

# BASIC ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

PROSPECTING RIGHT APPLICATION FOR GEMSTONE, COBALT, LEAD, GOLD, COPPER, NICKEL, SILVER AND ZINC ORE ON THE REMAINING EXTENT AND PORTION 1 OF THE FARM MAMAGHODI 654 IN THE ADMINISTRATIVE DISTRICT OF POSTMASBURG, NORTHERN CAPE PROVINCE.



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# mineral resources & energy

Department:  
Mineral Resources and Energy  
**REPUBLIC OF SOUTH AFRICA**

## **BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

Submitted for environmental authorizations in terms of the National Environmental Management Act, 1998 and the National Environmental Management Waste Act, 2008 in respect of listed activities that have been triggered by applications in terms of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) (as amended).

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**i. IMPORTANT NOTICE**

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

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

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

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

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

ii.

**OBJECTIVE OF THE BASIC ASSESSMENT PROCESS**

- a) The objective of the basic assessment process is to, through a consultative process—
- b) 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;
- c) identify the alternatives considered, including the activity, location, and technology alternatives;
- d) describe the need and desirability of the proposed alternatives,
- e) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on 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— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be managed, avoided or mitigated;
- f) 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.

ABBREVIATIONS	
BAR	Basic Assessment Report
BID	Background Information Document
CBA	Critical Biodiversity Area
DWS	Department of Water and Sanitation
DMRE	Department of Mineral Resources and Energy
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GDP	Gross Domestic Product
I&APs	Interested And Affected parties
IDP	Integrated Development Plan
NDP	National Development Plan
PPP	Public Participation Process
PWP	Prospecting Works Programme
SAHRA	South African Heritage Resource Agency
SANAS	South African National Accreditation System
SANS	South African National Standards
WMA	Water Management Area

## DOCUMENT CONTROL

<b>Document Title</b>	Prospecting Right Application for Gemstone, Cobalt, Lead, Gold, Copper, Nickel, Silver and Zinc Ore On The Remaining Extent And Portion 1 Of The Farm Mamaghodi 654 In The Administrative District Of Postmasburg, Northern Cape Province	
<b>Version</b>	Version 1:	Draft Basic Assessment Report and Environmental Management Programme Report

## QUALITY CONTROL

	<b>Compiled By</b>	<b>1<sup>st</sup> Reviewer</b>	<b>2<sup>nd</sup> Reviewer</b>
<b>Name</b>	Sithokozile Gcabashe	S.E Mashigo	Dr NK Singo
<b>Designation</b>	Environmental Technician	EAP	Principal EAP

## DISCLAIMER

The opinion expressed in this, and associated reports are based on the information provided by TORNOWIZE (Pty) Ltd to Singo Consulting (Pty) Ltd ("Singo Consulting") and is specific to the scope of work agreed with TORNOWIZE (Pty) Ltd.

Singo Consulting acts as an advisor to the TORNOWIZE (Pty) Ltd and exercises all reasonable skill and care in the provision of its professional services in a manner consistent with the level of care and expertise exercised by members of the environmental profession.

Where site inspections, testing or fieldwork have taken place, the report is based on the information made available by Singo Consulting during the visit, visual observations and any subsequent discussions with regulatory authorities. The data and information used in this report were provided to Singo Consulting by the client and also referred to other outside sources (includes historical site investigation information and third-party expert research).

Singo Consulting (Pty) Ltd ("Singo Consulting") takes reasonable care and diligence when providing services and preparing documents, but it has been assumed that the information provided to Singo Consulting (Pty) Ltd ("Singo Consulting") is accurate.

These views do not generally refer to circumstances and features that may occur after the date of this study, which were not previously known to Singo Consulting (Pty) Ltd or had the opportunity to assess.

## **Executive Summary**

Singo Consulting (Pty) Ltd on behalf of TORNOWIZE (Pty) Ltd submitted an application for a Prospecting Right subject to Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and an application for an Environmental Authorisation in terms to Chapter 6 of GNR 982 enacted under the National Environmental Management Act (Act 107 of 1998) (NEMA) as amended for prospecting Gemstone, Cobalt, Lead, Gold, Copper, Nickel, Silver and Zinc Ore on the Remaining Extent and Portion 1 of the Farm Mamaghodi 654 within the Administrative District of Postmasburg, Northern Cape Province

The proposed project will aim to ascertain if economically viable mineral deposits exist within the application area. In order to undertake the Proposed Prospecting Activities, TORNOWIZE (Pty) Ltd will require a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA, Act No.28 of 2002). The Applicant is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998) which involves the submission of a Basic Assessment Report and Environmental Management Programme report (BAR & EMPr).

Singo Consulting (Pty) Ltd has been appointed by TORNOWIZE (Pty) Ltd to manage the Environmental Authorisation process by conducting Environmental Impact Assessment, Public Participation for the proposed project and to compile the Basic Assessment Report and Environmental Management Programme report in support of the Prospecting Right application which in turn will be submitted to the Department of Mineral Resources and Energy for adjudication. This BAR & EMPr has been designed to meet the specifications as set out in the NEMA's 2014 EIA Regulations as amended in April 2017.

Accessing the whole farm was a challenge however the site was visible from a distance. During the Site Visit, it was observed that the area is characterized by a flat land with small hills. It is not clear what the farm is used for but it is under Anglo. A farmhouse was identified near the gate but the buildings seem to be old and falling apart. There were no watercourses observed within the prospecting right area. As per the map produced by the GIS specialist in house, the proposed project area falls largely on "Other Natural Areas" and on "Unclassified". The project area is covered by natural vegetation and there were powerlines observed and a railway passing through the project area.

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# **PART A:**

## **SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT**

### **1 Introduction**

Singo Consulting (Pty) Ltd on behalf of TORNOWIZE (Pty) Ltd submitted an application for a Prospecting Right subject to Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and an application for an Environmental Authorisation in terms to Chapter 6 of GNR 982 enacted under the National Environmental Management Act (Act 107 of 1998) (NEMA) as amended for prospecting Gemstone, Cobalt, Lead, Gold, Copper, Nickel, Silver and Zinc Ore on the Remaining Extent and Portion 1 of the Farm Mamaghodi 654 within the Administrative District of Postmasburg, Northern Cape Province.

The proposed project will aim to ascertain if economically viable mineral deposits exist within the application area. In order to undertake the Proposed Prospecting Activities, TORNOWIZE (Pty) Ltd will require a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA, Act No.28 of 2002). The Applicant is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998) which involves the submission of a Basic Assessment Report and Environmental Management Programme report (BAR & EMPr).

Singo Consulting (Pty) Ltd has been appointed by TORNOWIZE (Pty) Ltd to manage the Environmental Authorisation process by conducting Environmental Impact Assessment, Public Participation for the proposed project and to compile the Basic Assessment Report and Environmental Management Programme report in support of the Prospecting Right application which in turn will be submitted to the Department of Mineral Resources and Energy for adjudication. This BAR & EMPr has been designed to meet the specifications as set out in the NEMA's 2014 EIA Regulations as amended in April 2017.

**Table 1:** Details of the Consultant that Prepared the report

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<b>Practitioner name</b>	Dr NK Singo
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**Expertise of the EAP**

In the year 2008, Singo Consulting (Pty) Ltd was established as an Independent Consulting Company focused to create opportunities within the Mining and Environmental Industry. With time, Singo Consulting (Pty) Ltd has diversified its services, providing high value Geological, Hydrological, Environmental, Cleaning and



Rehabilitation specialized services to clients across a range of industries that are primarily natural resource based.

### **Summary of the EAP's Past Experience.**

In carrying out the Environmental Impact Assessment Procedure: See attached CV.

#### **Dr. Ndinannyi Kenneth Singo: Principal Director**

Dr Ndinannyi Kenneth Singo holds PhD in Environmental Geology, MSc Environmental Management, BSc (Hons) Mining & Environmental Geology.

#### **Memberships and affiliations**

Dr. N.K Singo is a registered competent person with the South African Council of Natural Science Professions (SACNASP: Earth Science Reg. No: 400069/16), Geological Society of South Africa (GSSA), the Land Rehabilitation Society of Southern Africa (LaRSSA) and South African Affiliates of the International Association for Impact Assessment. Kenneth holds an MSc in Environmental Management (University of South Africa (UNISA)) and a BSc (Hons) in Mining and Environmental Geology (the University of Venda). He is a final year Ph.D. (Geology, Applied Environmental Mineralogy and Geochemistry) candidate at the University of Johannesburg.

Kenneth has knowledge of Mine Water and Mine Environmental Management (acid mine drainage, heavy metal assessments and tailings management) in various commodities including coal, gold, magnesite and base metals (Cu, Pb, Zn). He has extensive knowledge of defunct mining waste and wastewater impact assessments in communities residing in the vicinity of those mines. This knowledge was gained through MSc. Kenneth has sound knowledge of risk assessment, both in terms of human health and the environment. He is experienced in the appraisal of potential constraints, as well as devising means of mitigation through remedial strategy development, feasibility and validation.

