movement of vehicles and drilling machinery. The proposed prospecting activities will have negligible impact to the quality of the air.

Biodiversity loss;

Vegetation clearance will result in some animals fleeing to other areas. As soon as drilling is done and rehabilitation has been completed, the fauna will move back to the area. Chances of biodiversity loss are medium as a result of noise and vegetation clearance. Failure to initiate a rehabilitation plan and alien control plan during the construction phase may lead to further impacts on faunal habitat during the operation phase should mining take place.

The loss of biodiversity is expected to be insignificant as no indigenous species are expected to be found in the area.

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Noise;

Drilling machinery and vehicles produce considerable amounts of noise which will affect the farm owners, nearby communities and natural habitat. This impact will be felt during the day working hours as drilling will only be conducted during those hours.

The use of vehicles and machinery may result in an increase in ambient noise in the immediate vicinity of the project.

Heritage site disturbances

Prospecting activities such as vegetation clearance, moving vehicles and influx of people around the heritage resources can lead to accidental disturbance of these resources. Heritage impact assessment study will be conducted once the drillsites have been isentified.

Traffic impact assessment

Traffic in the study area will increase as a result of vehicles that will be used during prospecting, moving in and out of the prospecting area. The possibility of this happening is high and the impact will be felt during the day working hours.

Socio-economic impacts.

Increased level of crime due to an influx of people entering the private property. Disturbance of day to day lives of the farmers due to prospecting activities. Damages to the farm owners' properties due to prospecting activities are likely to happen.

Land use conflict

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Hydrocarbon spillages from earthmoving machineries and vehicles can lead to soil contamination. Increased movements by vehicles and humans can lead to compaction of the soil. Vegetation clearance also increases the chances of soil erosion.

Soil Landuse and Land Capability

- Contamination of soil as a result of construction activities can be as a result of a number of activities (i.e. incorrect hazardous substance storage, incidental hydrocarbon leakages from construction vehicles);

- The movement of machinery, vehicles and workers in unprotected areas (bare) may result in compacting of the soil of the existing roads. Fuel and oil spills from vehicles may result in soil chemical pollution;

- Loss of soil resource and utilisation as a result of the cleaning and topsoil stripping of the construction footprint. Although soils will be stripped and stockpiled, loss of seed reserve and organic matter depletion through decomposition during stockpiling will severely reduce soil quality and its ecological function if not managed appropriately. Re-vegetation should be imposed as far as is possible to maintain soil fertility through natural nutrient cycling during soil storage prior to rehabilitation phase; The topsoil stockpile will be less than 2 m in height to avoid erosion. Any contaminated deriving from prospecting activities soil be removed and treated by the use of bio-sorb, oil cap and bio-shock. Contaminated soil will then be sent for laboratory test before it is returned to its original area. Stored topsoil will be spread on top of rehabilitated area in order to promote vegetation growth. Drip trays/Oil containment will be placed under stationary vehicles at all time in order to avoid soil contamination which may lead to water pollution.

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Vegetation

The applicant together with the appointed Environmental control officer will avoid unnecessary clearance, uprooting, felling of vegetation within the proposed prospecting areas. Existing roads will be utilized as far as possible to access the prospecting area in order to avoid unnecessary removal of vegetation. Protected Trees and Vegetation of conservation concern will not be uprooted or cleared.

Soil pollution

Improper storage of hydrocarbon fuels lead to contamination of the soil. Leaking of these fuels from vehicles and machineries into the ground also lead to soil pollution.

Surface water contamination

Prospecting close to the watercourses will contaminate surface water thereby affecting its quality. The effects of water contamination can last for a long time. Prospecting activities will not be conducted within 100 m from the border of any water resources and sensitive areas without authorisation from the relevant authority.

Ground water contamination

Spillages of hydrocarbons due to the use of machineries and vehicles that make use of hydrocarbon fuels can result in contamination of groundwater.

The potential impacts to the above listed environments as identified by the stakeholders will be recorded and discussed in order to come up with feasible mitigation measures.

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12.3 The positive and negative impacts that the proposed activity (in terms of initial site layout) and alternatives will have on the environment and community that may be affected.

The impacts of the proposed site layout will be the same as those of the alternative sites that may be identified.

Drilling sites will be identified based on the location of sensitive environments such as heritage sites (graves etc.), sensitive areas, riparian zones, and areas with Red Data Species. Changes in the layout plan will be discussed and agreed on with the affected landowners.

Desktop studies have determined that the area in question has potential for iron and manganese mineralisation. Manganore mining has also been previously carried out in the areas adjacent to the property in application.

The positive impacts of the activities are the continuous creation of employment required in the region. Should prospecting yield positive results in terms of the availability of iron and manganese mining will take place and more jobs will then be created. This will result in a boost to local and the national economy.

12.4 The possible mitigation measures that could be applied and the level of risk

Mitigation measures must be implemented in order to minimize the impacts caused by the proposed project activities. The mitigation measures ensure that the project considers the environment and the predicted impacts in order to minimize impacts and achieve sustainable development.

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12.5 The outcome of the site selection Matrix. Final layout plan

The drilling site layouts as presented in Figure 3 may change if any sensitive environmental features are to be identified during prospecting.

An alternative layout plan developed aimed at minimizing impacts with the sensitive environmental features or any other features of importance will be discussed with the landowners.

12.6 Motivation where no alternatives sites were considered

Desktop studies have determined that the area in question may have potential for iron and manganese mineralisation. Adjacent properties have also been previously mined for the same minerals. This is evidence of the presence of iron and manganese in the proposed area or property and for this reason no alternative sites were considered. Alternative drill sites will be identified based on the location of sensitive environments such as heritage sites (graves etc.), wetlands, etc. Changes in the layout plan will be discussed and agreed on with the affected landowners.

12.7 Statement motivating the preferred site

The preferred site has been chosen because of its potential to host iron and manganese deposits. From a desktop point of view the area is not a no go area in terms of environmental features.

12.8 Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that are identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

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A meeting was conducted on the 6th of August 2019 with the landowners , adjacent land owners and relevant stakeholders. The land owner, adjacent farm owners and relevant stakeholders were requested to provide relevant information regarding the proposed prospecting activities and comments with regard to the identified negative environmental impacts. The requested information assisted in identifying potential environmental impacts and risk, especially historical information that could be provided by the lawful occupiers.

A desktop study was done to acquire more information about the proposed prospecting area and the adjacent farms, the climatic conditions, economic condition and their land uses.

The comments raised by the stakeholders will be addressed and also included in the Final BAR.