During his PhD studies, Kenneth learned how to operate within contaminated lands. His PhD largely focused on disused mines (gold, copper and magnesite) ranging from Phase I and Phase II investigations to development of remedial strategies (i.e. Phase III). His PhD further equipped him to intensively understand the waste classification, profiling and understanding of the implications associated with the management of waste, landfill disposal profiling and development of beneficiation strategies.

## 2 Location of the overall Activity

<b>Farm Name:</b>	Portion 1 & Remaining Extent of Mamaghodi 654
<b>Application area (Ha)</b>	2 639.630 Ha
<b>Magisterial district:</b>	ZF Mgcawu (Postmasburg)
<b>Distance and direction from nearest town</b>	The project is located approximately 22 km Southeast of the town Olifantshoek And 33 km Northwest of Postmasburg.
<b>21-digit Surveyor General Code for each farm portion</b>	C04100000000065400000 C04100000000065400000

## 2.1 Locality

Locality map (Show nearest, town scale not smaller than 1 : 250 000)

The project is located within the Tsantsabane Local Municipality under the ZF Mgcawu District in the Northern Cape. The project site is located approximately 22 km Southeast of Olifantshoek and 33 Km Northwest of Postmasburg.

**Figure 1: Locality Map showing locality of the project area**

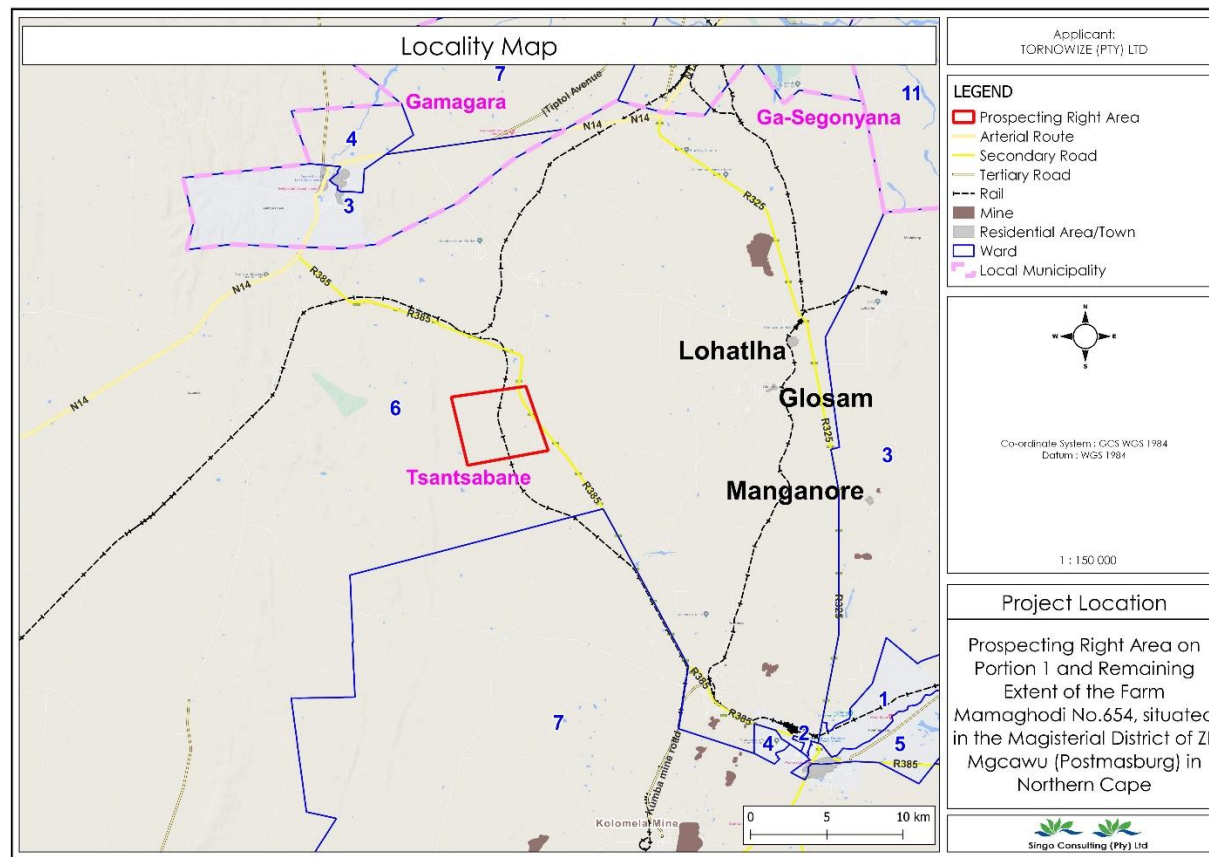
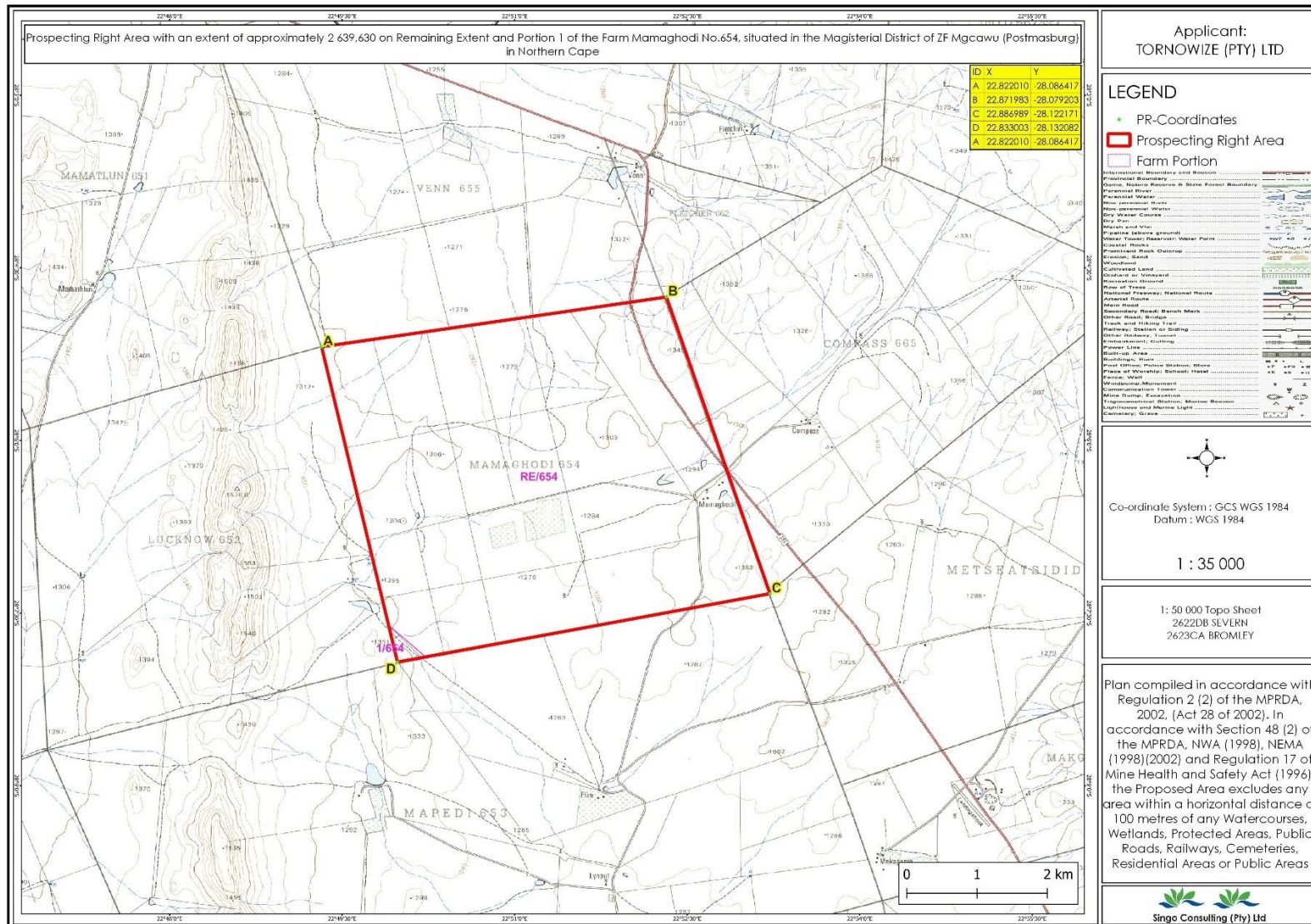
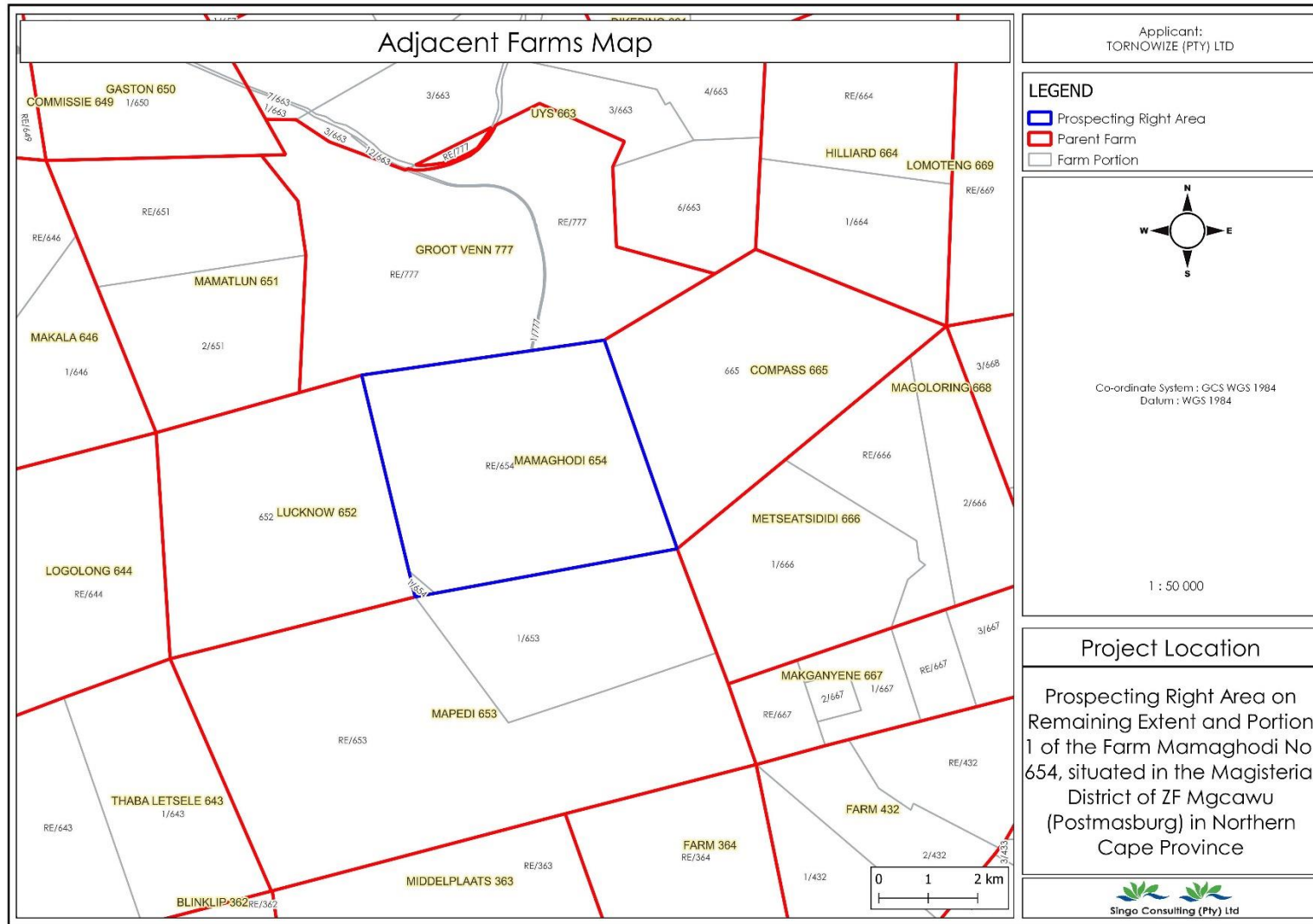