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12.9 Assessment of each identified potentially significant impact and risk

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

Table 7: Assessment of each identified potentially significant impact and risk

NAME OF ACTIVITY (E.g. For Prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc E.g. For Prospecting,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and excavations, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	***POTENTIAL IMPACT*** *(Including the potential impacts for cumulative impacts)* *(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)*	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	**SIGNIFICANCE** if not mitigated	**MITIGATION TYPE**(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g.Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation.	**SIGNIFICANCE** if mitigated
Vegetation clearance	Vegetation loss	Environment & fauna	Construction	Medium	The proposed development footprint areas shall remain as small as possible and where possible be confined to already	Low

					disturbed areas; Existing tracks must be used as far as practicable. Re-vegetation (seeding), Avoid veld fires, and Rehabilitation	
Road construction & upgrading/ maintenance	Vegetation loss	Environment, people & animals	Construction	Medium	Ripping of road. Avoid construction of new roads and use existing roads.	Low
	Dust	Environment, people & animals	Construction	Medium	Dust suppression methods will be implemented. A speed limit of 40 km/hr shall apply.	Low
	Ground compaction	Environment	Operational	High	Ripping of road. Use existing roads as far as practical.	Medium

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Removal of topsoil	Surface disturbance	Environment	Construction	Medium	Rehabilitation using backfilling methods as far as practicable.	Medium
Topsoil storage area	Surface compaction	Environment	Operational	Medium	Ripping of ground, Avoid unnecessary tracks.	Low
	Soil erosion	Environment	Operational	Medium	Topsoil will be stored on the high ground of the prospecting area outside flood plain. Stockpiles will be 2 m in height.	Low
Temporal office site	Surface compaction	Environment	Operational	Medium	Ripping of the compacted ground to 300m in order to allow vegetation growth	Low
Ablution area	Surface compaction	Environment	construction	Medium	Ripping of the compacted ground to 300m in order to allow vegetation growth	Low
	Air pollution/hygiene	People	Operational	Medium	Dust suppression measures such as water spraying.	Low

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Moving of equipment and mobile infrastructure to site	Surface disturbance	Environment	Construction	Medium	Rehabilitation using backfilling methods as far as practicable.	Low
Drilling (RC and Core)	-Surface disturbances	Environment, fauna and people	operational	High	Rehabilitation by backfilling trenches and pits.	Medium
	Biodiversity loss	Environment, fauna and people	Operational	Medium	Rehabilitation, re-vegetation. Avoid unnecessary removal of vegetation.	Low
	Visual impacts	People	Operational	Medium	Concurrent rehabilitation or creation of buffer zone.	Low
	Soil pollution	People, environment and fauna	Operational	Medium	Using drip tray, taking precautions on the refuelling point. If any soil is contaminated during the life of the prospecting activities, it will be immediately scooped and stored in the enclosed containers or plastic to be	Low

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					removed with the industrial waste to a recognized licenced facility or applicant for further treatment. Small spills will be treated on site using bio-sorb or oil cap.	
	Surface and ground Water pollution	People, environment and fauna	Operational	Medium	Avoid soil contamination throughout the life span of the mine.	Low
	Dust	People, environment and fauna	Operational	Medium	Dust suppression measures will be applied.	Low
	Health risk to workers or general public	People	Operational	Medium	Employees will be provided with Personal Protective Equipment (PPE)	Low
	Heritage site	environment	Operational	Medium	Heritage impact assessment has been conducted before commencing with the	Low

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					prospecting activities. However if any heritage site or resource is identified during the prospecting period, it will be reported to SAHRA.	
	Soil erosion	Environment	Operational	Medium	Creation of berms, and proper storage of topsoil stockpiles.	Low
	Veld Fire	People, environment and fauna	operational	Medium	Environmental awareness.	Low
	Domestic waste	Animals, environment and people	Construction and operational.	Medium	Marked containers will be utilised to store domestic waste. Employees will be inducted on how to sort their waste. Waste will be taken to the municipality dumping site	Low

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					on the weekly basis	
	Noise	People & animals	Construction & operational	Medium	Noise will be kept minimal on working hours.	Low
Drilling (RC and Core)	Surface disturbances	Environment, fauna and people	operational	High	Rehabilitation by recapping boreholes.	Medium
	Biodiversity loss	Environment, fauna and people	operational	Medium	Rehabilitation, re-vegetation. Avoid unnecessary removal of vegetation. Fencing of pits to prevent fauna from falling into the pits.	Low
	Visual impacts	People	Operational	Medium	Concurrent rehabilitation or creation of buffer zone.	Low
	Soil pollution	People, environment and fauna	Operational	Medium	Using drip tray, taking precautions on the refuelling point. If any soil is contaminated during the life of the prospecting activities, it	Low

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					will be immediately scooped and stored in the enclosed containers or plastic to be removed with the industrial waste to a recognized licenced facility or applicant for further treatment. Small spills will be treated on site using bio-sorb or oil cap.	
	Surface and ground Water pollution	People, environment and fauna	Operational	Medium	Avoid soil contamination throughout the prospecting period.	Low
	Dust	People, environment and fauna	Operational	Medium	Dust suppression measures will be applied.	Low
	Health risk to workers or general public	People	Operational	Medium	Employees will be provided with PPE (dust mask, Ear plugs etc.)	Low

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	Heritage site	Environment	Operational	Medium	Heritage impact assessment will be conducted before commencing with the prospecting activities and once the drilling sites have been identified. However if any heritage site or resource is identified during the prospecting period, it will be reported to SAHRA.	Low
	Soil erosion	Environment	Operational	Medium	Creation of berms, and proper storage of topsoil stockpiles.	Low
	Veld Fire	People, environment and fauna	operational	Medium	Environmental awareness. Employees should be trained on the importance of the environment as well as the impacts that their activities may have on the	Low

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					environment	
	Domestic waste	Animals, environment and people	Construction and operational.	Medium	Marked containers will be utilised to store domestic waste. Employees will be inducted on how to sort their waste. Waste will be taken to the municipality dumping site on the weekly basis	Low
	Noise	People & animals	Construction & operational	Medium	Noise will be kept minimal on working hours.	Low
Maintenance of machinery /vehicles	Soil pollution	People, animals and environment	Operational	Medium	No maintenance of vehicles will be done on site. Avoid soil contamination at all time. Contaminated soil will be scooped immediately after accidental spill of hydrocarbons.	Low

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Bundwall for Hydrocarbon storage	Soil contamination and water pollution	People, animals and environment	Operational	Medium	Avoid soil contamination at all time. Contaminated soil will be scooped immediately after accidental spill of hydrocarbons. Contaminated soil will be scooped immediately after accidental spill of hydrocarbons	Low
Final rehabilitation	Dust			Medium	Topsoil will be spread over the rehabilitated soil in order to allow regrowth of vegetation. All machinery will be removed from the site. Ripping of all remaining compacted surface.	Low
	Noise			Medium	Noise will be minimal since only touch-up will be done on	Low

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					site for final rehabilitation.	
	Domestic waste	negative	Closure phase	Medium	Removal of all marked containers and disposed waste at a registered facility	Low
Monitoring rehabilitated areas		environment	Post closure	Low	Monitoring of all rehabilitated areas will be done to make sure if vegetation is growing and if not other mitigation measures as seeding of the area will be considered. All invader species will be monitored and removed from all rehabilitated areas.	Low

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12.9 Summary of specialist reports

No specialist studies were conducted on the study area.

12.10 Environmental impact statement

12.10.1 Summary of the findings of the environmental impact assessment

a) There are no known graves or any historical aspects which were identified during the assessment, however if any are encountered during prospecting, proper procedures will be followed in terms of reporting.

b) It was identified during environmental impact assessment that if all negative impacts are avoided and were they cannot be avoided they can be mitigated and managed throughout the prospecting period they will be insignificant.

c) By implementing the proposed mitigation measures, it is unlikely that Natural Ecosystems will be compromised at any of the sites nor at a regional scale.

d) Positive socio economic effects will be realised at local to regional scale.

e) Vegetation loss is unavoidable during the construction phase of the project. This will however be limited to the footprint of the infrastructure (access road, camp, boreholes). Care must be taken to manage any species of special concern as well as the proliferation of alien invasive plant species.

f) Land use will not change. Several landowners and land occupiers within the proposed project area may be affected although on a temporary basis due to the need to access the sites and the establishment and use of the office. Measures such as safety along the roads and dust

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suppression will be undertaken to ensure that the impacts on the land owners and land occupiers are minimised.

g) Waste generated from the site will be collected in proper receptacles and disposed of in registered waste disposal sites.

12.10.2 Final Site Map

Final site map attached in Figure 3.

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

Employment opportunities will improve socio economic standard of local farm workers from which a small labour pool will be drawn. There will be a multiplier effect which will aid families associated with the workers.

Prospecting activities will have positive impact however they also have negative impacts on the environmental and other aspects on the surrounding. The table 8 shows the negative impacts as a result of the proposed prospecting activities. Although they have negative impact, all those negative impacts can be avoided and were they cannot be avoided they can be mitigated and properly managed throughout the lifespan of the mine. After mitigation, when all measures are applied, all impact will be less significant.

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Table 8: Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

Negative impact	Description of the impacts
Surface disturbances	Surface disturbance will occur as a result of drillholes that are to be drilled. The compaction of ground will also occur during prospecting period.
Air pollution	Dust will be generated from the drilling machines and the movement of vehicles. Emissions of smoke from vehicles which are not well serviced.
Noise pollution	Noise from vehicles will be created during the prospecting activities which may affect the land owner, neighbouring/ adjacent farm owners.
Soil pollution	Contamination of soil may occur from accidental hydrocarbon spillages from the machineries, hydrocarbon storage and refuelling point
Vegetation loss	Removal of vegetation will lead to vegetation loss. Vegetation cover will be disturbed and / or destroyed where the stockpile areas will be established.
Fauna disturbances	Animals within the prospecting area will automatically relocate to other locations Red data species will be protected under the biodiversity and forest acts where no sensitive species will be removed without a licence..
Loss of authentic value	Littering of domestic and industrial waste during exploration.
Topography	Drilling will disturb the topography of the area for the duration of the prospecti period.
Surface and ground water contamination	If accidental hydrocarbons spills are not removed with immediate effect after they spill, this may lead to surface and ground water contamination.
Health risk to workers or general public	This can happen if worker or general public inhale excessive dust or drink contaminated water as a result of the prospecting activities. This can also occur if the Mine Health and Safety Act is not implemented
Heritage site	If any heritage features exist, they may be disturbed during prospecting.
Veld Fire	Veld fire may occur as a result of negligence or improper awareness.

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Conflict of land use	Prospecting activities will have conflict with the current land-use.
Farm animals theft/ poaching	This may occur if access to the farm is not controlled. Lack of awareness classes.

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

The EMP objectives:

The main objective of the EMPR is to provide information, guideline, and management measure to be implemented during the prospecting period. By following the information provided on the EMPR, impacts on the environment, cultural and social aspects will be avoided. Sensitive areas will not be disturbed if this document is implemented effectively.

The applicant will operate on the principle that “prevention is better than cure” and so will institute procedures to reduce the risk of emergencies taking place. These will include ensuring that all contracts specify that the contractor is required to comply with all the environmental measures specified in this EMP, environmental awareness training, on-going risk assessment and emergency preparedness.

Through implementation of the proposed prospecting activities and the mitigation measures it is anticipated that the identified impacts on the environmental, heritage resource and social economic conditions aspects can be mitigated and managed effectively. Implementation of the mitigation and management measures within the EMPR: it is anticipated that through the following management or mitigation measures impacts can be effectively managed:

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a) Theft risk can be mitigated through avoiding accommodation area on site and restriction of access to employed people only.

b) Surface disturbances, visual impact and topographic changes can be minimised by practicing concurrent rehabilitation throughout the prospecting period. By doing this the area can be easily returned to its natural state.
c) Surface and ground water pollution can be avoided by management of contaminated soil and by avoiding accidental spills.
d) Noise pollution can be managed through communication with the affected parties and also environmental awareness of the employees.
e) In terms of emergency responses, all employees shall have the telephone numbers of emergency services, including the local emergency response unit and firefighting service. All employees must be made aware of procedures to be followed during the environmental awareness training course.

Monitoring of the required mitigation measures is to take place on site daily by the site manager. Annual monitoring audits are to take place by an appointed independent environmental assessment practitioner (EAP) to compile the required annual environmental compliance report required by the DMR.

12.10.5 Aspects for inclusion as conditions of Authorisation.

(Any aspects which must be made conditions of the Environmental Authorisation)

- The applicant must inform the farm owners and adjacent farm owners prior to any commencement of the prospecting activities.
- The applicant must appoint security officers in order to control access to the prospecting area.

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- The financial provision must be adjusted annually and submitted to the DMR.

12.10.6 Description of any assumptions, uncertainties and gaps in knowledge. *(Which relate to the assessment and mitigation measures proposed)*

The gaps in this basic assessment report are that it does not include full comments from all the stakeholders. Uncertainties also exist in the actual final depth of the drillholes. The final size will only be known when actual prospecting takes place. Heritage impact assessment still needs to be undertaken.

12.10.7 Reasoned opinion as to whether the proposed activity should or should not be authorised

12.10.7.1 Reasons why the activity should be authorized or not.

Impacts have been assessed, evaluated and mitigations are in place to minimize any disturbance as a result of prospecting activities. Monitoring of the required mitigation measures is to take place on site every two weeks by the environmental officer and daily by site manager. Annual monitoring audits will be done by an appointed independent environmental assessment practitioner to compile the required annual environmental compliance report required by the DMR. For these reasons all activities should be authorized.

12.10.7.2 Conditions that must be included in the authorisation

a) A copy of authorisation and must be kept on site where the activities are undertaken. The authorisation must be produced to any authorised official of the department upon requests and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.

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b) Where any of the applicant's contact details change, including the name of the responsible person where the applicant is a juristic person, the physical or postal address and/or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.

c) The holder of the authorisation must notify the department, in writing and within twenty four (24) hours, if any condition of this authorisation cannot be or is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance. Non-compliance with a condition of this authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the regulations.

d) All areas on site that are disturbed must be rehabilitated using locally occurring indigenous plant species.

e) The prospecting site must be clearly demarcated; clear signage must be erected; and access controlled.

f) Faunal species must not be trapped, killed or hunted during all phases of the prospecting work.

g) Appointed Environmental Officer must visit the area at least twice a month.

h) The EMPR, Environmental Authorisation and the layout plan must always be on site during prospectig activities.

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12.10.8 Period for which the Environmental Authorisation is required.

The Environmental Authorisation is required for five years. The five years will also cover the final rehabilitation and monitoring period.

12.10.9 Undertaking

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to report.

The undertaking has been attached at the end of both the Basic Assessment Report and the Environmental Management Programme.

12.10.10 Financial Provision

STATE THE AMOUNT THAT IS REQUIRED TO BOTH MANAGE AND REHABILITATE THE ENVIRONMENT IN RESPECT OF REHABILITATION.

The financial provision has been calculated to the amount of R 132 366 for management and rehabilitation of environmental impacts. The calculations are shown in Table 13.

12.10.10.1 Explain how the aforesaid amount was derived.

The calculation of the financial provision has been done with a guidance of the financial provision guideline provided by the department of mineral resources. Environmental Rehabilitation was calculated based on the contents of Table 9.

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Table 9: Environmental Rehabilitation calculation

Site Establishment	1 ha
Vegetation Clearance	1 ha
Access Road	1000 m^2
Drilling	3.9 ha
Temporal Topsoil Storage	0. 001 ha
Construction Of Temporal Concrete Lab With Bund Wall For Temporal Storage Of Hydrocarbons	0.0025 ha
Mobile Office	0.0025 ha
Ablution Facility	0.0010 ha

12.10.11 Confirm that this amount can be provided for from operating expenditure. (Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Prospecting work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

The financial provision will be provided from operating expenditure. Pilediwa Corporate intends to make this financial provision in a form of bank guarantee or cash deposit.