Figure 2: Regulation 2. (2) Map



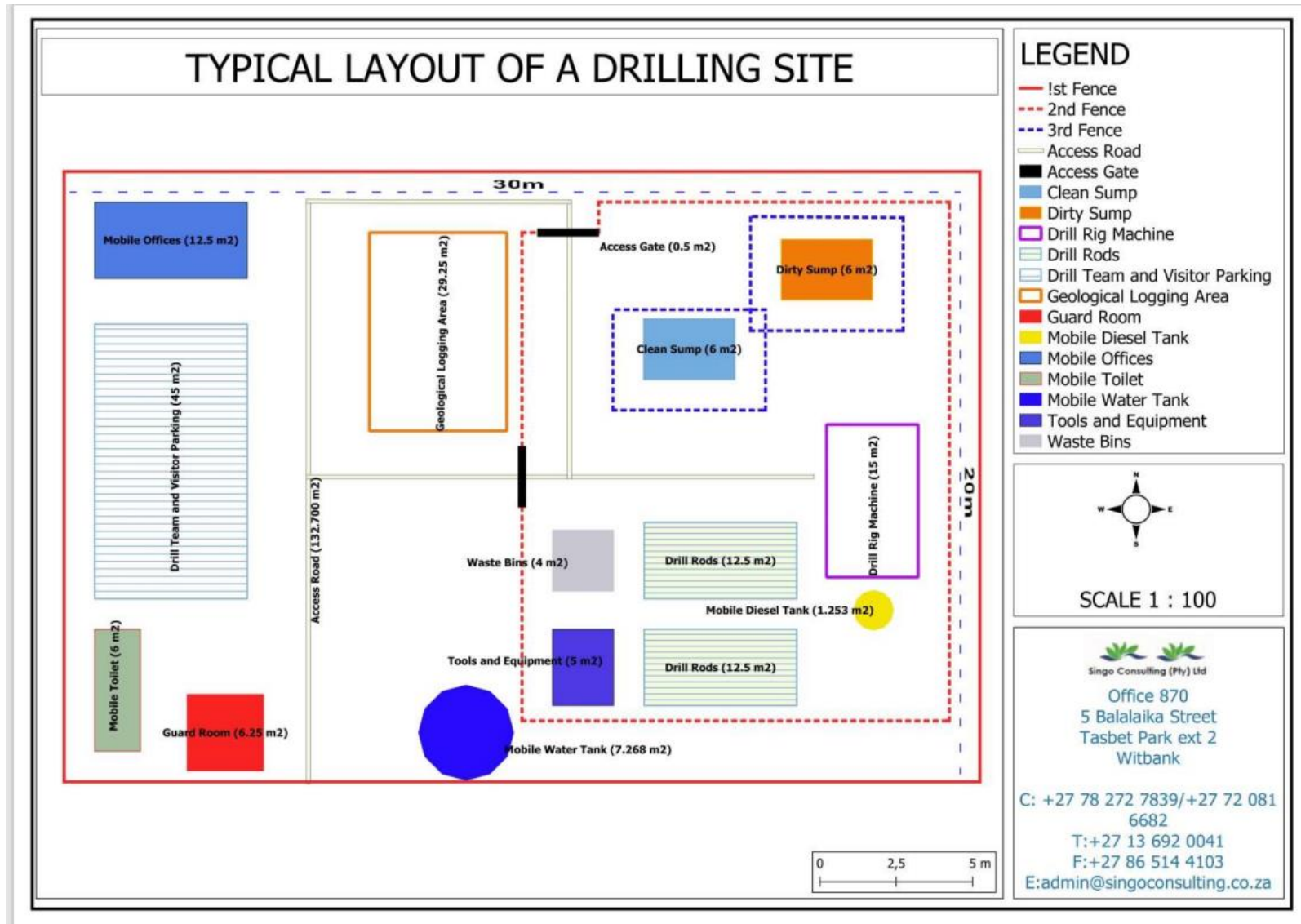
**Figure 3: Adjacent map**



## 2.2 Description of the scope of the proposed overall activity.

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site

Figure 4: Regulation sketch plan for the proposed area



### **3 Listed and specified activities**

Section 16 of the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No.28 of 2002) requires, upon request by the Minister, that an Environmental Management Plan (EMP) be submitted, and that the applicant must notify and consult with Interested and Affected Parties (I&APs). Section 24 of the National Environmental Management Act (NEMA) requires that activities, which may impact the environment, be authorised by a relevant authority before commencing with the activities. Such activities are listed under Regulations Listing Notice 1 Government Notice (GN) 517, Listing Notice 2 GN 517 and Listing Notice GN 517 (dated 11 June 2021) of the NEMA. The proposed prospecting activity triggers the following.

<b>NAME OF ACTIVITY</b> <b>(E.g., For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc....etc....etc.)</b>	<b>Aerial extent of the Activity Ha or m<sup>2</sup></b>	<b>LISTED ACTIVITY</b> <b>Mark with an X where applicable or affected.</b>	<b>APPLICABLE LISTING NOTICE (GN 517, 11June 2021)</b>
Prospecting for the above-mentioned mineral by means of diamond drilling of 7 boreholes. Extent of application area.	2 639.630 ha of the entire prospecting area (Disturbed area - 0.06 ha per hole x 7 boreholes = 0.42 ha)		GN 517 Listing Notice 1 Activity 20
Vegetation clearance for drilling Programme that includes the drill site  Invasive prospecting for the above-mentioned mineral by means of diamond drilling of 7 boreholes. The holes will be drilled to an average depth 150 m. The demarcated working area (total area to be disturbed) per site is 30 m x 20 m = 600 m <sup>2</sup> (0.06 Ha).  Then 600 m <sup>2</sup> x 7 boreholes = 4 200 m <sup>2</sup> Therefore, the total area to be disturbed is 4200 m <sup>2</sup> /10 000 = 0.42 Ha	0.42 ha (Total Disturbed area) of 2 639.630 ha (Extent of application area)		GN 517 Listing Notice 1 Activity 27
Mobile office	12.5 m <sup>2</sup>		N/A
Mobile toilet	6 m <sup>2</sup>		N/A
Drill team and visitor team parking	45m <sup>2</sup>		N/A
Access road	132.7 m <sup>2</sup>		N/A
Guard room	6.25 m <sup>2</sup>		N/A
Geological logging area	25.29 m <sup>2</sup>		N/A
Waste bins	4 m <sup>2</sup>		N/A
Drill machine	15 m <sup>2</sup>		N/A
Drill rods	25 m <sup>2</sup>		N/A
Clean sump	6 m <sup>2</sup>		N/A
Dirty sump	6 m <sup>2</sup>		N/A
Water tank	7.268m <sup>2</sup>		N/A



#### 4.1 Description of the activities to be undertaken

The following section presents a detailed description of all the activities associated with the proposed Prospecting Application. Due to the nature of the PWP and the fact that the specific prospecting activities depend on the preceding phase, assumptions are presented where required. These assumptions are based on similar projects undertaken by the applicant and therefore be regarded as indicative of what will be undertaken.

#### Access Roads

Access to the proposed prospecting area will be the R385 road that extends from N14 near Olifantshoek to Postmasburg. The **T 1609** will be used to enter the Site and pathways that exist within the project area which will be used to access the borehole locations. As a result, no new roads will be constructed. The applicant must conduct a detailed technical assessment of the proposed site by negotiating access with the land and surface rights owners as well as the lawful occupiers of the farm. An agreement on access to the project area will be reached and agreed with the landowner.

**Figure 5: Site access road**



## Water supply

The prospecting activity will involve drilling of boreholes preferred by the applicant. This signifies that no water resource will be used for the purpose of drilling purpose however, water requirements relate to the potable water supply for employees and workers. A temporary 260 L on-site vertical water storage tank (for drinking water and general use by persons) will be provided at the drill site.

**Figure 6: Example of water storage tank**

## Ablution

On-site ablution facilities will include the installation of drum/tank-type portable toilets. This will be done because the prospecting activity is temporal for limited duration hence portable toilets are preferred.



**Figure 7: Portable toilets that will be adopted.**

## Temporary office area

A temporary site office shaded area will be erected at the drill sites. No on-site electricity will be generated by generators. Meals will be provided to staff and workers as no heating and/or cold storage facilities will be available. A shaded eating area will be provided.

**Figure 8: Temporary site office to be used.**



### **Accommodation**

No accommodation for staff and workers will be provided on-site; all persons will be accommodated in nearby villages. Workers will be transported to and from the prospecting site daily. Night security staff will be employed once equipment has been established on site.

### **Blasting**

There will be drilling, no blasting will take place.

### **Storage of dangerous goods**

During the drilling activities, limited quantities of diesel fuel, oil and lubricants will be stored on site. The only dangerous goods that will be stored in any significant quantity is diesel fuel. A maximum amount of 60 m<sup>3</sup> will be stored in above-ground diesel storage tanks.

**Figure 9: Storage of dangerous goods**



## **4.2 The prospecting method or methods to be implemented**

### **1. PHASE 1 – YEAR ONE TO YEAR TWO**

Phase 1 is aimed at delineating horizons of interest through geophysical and geochemical traverses, and at testing these horizons through reconnaissance drilling. The programme will comprise the following:

- ✚ Mapping-Geologic mapping with the aid of aerial and satellite imagery will be undertaken in order to confirm the presence of Manganese and Iron layers. Any outcropping mineralisation will be noted, and this mapping programme will be conducted simultaneously with the soil geochemical survey.
- ✚ Soil geochemical survey-A number of soil samples will be taken across traverse lines over the project area. These traverse lines will be chosen based on the results of the airborne geophysical survey and will be sited across inferred positions of Manganese and Iron horizons. Approximately 1000 samples will be collected and assayed using X-ray fluorescence (XRF) for the elements Fe and Mn. The results of the soil geochemical survey will be integrated with the airborne geophysics to select sites for reconnaissance drilling.
- ✚ Reconnaissance drilling-Up to 3 boreholes with depths of  $\pm 150\text{m}$  each will be drilled along a number of traverse lines to establish the stratigraphy of the Manganese and Iron seams. This drilling will be evaluated through borehole logging and assaying. Should the results prove encouraging, further drilling may be undertaken during Phase 2
- ✚ Borehole logging, assaying, interpretation and report writing-Core will be logged geologically and geotechnical in detail, and assayed for Fe and Mn across selected horizons. Computer assisted geological and mineralisation modelling and evaluation will be carried out, and a report will be compiled recommending whether the programme should be terminated or continued.

### **PHASE 2 – YEAR THREE TO YEAR 4**

Phase 2 is dependent on the positive outcome of the Phase 1 programme, and should these

results are not encouraging the project will be abandoned. Although it is mainly planned for years 2 and 3, Phase 2 could be completed earlier depending on the results of Phase 1.

- ✚ Infill drilling-About 4 boreholes will be drilled in order to establish an indicated and inferred resource over the project area. This may bring the project to a pre-feasibility stage.
  
- ✚ Geological logging, assaying and interpretation. Core will be logged geologically and geotechnical in detail and assayed for iron and Manganese (Fe and Mn,) across selected horizons. Computer assisted geological and mineralisation modelling and evaluation will be carried out with the aim of determining a resource on the project area.
  
- ✚ Report and pre-feasibility study. A report will be compiled based on the results of the infill drilling and resource modelling. This report may serve as a pre-feasibility study, and would outline in more detail a recommended programme to take the project to a bankable feasibility stage, should this be envisaged.

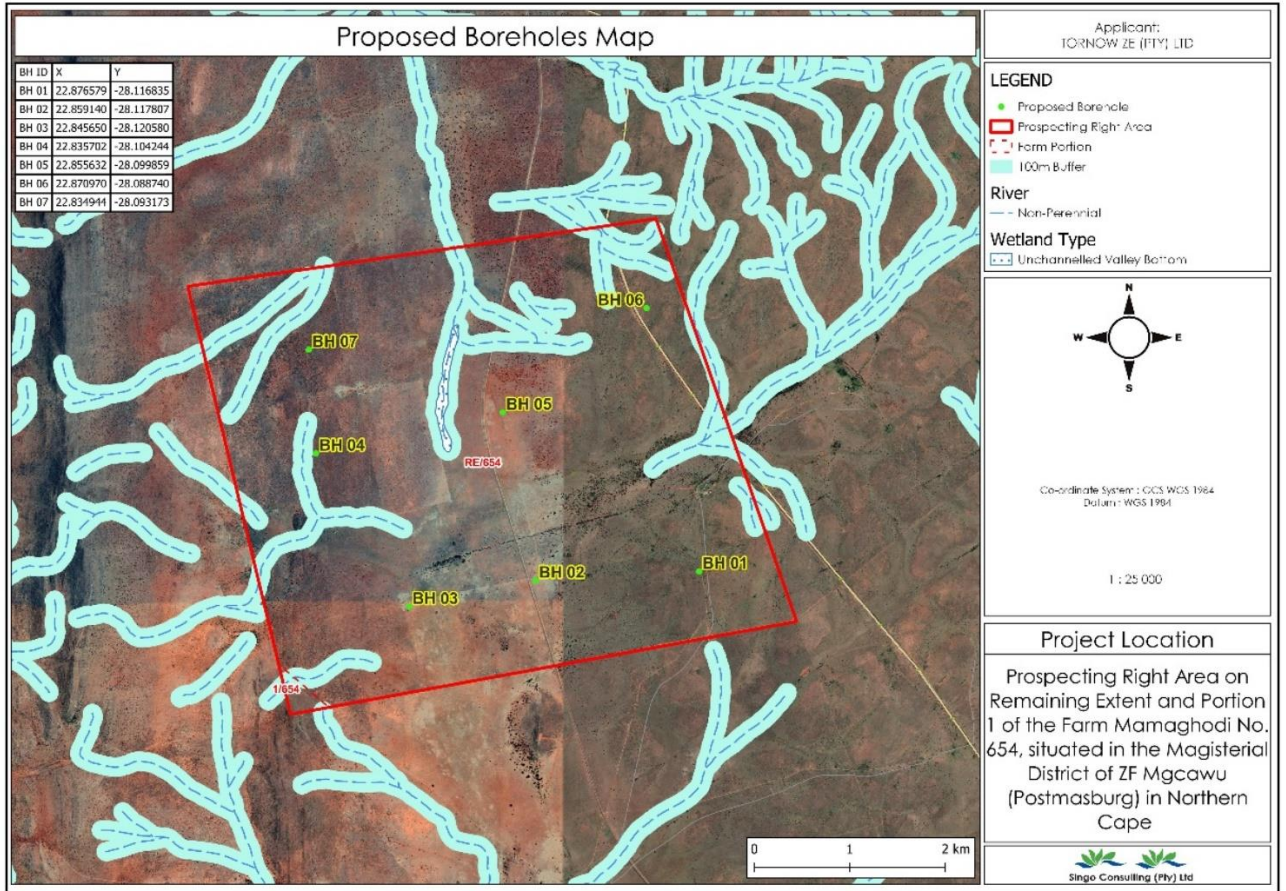
### **3. PHASE 3 - BANKABLE FEASIBILITY STUDY. (YEAR 5)**

Depending on the outcomes of the Phase 2 programme and the recommendations of the report, a bankable feasibility study may take place on the 5<sup>th</sup> year. This study would be guided by the pre-feasibility report but could include metallurgical testing, further infill drilling and mine and infrastructure planning.