12.11 Specific Information required by the competent Authority

None at this stage

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

There is no report which was compiled for socio-economic condition however the impacts and mitigation for such were discussed with the interested and affected parties as follows:

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12.11.1.1 Impact on the socio-economic conditions of any directly affected person. (Provide the results of Investigation, assessment, and evaluation of the impact of the Prospecting, bulk sampling or alluvial diamond Prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an **Appendix**.

- Livestock theft as a result of uncontrolled access to the farm,
- Noise as a results of prospecting activities,
- Potential water pollution as a result of neglected soil contamination,
- Visual impact as a result of vegetation clearance,
- Dust generated by prospecting activities as well as by movement of vehicles

Employment opportunities will improve socio economic standard of local farm workers from which a small labour pool will be drawn. There will be a multiplier effect which will aid families associated with the workers.

Mitigation measure to the impacts of the socio-economic condition of any directly affected person:

- Reasonable and effective methods must be implemented to reduce the liberation of dust from operational activities.
- Dust suppression measures such as water dampening from trailer to be used if and when required.
- The ECO will train all staff on recognition and importance of fauna and livestock.
- Hunting, snaring, capturing or interfering with any fauna and landowner's stock is forbidden.
- The areas demarcated for prospecting must be the minimum reasonably required which will involve the least possible disturbance to

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the environment and must be fenced to restrict any fauna entering the excavated area.

- Using drip trays and taking precautions on the refuelling point. If any soil is contaminated during drilling, it will be immediately scooped, bagged and stored in the enclosed containers or plastic to be removed with the industrial waste to a recognized licenced facility for further treatment. Small spills will be treated on site using bio-sorb, bio-shock or oil cap. This will minimise surface or ground water pollution.
- Concurrent rehabilitation will be implemented throughout the prospecting operation, meaning that each borehole will be rehabilitated (capped) before moving to the next in order to reduce negative visual impacts.

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

Heritage impact assessment will be conducted once the drilling sites have been identified.

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

Not applicable

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PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. Draft environmental management programme.

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

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

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

The description of the aspect of the activity has been already covered in part A on section 1(h) .

1.3 Composite Map

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

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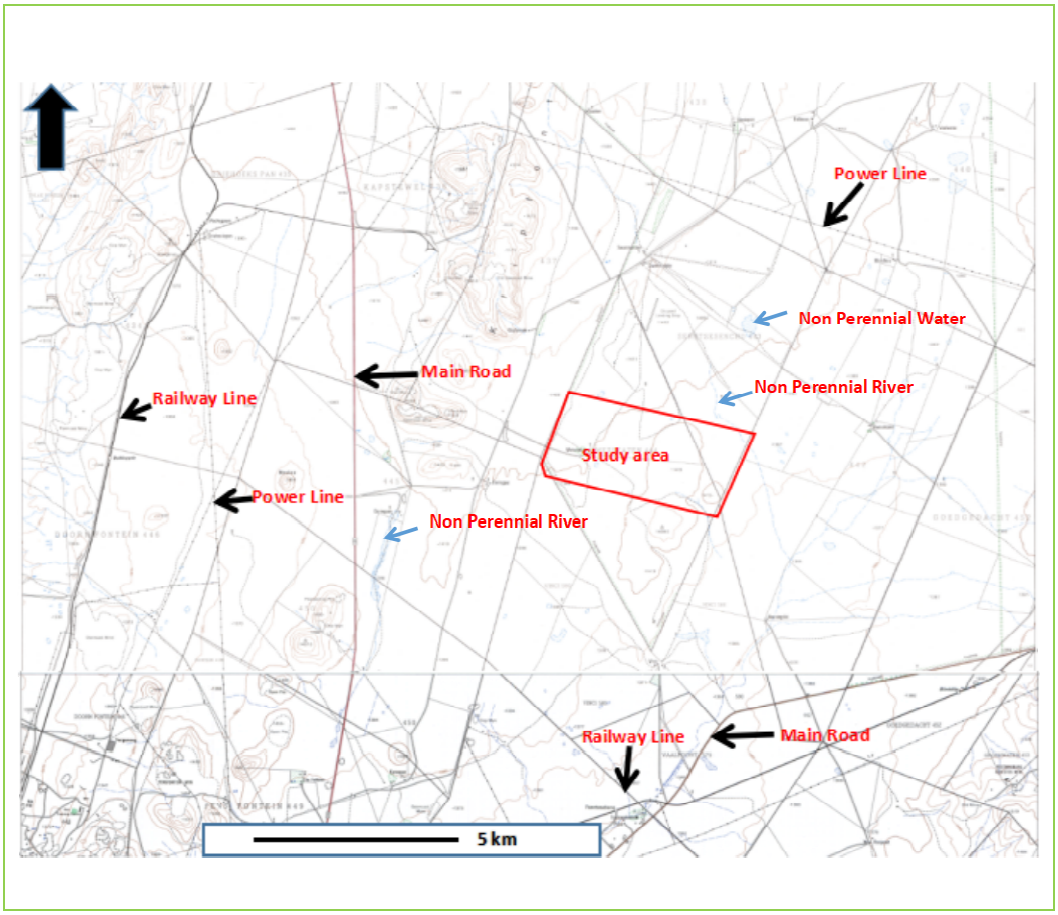

Figure 18: Composite map

1.4 Description of Impact management objectives including management statements

i) **Determination of closure objectives.** (Ensure that the closure objectives are informed by the type of environment described)

Closure objectives have been determined in terms of the principles of National Environmental Management Act, Act 107 of 1998 (NEMA) since NEMA is the foundation of all environmental legislation:

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- With regard to the proposed prospecting activities, the determination of closure objective including the rehabilitation of the area to its natural state.
- The disturbance of ecosystems and loss of biological diversity will be avoided, or, where they cannot be altogether avoided, are minimised and remedied.
- pollution and degradation of the environment will be avoided, or, where they cannot be altogether be avoided, are minimised and remedied;
- The disturbance of landscapes and sites that constitute the nations cultural heritage will be avoided, or, where they cannot be altogether be avoided, are minimised and remedied;
- Waste will be avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;
- The use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;
- A risk averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
- Negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot all altogether be prevented, are minimised and remedied.

Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and the

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surrounding.

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

The rates and volumes of water to be used are not available at this stage. The water will mostly be required for drinking purposes and for dust suppression system if required.

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

It is unlikely that a WUL will be required, however a meeting with DWS will be arranged to make sure if it is the case.

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1.4 Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity

Table 10: Impacts to be mitigated in their respective phases

ACTIVITIES (E.g. For mining - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and excavations, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	**PHASE** (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	**SIZE AND SCALE** Of disturbance (volumes, tonnages and hectares or m²)	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond mining as the case may be.
Literature Review	Planning	-	Mitigation not proposed	-	-
Geological Mapping	Planning	--	-	-	-
Geophysical Mapping	Planning	-	-	• -	-
Site establishment	Construction	1 ha	• Existing tracks must be used as far as practicable. • Avoid veld fires,	The applicant will make sure that the employees comply with the standard	Mitigation measures will be implemented when required. However, other mitigations

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			• The prospecting area will be demarcated by means of fence. • The area for fuel storage will be demarcated by means constructing a cement slab with bund walls around. • Sensitive areas like gullies and dry wash will be avoided. • Large established trees and bushes will also be avoided. • If any fauna species is found during site establishment stage, they will be relocated to other portions of the farm.	laid out in the Environmental Management Programme and the Environmental Authorisation including their conditions and /or conditions identified by Competent Authority. This to be done by way of regular training and regular Environmental inspection and auditing (EATC) .	measures such as using existing tracks will be implemented from the commencement of this activity until cessation of activity.
Vegetation clearance	Construction & Operational	1 ha	• Existing tracks must be used as far as practicable. • Large trees and bushes to be left in situ as far as is practically possible • Avoid veld fires, Where vegetation clearance is unavoidable, preferable to brush cut at surface level and retain root	• Compliance with EMPR • Compliance with Competent Authorities requests and regulation • EATC and	• Mitigation measures to be in place prior to activity. • In event of a critical incident with environmental significance , remedial

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			structure in place. • The individuals of any protected plant species should be retained *in situ* wherever possible. Permits have to be obtained from NCDENC and/or DAFF for the removal of protected species from the site.	Environmental Compliance Officer (ECO) inspection	and mitigation to be immediately carried out on site
Temporal construction of access roads	Construction	1000 M^2	• Avoid unnecessary construction of newly roads and use existing roads. • Dust suppression methods will be implemented. • limit a speed to 30kh/h • Limit road width to 3m • Avoid new road construction over listed trees and shrubs and other sensitively identified areas such as loose sands and dry wash areas.	• Compliance with EMPR • Compliance with Competent Authorities requests and regulation • EATC and ECO inspection	• Mitigation measures to be in place prior to activity. • In event of an critical incident with environmental significance , remedial and mitigation to be Immediately carried out on site
Temporary topsoil storage area	Construction	0. 001 ha	• Remove topsoil from all areas that will be subject to excavationss.	• Compliance with EMPR	• Immediate when topsoil is grubbed and stockpiled

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			• Topsoil will be stored on the high ground of the prospecting area outside flood plain, stockpiles will be at the maximum of 2m in height to prevent crushing of seed stock and micro-organisms. • Berms built around stockpile to divert storm water • Topsoil to be covered with shade cloth or netting to prevent wind removal and desiccation or • Topsoil stockpile will not be disturbed or used for construction/ maintenance of roads.	• Compliance with Competent Authorities requests and regulation • EATC and ECO inspection	
Temporary Mobile office	Construction & Operation	0.0025 ha	• On removal and rehabilitation the compacted surface will be ripped to a depth of 300 mm in order to allow regrowth. • When establishing the office and veg clearance is unavoidable, preferable to brush cut at surface level and	• Compliance with EMPR • Compliance with Competent Authorities requests and regulation	Immediate when office is installed on mine and after removal off site

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			retain root structure in place to bind and hold soil and to aid rehab after removal of site office.		
Ablution area	Construction & Operation	0.0010 ha	• The containers will be emptied by qualified applicant regularly to avoid health risk. • Doors will be kept latched at all times to prevent toilet paper from blowing into veld. • Facility will be locked during mine closure weekends when personnel on not on site	• Compliance with EMPR • Compliance with Competent Authorities requests and regulation • EATC and ECO inspection	ongoing and with weekly regularity throughout life of mine
Temporarily storage of hydrocarbons	Construction & operational	0.0025	• Hydrocarbon will be stored within the sealed mobile containers. • Drip trays will be placed under each stationary equipment or vehicles to avoid soil contamination which may lead to water pollution • Taking precautions on the refuelling point. • If any soil is contaminated during the	• Compliance with EMPR • Compliance with Competent Authorities requests and regulation. • EATC and ECO inspection.	Throughout Operational period of the mine.

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			life of the prospecting activities, it will be immediately scooped, bagged and stored in the enclosed containers or plastic to be removed with the industrial waste to a recognized licenced facility for further treatment. • Small spills will be treated on site using bio-sorb, bio-shock or oil cap. • No smoking signage to be in place at Fuel Safe Storage areas. Fire Hydrant to be in place at Fuel Safe Storage areas and to be serviced, and charged.		
Drilling (RC and Core)		0.39 ha	• Soil profile disruption, contamination of soils, destruction of natural vegetation and loss of land use: • The drilling of the exploration boreholes will be undertaken in such a manner that the environment is protected from probable spillages and contamination by carbonaceous		

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			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 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 hydrocarbon recycling or treatment facilities. • No topsoil shall be stored within 100		

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			m of water courses and drainage lines or within 500 m of wetlands and riparian areas. • The soils must be used for the backfilling and rehabilitation of the sumps. • The rehabilitated sump must be seeded with recommended seed mix. • Migration of animal life due to disturbance caused proposed project: • Where possible drill sites shall be located within degraded environments. • Poaching will be prohibited at the prospecting sites. • The drilling operation and use of campsite may result in the generation of surface water • runoff contaminated with silt (sedimentation) and possibly		

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			hydrocarbon fluids should		
Final rehabilitation	Rehabilitation	818.6782 ha	• Topsoil will be spread over the rehabilitated area in order to allow regrowth of vegetation. All machinery will be removed from the site. • Ripping of all remaining compacted surface • Removal of all marked containers and disposed waste at a registered facility • All equipment and mobile infrastructure will be moved out of the prospecting area.	• Compliance with EMPR • Compliance with Competent Authorities requests and regulation	Upon cessation of prospecting, during rehabilitation phase.
Monitoring	Closure	818.6782 ha	Monitoring of all rehabilitated areas will be done to make sure if vegetation is growing and if not other mitigation measures as seeding of the area will be considered. All invader species will be monitored and removed from all rehabilitated	• Compliance with EMPR • Compliance with Competent Authorities requests and regulation	Post closure and post rehabilitation.

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			areas		

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1.5 Impact Management Outcomes

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

Table 11: Impact Management Outcome

ACTIVITY (whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and excavations, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.).	**POTENTIAL IMPACT** (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. □ Modify through alternative method. □ Control through noise control □ Control through management and monitoring □ Remedy through rehabilitation..	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Literature Review	None	N/A	Planning	-	-
Geological Mapping	None	N/A	Planning	-	-
Geophysical Mapping	N/A	N/A	Planning	N/A	N/A
Site establishment	Vegetation loss Compaction of ground	Environment & fauna	Construction	• Remedy through rehabilitation and re-vegetation. • Remedy through ripping of compacted ground	Rehabilitation standards. Site to be rehabilitated to former land use with similar biodiversity component as pre-prospecting and to acceptable visual standard.