**Figure 10: Example of the drilling machinery**

Figure 11: Proposed boreholes with 100 m buffer



**Table 3:** Planned Prospecting Phases

<b>Phase</b>	<b>Activity</b> (what are the activities that are planned to achieve optimal prospecting)	<b>Skill(s) required</b> (refers to the competent personnel that will be employed to achieve the required results)	<b>Timeframe</b> (in months) for the activity)	<b>Outcome</b> (What is the expected deliverable, e.g. Geological report, analytical results, feasibility study, etc)	<b>Timeframe for outcome</b> (deadline for the expected outcome to be delivered)	<b>What technical expert will sign off on the outcome?</b> (e.g. geologist, mining engineer, surveyor, economist, etc)
Phase 1	<p>Non-invasive Prospecting Right</p> <p>Design and finalise invasive drilling programme.</p> <p>Authorise implementation of invasive drilling programme</p>	<p>Geological skills</p> <p>Mine Planners</p> <p>Environmental Management</p>	0-24 Months	<p>Confirmation of the ideal position to drill boreholes.</p> <p>Approval to implement drilling programme.</p>	<p>Month 8</p> <p>Month 12</p>	<p>Geologist</p> <p>Mine Planning Engineers</p> <p>Environmental Consultant</p>
Phase 1	<p>Invasive Prospecting Right</p> <p>Site Establishment.</p> <p>Drilling of 3 reconnaissance boreholes.</p> <p>Laboratory Testing and analysis of samples</p>	<p>Geological skills</p> <p>Drilling skills</p> <p>Lab Technician</p> <p>Geological Skills</p>	Months 12-24	Indicated Resource	Month 24	<p>Geologist and Geostatician</p> <p>Mine Planning Engineers</p>

Phase 2	Invasive Prospecting Right Infill drilling for resource upgrade and reserve conversion, if required definitive feasibility study.	Geological skills Drilling skills Mineral resource manager	Month 25-48	pre- feasibility study	Month 48	Mining Engineer/Geologist Environmental Consultants
Phase 3	Non-invasive prospecting	Mine economist skills	49-60	Bankable feasibility study	Month 60	Mine economist



## 5. Policy and Legislative

**Table 4:** Policy and Legislative Context

Applicable legislation and guidelines used to compile the report	Reference where applied	Development's compliance with and response to the policy and legislative context
<b>Specific Environmental Management Acts (SEMA's)</b>		
<b>National legislation</b>		
National Environmental Management Act (NEMA), 1998	This Basic Assessment Report and Environmental Management Plan	An Application for Environmental Authorization was submitted to the Northern Cape DMRE, and the application was accepted.
National Water Act (NWA), 1998	Groundwater abstraction as part of drilling activities	No water abstraction will take place from the D53F, D58C and D57C Quaternary Catchments. The proposed drilling method won't hamper with National Water Act (NWA), 1998.
Mineral and Petroleum Resources Development Act (MPRDA), 2002	Application for prospecting as per Section 16	The applicant submitted a Prospecting Right Application to the DMRE.
<b>Municipal plans</b>		
Commission on Restitution of Land Rights	Land claims	On the 27 <sup>th</sup> of July 2022 an email with an attachment was received from the office of land restitution stating that there are no land claims on the database regarding the farms
Northern Cape Strategic development framework (SDF)	Alternatives	The applicant acknowledges the need to maximize economic benefit from mining, industrial, business, agricultural and tourism development in the area and promote a climate for economic development in line with the province development frameworks
Municipality By-Laws: Waste	Environmental	Best practice guidelines will be followed for any by-

Management by-law Act 59 of 2008, Air Quality Management By-law Act 39 of 2004, Noise control by-law, Spatial Planning and Land Use Management act no 16 of 2013 (SPLUMA).	Management measures awareness plan	law's management and the development of the mine environmental and other legislative management. 2.5 Need
CARA (Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	Alternatives	The conservation of soil, water resources and vegetation are promoted. Management plans to eradicate weeds and invader plants must be established to benefit the integrity of indigenous life. The prospecting activity ensure that disturbance to the environment is minimal, and rehabilitation of the disturbed land is done.

## 6 Need and desirability of the proposed activities

NEED AND DESIRABILITY OF THE PROPOSED PROJECT		
PART I: NEED		
Questions (Notice 792, NEMA, 2012)		Answers
1.	<b>Is the land use associated with the activity being applied for considered within the timeframe intended by the existing approved SDF agreed to be the relevant environmental authority?</b>	Yes. Mining is an integral part of its rationale to make use of the abundant natural resources in the area to create strong, resilient, and prosperous Municipality.

2.	<b>Should the development, or if applicable, expansion of the town/area concerned in terms of this land use occurs here at this point in time?</b>	Prospecting right is an initial stage for mining therefore there will be no town expansion or any sort of development.
3.	<b>Does the community/area need the activity and the associated land use concerned? This refers to the strategic as well as local level.</b>	Hantam Local Municipalities have high unemployment. Mining needs many different skills and the local community members need to be employed before considering nearby towns. It is unfortunate that this application is for prospecting, nothing economically can be gained from it but it is an important stage for determining the possibility of having a mine.
4.	<b>Are the necessary services with adequate capacity currently available (at the time of application) or must additional capacity be created to cater for the development?</b>	Yes. All infrastructure for services and capacity is sufficient for the existing and proposed prospecting right. The proposed project will be using water through the municipal water services. The road networks are fully intact and the project will not have a major impact on road congestion. Thus, additional capacity does not need to be created for the development.
5.	<b>Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of the services and opportunity cost)?</b>	The development is not provided for in the infrastructure planning of the municipality as it is a small development of local importance. Thus, the proposed project will not have any implications for the infrastructure planning, as no services and/or infrastructure needs to be upgraded or created to cater for this project. The proposed project will be making use of mobile structures.
6.	<b>Is the project part of a national programme to address an issue of national concern or importance?</b>	Mining production in South Africa rose 0.1 percent year-on-year in January of 2022, after a downwardly revised 1 percent fall in the previous month and largely missing market estimates of a 3.45 percent growth. Higher output levels from manganese ore (19.6%), gold (7%) and diamonds (16.3%) were offset by a decline in iron ore (-13.4%). On a seasonally adjusted monthly basis, mining production increased 5.4 percent, following an upwardly revised 5.5 percent

		<p>decline in the prior month. <i>source: Statistics South Africa</i></p> <p>The current war between Russian and Ukraine has benefited South African's mining sector. There is a possibility of high profit making since the operations in these countries are not running.</p>
<b>PART II: DESIRABILITY</b>		
7.	<b>Is the development the best practicable environmental option for this land/site?</b>	Yes, it is. The proposed prospecting project has little impact on the environment, and it involves drilling of just 7 drill holes. The prospecting activities will not disturb any activities that might take place on the proposed project area.
8.	<b>Would the approval of this application compromise the integrity of the existing approved and credible IDP and SDF as agreed to by the relevant authorities?</b>	Partly. The project will not compromise the plans of the municipality because the total area of prospecting is 0.42 ha, but the land use will be affected for a short period of time.
9.	<b>Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?</b>	No, the integrity of the existing environmental management priorities for the area will not be compromised by this development and rehabilitation plan will be in line with the Local Municipalities
10.	<b>Do location factors favour this land use at this place? (This relates to the contextualization of the proposed land use on this site within its broader context).</b>	Yes, the location for the proposed project is for farming however this area is located far from the majority of the population. The prospecting activity will be at a small scale, therefore even the current land-use will not be affected that much.