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Vegetation clearance	Vegetation loss soil erosion	Environment & fauna	Construction & operational	• Avoid unnecessary removal of vegetation Using existing roads as far as practicable Remedy through rehabilitation and re-Vegetation. Control through dust suppression methods	Vegetation to be regenerated to resemble former species composition. Alien intrusion to be eradicated.
Construction of access roads	Vegetation loss Dust Ground compaction	Environment & animals	Construction & operational	• Using existing roads as far as practicable • Remedy through rehabilitation • Control through management and monitoring.	Impact avoided, dust levels and rehabilitation standards. Avoid construction as far as practically possible Roads will be less than 3m width Roads to avoid sensitive areas and Listed Vegetation After rehab and closure new roads will be left in situ to aid landowner and provide improved farm infrastructure.
Topsoil removal and stockpiling	Erosion Dust Ground	Environment & people	Construction & operational	• Storm water control measures, • Dust control measures and monitoring • Remedy through ripping of compacted	Impacts control and dust levels

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	compaction			ground/surface	
Temporal Mobile office site	Ground compaction	Environment	Construction & operational	Remedy through ripping of compacted ground/surface	Surface under where structure was situated to be rehabilitated, to ensure vegetation will adequately regrow and biodiversity and former land use is re-established.
Ablution area	Health risk	Environment & people	Construction & Operational	Control through management and monitoring	Regular cleaning Maintain adequate health standard and compliance with O H & S. Keep doors closed
Drilling	Vegetation - loss	Environment and fauna	Operational phase	• Avoid unnecessary removal of vegetation • Using existing roads as far as practicable • Remedy through rehabilitation and re-vegetation. • Control through dust suppression methods. • Control through management and monitoring.	Impact avoided, noise levels, dust levels, rehabilitation standards and end use objectives) Land surface where excavations were situated to be
	-Surface disturbances	Environment and fauna			
	Biodiversity loss	Environment and fauna			

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	Visual impacts	People		• Closing all excavation to prevent fauna from falling into. • Concurrent rehabilitation or creation of buffer zone. • Using drip tray, taking precautions on the refuelling point. • If any soil is contaminated during the life of the prospecting activities, it will be immediately scooped, bagged and stored in the enclosed containers or plastic to be removed with the industrial waste to a recognized licenced facility for further treatment. • Small spills will be treated on site using bio-sorb, bio-shock or oil cap. • Avoid soil contamination throughout the life span of the mine. • Employees will be provided with proper personal protective equipment. • If any heritage site or resource is identified during the prospecting period, it will be reported	rehabilitated, to ensure vegetation will adequately regrow and biodiversity and former land use is re-established.
	Soil pollution	Environment			
	Surface and ground Water pollution	Environment & people			
	Health risk to workers or general public	people			
	Heritage resource disturbances	Heritage sites			
	Soil erosion	Environment			
	Veld Fire	Environment, fauna and people			
	Domestic waste generation	Environment			

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				to SAHRA.	
	Noise	People and fauna		• Creation of berms, and proper storage of topsoil stockpiles. • Environmental awareness. • Rehabilitation and return the area to its original state, • Seeding of rehabilitated area if vegetation did not grow natural in order to attract fauna. • Marked containers will be utilise to store domestic waste. • Employees will be inducted on how to sort their waste. • Waste will be taken to the municipality dumping site on the weekly basis • Noise will be kept minimal on working hours and monitoring. • Ripping of road. • Avoid construction of newly roads and use existing roads.	
Final rehabilitation	Dust	people	Decommissioning	• Topsoil will be spread over the rehabilitated soil	Rehabilitation standard to be

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	Noise Domestic waste	People and animals environment		in order to allow regrowth of vegetation. • All machinery will be removed from the site. • Ripping of all remaining compacted surface	achieved. Former vegetation species and Biodiversity to be re-instated as far as possible, alien infestation to be controlled. Former land use objectives standards to be re-instated to livestock grazing
Monitoring	-	Environment	Closure and post closure	• Monitoring of all rehabilitated areas will be done to make sure if vegetation is growing and if not other mitigation measures as seeding of the area will be considered. • All invader species will be monitored and removed from all rehabilitated areas	Rehabilitation and end land use Rehabilitation standard to be achieved. Former vegetation species and Biodiversity to be re-instated as far as possible, alien infestation to be controlled. Former land use objectives standards to be re-instated to livestock grazing

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1.6 Impact Management Actions

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

Table 12: Impact Management Actions

ACTIVITY whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and excavations, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.).	**POTENTIAL IMPACT** (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring Remedy through rehabilitation..	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond mining as the case may be.	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Literature Review	None	-	-	-
Geological Mapping	None	-	-	-
Geophysical Mapping	-	-	-	-
Site establishment	• Vegetation loss	• Remedy through	Mitigation measures will be	The applicant will make sure that

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	• Compaction of ground	rehabilitation and re-vegetation. • Remedy through ripping of compacted ground	implemented when required. However, other mitigations measures such as existing tracks will be implemented from the commencement of this activity until cessation of activity.	the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA regulations.
Vegetation clearance	• Vegetation loss • soil erosion	• Avoid unnecessary removal of vegetation Using existing roads as far as practicable Remedy through rehabilitation and re-Vegetation. Control through dust suppression methods	• Mitigation measures to be in place prior to activity. • In event of an critical incident with environmental significance , remedial and mitigation to be Immediately carried out on site	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA regulations.

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Construction of access roads	• Vegetation loss • Dust • Ground compaction	• Using existing roads as far as practicable • Remedy through rehabilitation • Control through management and monitoring.	• Mitigation measures to be in place prior to activity. • In event of an critical incident with environmental significance , remedial and mitigation to be Immediately carried out on site	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA regulations.
Topsoil removal and stockpiling	• Erosion • Dust • Vegetation loss	• Storm water control measures, • Dust control measures and monitoring • Remedy through ripping of compacted ground/surface	• Immediate when topsoil is grubbed and stockpiled	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA

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				regulations.
Temporal Mobile office site	• Surface compaction • Vegetation loss	• Remedy through ripping of compacted ground/surface	Immediate when office is installed on mine and after removal off site	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA regulations.
Temporal Storage of dumps	• Visual impact • Surface compaction • Vegetation loss	• Storm water control measures, • Dust control measures and monitoring • Remedy through ripping of compacted ground/surface	• Mitigation measures to be put in place prior to establishment of waste dump. • Ongoing mitigation and waste dump maintenance throughout life period of mine.	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The

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				applicant will work in accordance with listed activity no.21 of NEMA regulations.
Ablution area	• Health risk	• Control through management and monitoring	ongoing and with weekly regularity throughout life of mine	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA regulations.
Drilling	• Vegetation loss • Surface disturbances • Biodiversity loss	• Avoid unnecessary removal of vegetation • Using existing roads as far as practicable • Remedy through rehabilitation and re-vegetation.	Throughout prospecting period and upon cessation of the individual activity	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The

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	• Visual impacts • Soil pollution • Surface and ground Water pollution • Health risk to workers or general public • Heritage resource disturbances • Soil erosion • Veld Fire • Domestic waste generation	• Control through dust suppression methods. • Control through management and monitoring. • Concurrent rehabilitation. • Using drip tray, taking precautions on the refuelling point. • If any soil is contaminated during the life of the prospecting activities, it will immediately be scooped, bagged and stored in the enclosed containers or plastic to be removed with the industrial waste to a recognized licenced facility for further treatment. • Small spills will be treated on site using bio-sorb or oil cap. • Avoid soil contamination		applicant will work in accordance with listed activity no.20 of NEMA regulations.

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	• Noise	throughout the life span of the mine. • Employees will be provided with proper personal protective equipment • If any heritage site or resource is identified during the prospecting period, it will be reported to SAHRA. • Creation of berms, and proper storage of topsoil stockpiles. • Environmental awareness. • Rehabilitation and return the area to its original state, • Seeding of rehabilitated area if vegetation did not grow natural in order to attract fauna. • Marked containers will be utilised to store domestic		

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		waste. • Employees will be inducted on how to sort their waste. • Waste will be taken to the municipality dumping site on the weekly basis • Noise will be kept minimal on working hours and monitoring. • Ripping of road. • Avoid construction of newly roads and use existing roads. • Dust suppression methods will be implemented.		
Vehicle maintenance	• Soil pollution	No maintenance will be done on site	Immediate on repair of any vehicle or plant equipment	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The

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				applicant will work in accordance with listed activity no.20 of NEMA regulations.
Vehicles movement within the prospecting area.	• dust • noise • Ground compaction	• Noise levels must comply with OHS regulations. • Noise generating activities should be restricted to normal working hours. Mine is noted to be remote from any settlement and human habitation • Vehicle exhaust systems should be in good state of maintenance with standard noise suppression equipment. • Personnel will wear PPE, specifically ear muffs to suppress noise levels when using machinery. • Ripping of the compacted	throughout prospecting period and upon cessation of the individual activity	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA regulations.

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		ground to 300m in order to allow vegetation growth Dust suppression measure will be applied in order to control and manage dust.		
Hydrocarbon storage *(kindly note this is optional since mobile diesel tanker is a preferred choose to be used)*	• Soil pollution • Water pollution	• Pollution control measures • Hydrocarbon will be stored within the sealed mobile containers. • Drip trays will be placed under each stationary equipment or vehicles to avoid soil contamination which may lead to water pollution • Taking precautions on the refuelling point. • If any soil is contaminated during the life of the prospecting activities, it will be immediately scooped,	Throughout Operational period of the mine	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA regulations.

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		bagged and stored in the enclosed containers or plastic to be removed with the industrial waste to a recognized licenced facility for further treatment. • Small spills will be treated on site using bio-sorb or oil cap.		
Final rehabilitation	• Dust • Noise • Domestic waste	• Topsoil will be spread over the rehabilitated areas in order to allow regrowth of vegetation. • All machinery will be removed from the site. • Ripping of all remaining compacted surface	Upon cessation of prospecting, during rehabilitation phase.	The applicant will make sure that the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA regulations.
Monitoring		• Monitoring of all rehabilitated	Post closure and post rehabilitation.	The applicant will make sure that

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		areas will be done to make sure if vegetation is growing and if not other mitigation measures as seeding of the area will be considered. • All invader species will be monitored and removed from all rehabilitated areas		the employees or anyone who enter the prospecting area must comply with the environmental management standards as stipulated on the environmental authorization and EMPR. The applicant will work in accordance with listed activity no.20 of NEMA regulations.

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2. Determination of the amount of Financial Provision.

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

The closure objectives are to create a post-prospecting state as close as possible to the pre-prospecting state of the environment. This can be accomplished by the correctness of rehabilitation and proper after-care activities.

- To prevent the sterilization of any ore reserves.
- To prevent the establishment of any permanent structures or features.
- To manage and limit any impact to the surface and groundwater aquifers in such a way that an acceptable water quality and yield can still be obtained, when a closure certificate is issued.
- To safeguard the safety and health of humans and animals on the mine.
- The last closure objective is that the mine is closed efficiently, cost effectively and in accordance with government policy.
- Rehabilitation of trenches and pits.
- Re-establishment of Biodiversity.
- Re-establishment of vegetation species.
- Return the Land to landowner a land use that is possible the same as the pre-prospecting land use.

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- To ensure that all fencing is left as it was in pre-prospecting status.

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

The environmental objectives in relation to closure will be consulted with landowner, interested and affected parties.

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

The goal of rehabilitation with respect to the area where prospecting took place is to leave the area similar to its previous state prior prospecting activity. All other equipment's and material used during operation will be removed from the area, including other waste. Removal of these materials shall be done on a continuous basis and not only at the final stage of rehabilitation and closure.

- Rehabilitation of trenches and pits to prevent any injury to fauna.
- All compacted areas will be ripped to a depth of 300mm in order to allow vegetation to grow.
- Mobile equipment will be removed from the site
- The area will be seeded with surrounding plant species if necessary; this will attract back local animal life back into the area.
- Waste containers will be removed from the site.
- No latent or residual impact may be encountered after completion of rehabilitation
- The area will be returned to its previous land use.

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

The main objectives of both rehabilitation plan and closure plans are aligned. The goal of rehabilitation with respect to the area where prospecting took place is to leave the area similar to its previous state prior prospecting activity. All other equipment's and material used during operation will be removed from site, including other waste material. Removal of these materials shall be done on a continuous basis and not only at the final phase of rehabilitation and closure. To achieve this, the applicant has to practice concurrent rehabilitation from the commencement of the prospecting activities to the end. This could be accomplished by effectively implementing EMPr conditions and adhering to them at all times. The financial provision for rehabilitation and/ or management of the negative impact will also assist to achieve the rehabilitation plan and the closure objectives.

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

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Table 13: Calculation of quantum

CALCULATION OF THE QUANTUM							
Applicant:	Pilediwa Corporate Trading Cc				Ref No.:	NC1237/2PR)	
Evaluators:	Ndi Geological Consulting Services				Date:	Aug-19	
			A	B	C	D	E=A*B*C*D
No.	Description	Unit	Quantity	Master	Multiplication	Weighting	Amount
				Rate	factor	factor 1	(Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	14.45	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	201.35	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	296.72	1	1	0
3	Rehabilitation of access roads	m2	1000	36.03	1	1	36030
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	349.71	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	190.75	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	402.7	1	1	0
6	**Opencast rehabilitation including final voids and ramps**	**ha**	**0**	**204951.85**	**0.52**	**1**	**0**
7	Sealing of shafts adits and inclines	m3	0	108.09	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	140732.19	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	175279.4	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	509094.45	1	1	0
9	Rehabilitation of subsided areas	ha	0	117842.01	1	1	0
10	General surface rehabilitation	ha	0.39	111483.63	1	1	43478.6157
11	River diversions	ha	0	111483.63	1	1	0
12	Fencing	m	0	127.17	1	1	0
13	Water management	ha	0	42389.21	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	1	14836.22	1	1	14836.22
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		94344.8357
1	Preliminary and General		11321.38028		weighting factor 2		11321.38028
					1		
2	Contingencies		9434.48357				9434.48357
						Subtotal 2	115100.70
						VAT (15%)	17265.10
						Grand Total	**132366**

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2.6 Confirm that the financial provision will be provided as determined.

Pilediwa Corporate Trading hereby confirms that the financial provision to the amount of R 132 366 will be provided as determined either by bank guarantee or cash deposit.

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

2.7 Monitoring of Impact Management Actions

2.8 Monitoring and reporting frequency

2.9 Responsible persons

2.10 Time period for implementing impact management actions

2.11 Mechanism for monitoring compliance

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Table 14: Mechanisms for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Vehicular movement	Dust	-Roads are sprayed by water when there is a need. -This impact will be monitored throughout the day and where it is encountered it will be supressed by means of spraying water. -Atmospheric pollution prevention Act will be followed at all times. -Dust fall-out buckets are properly located and this must also be monitored throughout the day. -Monitoring of dust exposure will includes use of active air sampling, passive dust collectors. -The National Environment Management: Air Quality Act, 2004 (Act No. 39 of 2004) will be adhered to at all times. The Mine Health and Safety Act, 1996 (Act No. 29 of 1996) as amended and other legislation or	Site manager and environmental officer	Daily and ongoing Reporting will be done weekly Time period for implementing impact management is immediately.