11.	<b>How will the activity of the land use associated with the activity being applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?</b>	An application was made on the SAHRA and on the NBKB in order to check for any heritage/cultural sensitivity of the area. The screening report was also conducted to check for any environmental sensitivity of the area.
12.	<b>How will the development impact on people's health and well-being? (E.g. In terms of noise, odours, visual character and sense of place, etc.)?</b>	<p>The proposed prospecting project will have very little impact on the people. The project area is far away from the communities, few houses are within. The planning of the boreholes was considerate of the location of these houses. Below are possible impacts on well-being and mitigation will be as follows:</p> <ul style="list-style-type: none"> <li>• Visual: Low</li> <li>• Dust: Low-Medium</li> <li>• Noise: Medium</li> <li>• Sense of place: Medium</li> </ul>
13.	<b>Will the proposed activity or the land use associated with the activity being applied for, result in unacceptable opportunity costs?</b>	No. The mining industry in South Africa has been a cornerstone of the economy for a long period of history. South Africa offers ongoing proof that mineral revenues can create sizeable benefits to the economy in countries where they are sourced.
14.	<b>Will the proposed land use result in unacceptable cumulative impacts?</b>	No. The proposed project has only been identified to have minimal cumulative impacts that can be mitigated to an acceptable level.

## **7 Motivation for the overall preferred site, activities and technology alternative including Full description of the process followed to reach the proposed preferred alternatives within the site.**

The proposed site was selected based on extensive research and also following on information from previous prospecting activities in the area. In terms of the technologies proposed, the proposed prospecting methods and technologies have been chosen based on the known successful prospecting processes within the area. The prospecting activities proposed in the Prospecting Works Programme (PWP) is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques

### **7.1 Details of the development footprint alternatives considered.**

#### **7.1.1 Location Alternatives**

There is no preferred site alternative for the proposed prospecting project because the mineral the applicant proposes to prospect is located within the preferred site.

#### **7.1.2 Design/Layout Alternatives**

Since exploration is temporary in nature, no permanent structures will be constructed. Negotiations and agreements will be made with the landowners make use any existing infrastructure like access roads for the explorers, and any infrastructures that exist on site.

#### **7.1.3 Technology Alternatives**

The diamond drilling technique is the only major method used in exploring for deposits of this type and also for resource definition and evaluation. The technology to be used cannot be replaced by any other methods thus these are the preferred activities such as Air Flush.

#### **7.1.4 Operational Alternatives**

##### **Exploration Drilling Methods**

The principal prospecting activity will be diamond core drilling. One drill rig will be utilised to drill NQ – 60mm diameter of core size. This core size provides sufficient sample mass for laboratory analysis. Thus, no other methods have been considered for the proposed prospecting.

## 7.2 The option of not implementing the activity (no-go option)

Not implementing the prospecting activities will result in a loss of information of mineral reserves present on the study area. Should economically feasible reserves exist on the study area and the applicant cannot prospect, the opportunity to utilize the reserves for future Gemstone, Cobalt, Lead, Gold, Copper, Nickel, Silver and Zinc mining will be lost, i.e., the minerals will be sterilized and resultant socio-economic benefits will be lost. The proposed prospecting activities have the potential to have a negative impact on the ecological environment as well as the social environment of the area. These impacts, however, can potentially be prevented, minimized, mitigated and managed to low and very low levels, as shown through the impact assessment.

As per the map produced by the GIS specialist in house, the proposed project area falls on Other Natural Areas Unclassified. The biodiversity status of the area does not show any concerns therefore there is no need for an alternative area.

The mining sector forms part of the backbone of the South African economy.

- ✚ The jobs that were to be created during prospecting phase will also be missed; these employment opportunities would be reduced, causing an economic burden on the government as people dependant on social grants would not be reduced.
  
- ✚ The state of the natural environment will remain the same, amongst other things the following will be beneficial:
  - There will be no geological and soil disturbance
  
  - No generation of wastes from the proposed activities
  
  - No compaction of pathways affecting the growth pattern of grasses and movement of micro animals
  
  - No disturbance of wildlife in the surrounding farms will occur.

## 8 Details of the Public Participation Process Followed

This section of the report provides an overview of the tasks to be undertaken for the Public Participation Process (PPP). The PPP was conducted in terms of Chapter 6 of the NEMA and included the following:

- ✚ Identification and recording of key Interested and Affected Parties (I&APs) and other stakeholders on to the Stakeholder Database.
- ✚ Placement of site notices around the farm, and other accessible public areas.
- ✚ Publication of a newspaper advert, in the local newspaper
- ✚ Formal notification of the application to key Interested and Affected Parties and other stakeholders via distribution of Notification Letter and the Background Information Document,
- ✚ Compilation of Consultation Report with all comments and responses from I&APs and the EAP

### 8.1 Identification of key Interested and Affected Parties:

Public Participation is the involvement of all parties who are either potentially interested and/or affected by the proposed development. The principal objective of public participation is to inform and enrich decision-making. This is also its key role in this Environmental Impact Assessment (EIA) process.

Landowners (affected and adjacent) were identified through the site visit. Additional relevant organisations were also identified and notified of the application. This includes municipal and State departments with jurisdiction in the project area. Interested and Affected parties (I&AP's) representing the following sectors of society were identified and notified were:

- ✚ Landowners
- ✚ Adjacent Landowners
- ✚ Local Municipality
- ✚ Government Departments
- ✚ Community



## 8.2 Formal notification of the application to key Interested and Affected Parties

The project announced as follows:

- **Newspaper Advert Notice:**

The project announcement advertisement was published on **the 16<sup>th</sup> of September 2022** in Diamond Fields Advertiser in Afrikaans and English. The newspaper advert is used to notify all interested and affected parties (I&APs) of the proposed project and for them register as stakeholders for the project.

- **Site notice placement:**

In order to inform surrounding communities and adjacent landowners of the proposed development, site notices were erected on site and at visible locations close to the site on the **26<sup>th</sup> of September 2022**.

- **Written notification:**

A Background Information Document (BID) notifying I&AP's and other key stakeholders of the project was sent on the **20<sup>th</sup> of September 2022**



Figure 12: Site notices placement



Figure 13: Proof of attempts done to locate landowners and lawful Land occupier

**APPLICATION FOR A PROSPECTING RIGHT AND ASSOCIATED ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED PROSPECTING OF DIAMONDS ON A REMAINDER AND PORTION 1 OF FARM 154 (RETRAIT) AND REMAINDER OF FARM 155 (WELTEVREDE) LOCATED WITHIN THE ADMINISTRATIVE DISTRICT OF BARKLEY WEST, NORTHERN CAPE PROVINCE. SMS REF: NC1204995**

**INVITATION TO REGISTER, PARTICIPATE AND COMMENT ON THE PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORISATION APPLICATION PROCESSES AS WELL AS THE DRAFT BASIC ASSESSMENT REPORT.**

Notice is hereby given in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA), as amended by Section 12 of Act 49 of 2008 and the National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA) as amended, that Sunstone Mining (Pty) Ltd (Sunstone) is applying for a Prospecting Right (PR) and associated Environmental Authorisation (EA) for the proposed prospecting of diamonds on a Remainder and Portion 1 of Farm 154 (Retrait) and Remainder of Farm 155 (Weltevrede) located within the administrative district of Barkley West, Northern Cape Province.

Not Geological Consulting Services (Pty) Ltd was appointed by Sunstone as the Independent Environmental Assessment Practitioner (IEAP) to facilitate the EA process to be submitted to the DMR, the Competent Authority.

**Proprietor:** Sunstone Mining (Pty) Ltd (Sunstone)  
**Localities:** The proposed prospecting will be undertaken on Remainder and Portion 1 of Farm 154 (Retrait) and Remainder of Farm 155 (Weltevrede) located within the administrative district of Barkley West, Northern Cape Province.

**Environmental Authorisation Process:** The project triggers activities listed in Listing Notices 1 and 3 of the NEMA, which requires that a Basic Assessment (BA) process be followed as stipulated in GNR 982 (as amended by GNR 325 of 7 April 2017 and 11 June 2021). Draft Basic Assessment Report Available for Comment: Stakeholders are invited to register as Interested and Affected Parties (IA/APs) and to comment on the Draft Basic Assessment Report (BAR) available from <http://www.ndigoeservices.co.za/>. The Draft BAR will be available for public review for a 30-day period from 16 September 2022 to 17 October 2022. All comments received on the report will be incorporated into the Final BAR that will be submitted to the DMR for final decision making.

**Stakeholder Engagement and Public Comments Invited:** Chapter 6 of the NEMA requires the applicant to inform all potential interested and Affected Parties (IA/APs) of the proposed project and application for EA. We hereby invite you to register as an IA/AP and provide comments on the application and Draft BAR through written submissions and/or comment by email, fax or telephone on the contact details below.

Ndihudzanyini Mofokang: 38 Ophela Street, Kimberley, 8301; Contact Numbers: 082 760 8420 / 053 842 0687; Fax: 086 538 1069; HYPERLINK "mailto:stakeholder@gmail.com/ndigoeservices.co.za" stakeholder@gmail.com/ndigoeservices.co.za

By registering as a stakeholder, you consent to Ndig Geological processing and, if necessary, disclosing your personal information which Ndig Geological undertakes to do in accordance with the requirements of the new Protection of Personal Information Act (POPIA) promulgated in 2021.