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		regulations will also be adhered to at all times to avoid air pollution.		
Contamination of soil as a result of Hydrocarbons storage and refuelling point	Soil & Water pollution	Vehicles and equipment will be monitored before the commencement of any daily prospecting activity to avoid any soil contamination which may lead to ground water contamination. Surface water will be protected by adhering to The National Water Act, 1998 (Act No. 36 of 1998).	Environmental officer will be responsible for all monitoring programmes. The site manager will be responsible overall monitoring programs.	Daily and ongoing Reporting will be done weekly Time period for implementing impact management is immediately.
Vehicles movement	Noise	Bureau of Standards Code of Practice for the Measurement and Assessment of Occupational Noise for Hearing Conservation Purposes, SABS 083 as amended, in any place at or in any mine or works where persons may travel or work, exceeds 82 dB (A), the site manager will take the necessary steps to reduce the noise below this level. Noise monitor machine will be used to find out if the noise generated from the prospecting activities is exceeding the standard. The following will be adhered to:	Environmental officer and site manager	Daily and ongoing Reporting will be done weekly Time period for implementing impact management is immediately.

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		a) The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) – Section 7. b) The Mine Health and Safety Act, 1996 (Act No. 39 of 1996) as amended. c)The Road Traffic Act, 1997 (Act No. 93 of 1997);		
Removal of vegetation and excavation	Interference with existing land use	-Inform landowners in writing of intent and comply with reasonable request to reduce the impact. -Negotiate compensation for interference with landowner/lawful occupier -Visual confirmation of rehabilitation -Approval of rehabilitation by landowner/lawful occupier	Site manager	Daily and ongoing Reporting will be done weekly Time period for implementing impact management is immediately.
Clearance of vegetation	Vegetation loss	-Site clearance to be kept to a minimum and avoid unnecessary removal of vegetation. -Visual inspection to make sure that vehicle utilise the existing tracks as possible. -No removal, disturbance or pruning of large to medium shrubs or tress -Visual marking of sensitive species	Environmental officer and site manager	Daily and ongoing Reporting will be done weekly Time period for implementing impact management is 3 months.
Movement of vehicles,	Displacement, injury and	-Site clearance to be kept to a minimum	Site manager	Daily and ongoing Reporting will be done

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poaching	death of local fauna;	-Visual marking of sensitive species and areas -Visual inspection of fencing and/or other safety measures -On site log to be kept		weekly Time period for implementing impact management is immediately.
Removal of topsoil	Soil erosion;	Visual confirmation of soil erosion controls, soil profile disturbance and topsoil management where required.	Environmental officer and site manager	Daily and ongoing monitoring
Waste generation and disposal	Land pollution	-Visual inspection that waste does not accumulate inside or outside prospecting site. -All waste such as oil spills must be stored separately and disposed of at a registered facility -Proof of disposal must be kept on site. -EMP checklist will be compiled and utilised during the prospecting period	Environmental officer and site manager	Daily and ongoing Reporting will be done weekly Time period for implementing impact management is immediately.

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

Monitoring and Performance assessment or environmental audit report will be submitted annually as required in terms of Section 24Q and Regulation 34 of NEMA as amended.

12.13 Environmental Awareness Plan

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

Training will be provided to all employees. Initial environmental induction and or awareness will be conducted before commencement of any daily activity to all employees.

(2) Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

Everyday Awareness

Littering – All workers will be educated on how important is the wild animals that can be harmed or die if they litter any garbage such as plastics for example. Littering of non-degradable wastes such as plastics, glass, rubber and tyres can also pollute our environment since they will not be decomposed. Workers will also be work shopped to separate their waste so that they can be recycled and reused. No glass, paper, plastics and cigarette duds are to be littered during the duration of the prospecting operations. Marked garbage containers will be installed and maintained to prevent littering by workers. Penalties will be communicated to the workers should they not follow the protocol with regard to littering.

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Open fires –. It is by law prohibited to start open fires. Due to the hot and dry conditions of the district is it very susceptible for runaway fires. No open fires will be tolerated during the prospecting period and as this is regarded by law as a criminal offence related penalty can be issued. The littering of self-ignitable substances or objects (e.g. matches) are also not allowed as it will always pose a danger regarding field fires, and if such happen the person responsible to the littering will be charged with arson and related penalties can be issued.

Sanitation and Personal Hygiene - Sanitation and personal hygiene is a very important subject for environmental and social health. Improper sanitation habits can lead to intestinal parasite infestations within humans and animals, endangering the overall health of the recipients. Unfortunately, these infestations do not stay only within the host and will spread rapidly throughout a community or herd. Human viruses like Tubercle bacillus (TB) and Herpes simplex, both are very contagious, spread vigorously throughout a community not handling good hygiene habits/practices. Strict use and cleanliness of the toilette facilities will be enforced during the entire life of mine. Employees will further be advised and educated on the importance of consuming clean and fresh water. Several sites will be identified and water tanks will be erected for safe human water consumption.

Fauna –Drillers will be advised to stay clear from any wild animal or reptile and not to try and provoke them in any manner. They will further be educated on dangerous and poisonous reptiles and the actions to be taken when such reptiles are encountered.

Flora- No indigenous shrubs of trees will be unnecessarily uprooted and utilized for firewood, the employees will rather be advised to utilize pioneer species and be educated on which plant species are indigenous, endangered or pioneer. If

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any pioneer species are observed the reporting thereof to the rehabilitation site manager will be highly recommended. Penalties will be given to individuals that damage any endangered species e.g. cutting branches/bark from a Camel/Grey Camel tree.

Work Related Awareness

- When handling chemicals make sure non-spillage procedures are followed
- Scrap must be dispose of in the most appropriate manner
- Plastics and domestic wastes removed from the vehicles need to be discarded in an appropriate manner.
- Daily checking of oil/diesel leaks from machines before it is operated.
- Drip pans must be installed under all stationary vehicles and equipment.
- Strict adherence to the prospecting roads and no off-road driving to prevent trampling to the vegetation.
- Driving speed must be complied with. Beware of animals, workers and other vehicles.
- During fencing/rehabilitation common fence wires may not be left scattered as these rust over time – any cuts to animals and humans (sepsis and tetanus risk) can lead to suffering or great discomfort.
- No metals may be left scattered as it poses the same thread as described directly above.
- All personnel handling work related chemicals must follow handling procedures
- Any spillage contaminating the ground will pose risk to environmental degradation.

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- All workers must always wear protective clothing at all times to reduce health and safety risk.

2.14 Specific information required by the Competent Authority

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

- Pilediwa Corporate Trading intends hereby confirms that the financial provision will be reviewed annually and the report of such review will be submitted to the competent authority.
- The monitoring and performance assessment will be conducted on a monthly basis and the report will be submitted annually or as requested by DMR.

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3 UNDERTAKING

The EAP herewith confirms

a. the correctness of the information provided in the reports

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

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

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

_____
Signature of the environmental assessment practitioner:

Piledwa Corporate Trading CC
_____
Name of applicant:

23 October 2019
_____
Date:

-END-

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APPENDICES

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Appendix 1: Environmental Assessment Practitioner Declaration of Interest

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Appendix 2: EAP's Curriculum Vitae

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Appendix 3: Location Map indicating Proposed Area

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Appendix 4: Public Participation Comments

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Appendix 5:Applicant letter of intent

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E: ndi@ndigeoservices
W:www.ndigeoservices.co.za

Appendix 6: Site Map

38 Ophelia street
Kimberley, 8301
T: 053 842 0687
C:082 760 8420
F:0865381069
E: ndi@ndigeoservices
W:www.ndigeoservices.co.za

Appendix 7: Meeting Minutes

38 Ophelia street
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T: 053 842 0687
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Appendix 7_1: Comments from Johan Kotze Prokureurs/Attorneys

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Appendix 7_2: Response to a letter from Johan Kotze Prokureurs/Attorneys