**DIKGATLONG LOCAL MUNICIPALITY PUBLIC NOTICE**

**THE 2022/2023 SERVICE DELIVERY AND BUDGET IMPLEMENTATION PLAN (SDBP) AND PERFORMANCE AGREEMENTS FOR THE MUNICIPAL MANAGER AND MANAGERS DIRECTLY ACCOUNTABLE TO THE MUNICIPAL MANAGER**

Notice is hereby given in terms of section 53 (1) (d) (i) and (j) (b) of the Local Government: Municipal Finance Management Act, 2003 (Act No 56 OF 2003), that the Mayor of Dikgatlong Local Municipality has approved the 2022/2023 Service Delivery and Budget Implementation Plan on the 27th of June 2022 in conjunction with the Performance Agreements for the Municipal Manager and Managers Directly Accountable to the Municipal Manager after the approval of the 2022-2023 Budget and the 2022-2023 Integrated Development Plan by the Council.

The copies of the 2022/2023 Service Delivery and Budget Implementation Plan and Performance Agreements for the Municipal Manager and Managers Directly Accountable to the Municipal Manager of Dikgatlong Local Municipality are available on the website of the Municipality: ([www.dikgatlong.gov.za/](http://www.dikgatlong.gov.za/)). Alternatively, the documents are at Municipality Main Office in Barkly West. Administrative enquiries may be directed to the following official during office hours: Monitoring and Evaluation Officer- Mr G Sheni, telephone: (053) 531 8500 during normal office hours at the Municipal Offices, 33 Campbell Street, Barkly West.

**B. TSINYANE**  
**ACTING MUNICIPAL MANAGER**

**SOL PLAAATJE MUNICIPALITY / MUNISIPALITEIT**

**VOORSKRIFTE TOEGestaan TOE RECHTING DIE 2021 KONSELUS TOE BUDGETWAG, KONSELUS.**

KONSELUS geestes keuse om die Sol Plaatje Munisipaliteit se 2022/2023 dienslewingsplan en prestasie ooreenkoms te goedgekeur. Die 2022/2023 dienslewingsplan en prestasie ooreenkoms is goedgekeur op die 27de Junie 2022 in ooreenstemming met die 2022-2023 geïntegreerde ontwikkelingsplan en die 2022-2023 begroting deur die raad van die Sol Plaatje Munisipaliteit.

Die kopieë van die 2022/2023 dienslewingsplan en prestasie ooreenkoms is beskikbaar op die webwerf van die munisipaliteit: ([www.solplaatje.co.za/](http://www.solplaatje.co.za/)). Alternatiewe, is die dokumente beskikbaar by die munisipale hoofkantoor in Barkly West. Administratiewe navrae kan gerig word na die volgende amptenaar tydens kantoorure: Monitoring en Evaluasie Amptenaar - Mnr G Sheni, telefoon: (053) 531 8500 tydens normale kantoorure by die munisipale kantore, 33 Campbell Street, Barkly West.

**B. TSINYANE**  
**AKTYFIEERDE MUNISIPALE LEIER**

PUBLIC NOTICES

PUBLIC NOTICES

PUBLIC NOTICES

**DEPARTMENT OF TRANSPORT, SAFETY AND LIAISON**  
**ISEBE LEZOTHUTO, EZOKHUSELENO NONKULUMAMNO**  
**LEFAPHA LA DIPLANGWA, PARALESEGO LE BOGORAGANYI**  
**DEPARTMENT VAN VERVOER, VEILIGHEID EN VERBAND**

**INTERNAL MEMO**  
**ERRATUM**

The post of Senior Manager: Civilian Oversight with reference number 54.1/08/01 was re advertised with closing date of 23 September 2022 in the national and local newspapers. Amend- ed on the requirements of the post is as follows: Entry level requirement for SMS posts: In terms of the Directive on Compulsory Capacity Development, Mandatory Training Days & Minimum Entry Requirements for SMS that was introduced on 1 April 2020 is successful completion of the Senior Management Pre-Entry Programme as endorsed by the National School of Government (NSG). The course is available at the NSG under the name certificate for entry into SMS and the NSG obtained by the following the following the below link: <https://www.thensg.gov.za/training-course/sms-pre-entry-programme/>.

For any further information please contact the Acting Senior Manager: Dr G.D Parker at 053 839 1765 / 053 839 1795.

**DR.G.D.PARKER**  
**ACTING SENIOR MANAGER: CORPORATE SERVICES**

**NOTICE OF PUBLIC PARTICIPATION FOR PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORIZATION APPLICATION**

**AFREKANS**

**ENGLISH**

**Registration van die Prospektoring Assesie: Tsewete (Pty) Ltd** is applying for a Prospecting Right (PR) and associated Environmental Authorisation (EA) for the proposed prospecting of diamonds on a Remainder and Portion 1 of Farm 154 (Retrait) and Remainder of Farm 155 (Weltevrede) located within the administrative district of Barkley West, Northern Cape Province.

Notice is hereby given in terms of the Mineral and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002) and the National Environmental Management Act (NEMA) (Act No 107 of 1998) as amended, that Sunstone Mining (Pty) Ltd (Sunstone) is applying for a Prospecting Right (PR) and associated Environmental Authorisation (EA) for the proposed prospecting of diamonds on a Remainder and Portion 1 of Farm 154 (Retrait) and Remainder of Farm 155 (Weltevrede) located within the administrative district of Barkley West, Northern Cape Province.

**REGISTERED OR INTERESTED & AFFECTED PARTY:** As part of the EA process, interested and Affected Parties (IA/APs) are invited to register and submit any comments or concerns to reach the Independent Environmental Assessment Practitioner (IEAP) using the contact details provided below. The public is also invited to review and comment on the Draft Basic Assessment Report and Environmental Management Programme Report (EMPR) on the website of the IEAP. The Draft BAR & EMPR will be available for review for a 30-day period from the 16th of September 2022 to the 17th of October 2022. This report will be available at the National School of Government (NSG) under the name certificate for entry into SMS and the NSG obtained by the following the following the below link: <https://www.thensg.gov.za/training-course/sms-pre-entry-programme/>.

**ASSISTANT MANAGER**  
**Not Geological Consulting Services (Pty) Ltd**  
 Office: 37, Springbok Street  
 Telephone: 053 842 0687  
 Email: [stakeholder@gmail.com](mailto:stakeholder@gmail.com)

**APPLICANT'S DETAILS**  
 38 Ophela Street, Kimberley, 8301  
 Contact person: B. Tsinyane  
 Tel: 053 842 0687  
 Fax: 086 538 1069  
 Email: [stakeholder@gmail.com](mailto:stakeholder@gmail.com)

Figure 14: Proof of newspaper advertisement, in red polygon.



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

SEARCH CRITERIA			
Search Date	2022/09/19 15:12	Farm Number	654
Reference	-	Registration Division	KURUMAN RD
Report Print Date	2022/09/19 15:14	Portion Number	-
Farm Name	-	Remaining Extent	NO
Deeds Office	Vryburg	Search Source	WinDeed Database

PROPERTY INFORMATION			
Property Type	FARM	Diagram Deed Number	FT2012-VQ17/24
Farm Name	MAMAGHODI	Local Authority	KALAHARI SDR
Farm Number	654	Province	NORTHERN CAPE
Registration Division	KURUMAN RD	Remaining Extent	NO
Portion Number	0	Extent	2619.3777H
Previous Description	-	LPI Code	C04100000000065400000

OWNER INFORMATION (1)			
SISHEN IRON ORE COMPANY PTY LTD			Owner 1 of 1
Company Type	COMPANY	Document	T2669/2009
Registration Number	200001108507	Microfilm / Scanned Date	-
Name	SISHEN IRON ORE COMPANY PTY LTD	Purchase Price (R)	22 724 148
Multiple Owners	NO	Purchase Date	2009/06/23
Multiple Properties	NO	Registration Date	2009/08/28
Share (%)	-		

Figure 15: Deed search for the Remaining Extent of farm Mamaghodi 654



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

SEARCH CRITERIA			
Search Date	2022/09/19 15:12	Farm Number	654
Reference	-	Registration Division	KURUMAN RD
Report Print Date	2022/09/19 15:13	Portion Number	-
Farm Name	-	Remaining Extent	NO
Deeds Office	Vryburg	Search Source	WinDeed Database

PROPERTY INFORMATION			
Property Type	FARM	Diagram Deed Number	T452/1929
Farm Name	MAMAGHODI	Local Authority	KALAHARI SDR
Farm Number	654	Province	NORTHERN CAPE
Registration Division	KURUMAN RD	Remaining Extent	NO
Portion Number	1	Extent	11.2206H
Previous Description	-	LPI Code	C0410000000065400001

OWNER INFORMATION (1)			
COLNAGO CC			Owner 1 of 1
Company Type	CLOSE CORPORATION	Document	T3110/1999
Registration Number	CK99/46455/23	Microfilm / Scanned Date	-
Name	COLNAGO CC	Purchase Price (R)	528 000
Multiple Owners	NO	Purchase Date	1999/08/24
Multiple Properties	NO	Registration Date	1999/10/28
Share (%)	-		



Figure 16: Deed search for Portion 1 of the farm Mamaghodi 654



### 8.3 Summary of issues raised by I&Aps

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



**Table 5:** Issues raised by Interested and Affected Parties (I&APs)- **COMMENTS AND RESPONSES WILL BE INCOMPAREATED AFTER 30-DAYS OF THE REVIEW**


<b>Interested and Affected Parties</b> List the names of persons consulted in this column, and mark with an X where those who must be consulted were in fact consulted	<b>Date comments received</b>	<b>Issue(s) raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Section and paragraph in this report where the issues and/or response were incorporated</b>
<b>Affected parties</b>				
<b>Landowners</b>				
REMAINING EXTENT OF THE FARM MAMAGHODI 654: Landowner: <b>SISHEN IRON ORE COMPANY PTY LTD</b>				
PORTION 1 OF THE FARM MAMAGHODI 654: Landowner: <b>COLNAGO CC</b>				
<b>Lawful occupiers of the land</b>				
N/A				
<b>Landowners or lawful occupiers on adjacent properties</b>				
FARM GROOT VENN 777: Landowner: <b>PIETER &amp; ANDRIENNE MYNHARDT</b>				

<b>Interested and Affected Parties</b> List the names of persons consulted in this column, and mark with an X where those who must be consulted were in fact consulted	<b>Date comments received</b>	<b>Issue(s) raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Section and paragraph in this report where the issues and/or response were incorporated</b>
FARM LUCKNOW 652 Landowner: COLNAGO CC				
<b>Municipality</b>				
 <p> <b>Tsantasabane Local Municipality</b>            LED Officer            Email: <a href="mailto:officerled@tsantasabane.gov.za">officerled@tsantasabane.gov.za</a> </p>	X			
<b>Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA)</b>				
 <p> <b>Department of Agriculture, Forestry and Fisheries</b>            Jacoline Mans         </p>	X			

<b>Interested and Affected Parties</b> List the names of persons consulted in this column, and mark with an X where those who must be consulted were in fact consulted	<b>Date comments received</b>	<b>Issue(s) raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Section and paragraph in this report where the issues and/or response were incorporated</b>
<b>060 973 1660</b> <a href="mailto:JacolineMa@daff.gov.za">JacolineMa@daff.gov.za</a>				
 <b>Department of Public Works</b> <b>Ruawayda Baulakey</b> <b>053 838 5202</b> 083 459 7602 <a href="mailto:Ruwayda.Baulackey@dpw.gov.za">Ruwayda.Baulackey@dpw.gov.za</a>	X			
 <b>Department of Water and Sanitation</b> Warm slower Email: <a href="mailto:warmslowervaal@dws.gov.za">'warmslowervaal@dws.gov.za'</a> <b>Ramusiya T</b> Email: <a href="mailto:Ramusiyat@dws.gov.za">Ramusiyat@dws.gov.za</a>	X			
	X			



<b>Interested and Affected Parties</b> List the names of persons consulted in this column, and mark with an X where those who must be consulted were in fact consulted	<b>Date comments received</b>	<b>Issue(s) raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Section and paragraph in this report where the issues and/or response were incorporated</b>
 <p><b>Eskom</b>  <b>Khahliso Makale</b>  011 516 7417  067 265 0908  <a href="mailto:MakaleKM@eskom.co.za">MakaleKM@eskom.co.za</a></p>				
 <p><b>Transnet</b>  Sam Fifi  <a href="mailto:Livhuwani.ndou@transnet.net">Livhuwani.ndou@transnet.net</a>  <a href="mailto:Sam.fifi@transnet.net">Sam.fifi@transnet.net</a></p>	X			
<b>Department of Rural Development and Land Reform (DRDLR)</b>				

<b>Interested and Affected Parties</b> List the names of persons consulted in this column, and mark with an X where those who must be consulted were in fact consulted	<b>Date comments received</b>	<b>Issue(s) raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Section and paragraph in this report where the issues and/or response were incorporated</b>
 <p><b>Commission on Restitution of Land Rights</b></p> <p><b>PABALELO MOKALE</b></p> <p><b>Email:</b>  <a href="mailto:Pabalelo.Mokale@dalrrd.gov.za">Pabalelo.Mokale@dalrrd.gov.za</a></p>	X			
<b>Traditional leaders</b>				
N/A				
<b>Community</b>				
N/A				
<b>Other affected parties</b>				

## 9 Baseline Environment

### 9.1 Geology

*Description why the Geological formation substantiates the minerals to be prospected for (provide a justification as to why the geological formation supports the possibility that the minerals applied for could be found therein)*

#### 9.1.1 Regional Geology

The area under application is underlain by the Ventersdorp, Olifantshoek, Molopo Complex and Karoo Supergroup. Details pertaining to the stratigraphy and lithology are provided below.

#### **STRATIGRAPHY AND LITHOLOGY:**

**VENTERSDORP SUPERGROUP:** The Ventersdorp Supergroup consists of the Platberg Group, Kraaipan Group, Dominion Group, Vryburg Group and the Chaap Group. Platberg group: The Platberg group occurs in the southeastern part of the prospecting area. Here it is represented by three formations including Kameeldoorns, Makwassie and Allenridge. Only a small portion of the Kameeldoorns Formation occurs in the southeastern part of the area. It consists of conglomerates, shale and breccia. The Makwassie formation is made of quartz porphyries, whereas the Allenridge Formation comprises volcanic rocks of basaltic and andesitic composition.

Based on several evidences, Duane et al (2004) suggested that the Mississippi Valley Type (MVT) Bp-Zn deposits such as at Pering and Busy Park were formed from floods expelled from the Ventersdorp lavas, particularly the Makwassie Quartz Porphyry during the Kheis orogeny. This interpretation might have its relevant in conceptual exploration for Pb-Zn deposits in the region such as the spatial association of Ventersdorp lava with the Campbell Rand Subgroup.

**KRAAIPAN GROUP:** The Kraaipan Group forms the oldest rocks in the concession area. It comprises under undifferentiated assemblage of banded chert and iron-formations, pelitic schists and mafic volcanic and granite gneisses that intruded the above mentioned volcanic and sedimentary assemblage. No gold mineralisation as those hosted by the iron formations in Kraaipan and Amelia has been reported in the present area, perhaps due to the lack of outcrop and – or isolated occurrences (as rafts) of the Kraaipan Group.

**DOMINION GROUP:** The Dominion Group is represented by andesite, quartz-porphyry and

quartzite assemblages in the area occupied by the granite gneisses of the Kraaipan Group.

**VRYBURG GROUP:** The Vryburg Group comprises shale, sandstone and andesite.

**GHAAP GROUP:** The Ghaap group is made up of various subgroups.

**Schmidtsdrift Subgroup:** In this area consist of stromatolitic and oolitic carbonates (dolomites) and shales.

**CAMPBELL RAND SUBGROUP:** A large portion of the area is occupied by the Campbell Rand Subgroup. It is divided into several formations.

**Reivilo Formation:** Grey, coarse-grained dolomite characterized by latterly linked stromatolitic mounds intercalated with cycles of centimetre sized domical stromatolites. This formation is the major host to the Pb-Zn mineralization at Pering and Bushy Park.

**FAIRFIELD FORMATION:** Medium-grained, light-grey laminated dolomite with occasional interbedded black chert band (up to 10cm).

Klipfontein Formation: Medium- to coarse-grained, light-grey dolomite interbedded with white and black chert bands. Circular to oblong domical stromaotilites are also occasionally found as well undulating algal Matts.

**Papkuil Formation:** Dark-brown, medium- to coarse-grained stromaolatic dolomite with minor layers of black chert. It contains laterally linked domical stromaotlites.

**Klippan Fromation:** Blush-grey, fine-grained stromaolatic dolomite with minor black chert bands. It is characterized by finely laminated algal Matts that characterize the base as well as finely laminated columnar stromaolites with interbedded layer of sand, carbonite material and fragments of columnar stromaolites. Towards the top, it consists of fine-grained dolomite laminae alternating with layers of angular and sub-angular fragments of white sparry dolomite with dark cryptoalgal laminations. Vertical and sub-vertical features (NNE-trending) and horizontal fractures some of which are filled by sparry white dolomite and quartz veins in this formation.

**Kogelbeen Formation:** Dark grey, fine- to medium-grained dolomite. Gamohaam Formation: Bark blue, medium- to coarse-grained, stromatolitic limestone with minor black chert and shale. Towards the top, it becomes fine-grained and ferruginous. Asbestos Hills Subgroup: The Asbestos Hills Subgroup comprises iron formation, jaspilite, quartzite, siltstone and andersite am dos the source of the Mn and Fe in the Kalahari manganese field. It has been subdivided

into Formations and Members. Kuruman Formation: Subdivided into three Members (Bukes and Dreyer, 1986).

**Kliphuis Member** – represents a succession of the banded ferruginous chert. The chert is generally evenly banded with sharp colour changes between the individual bands (of 1-5cm thickness). Bands can be red to dark or pale ochre to yellow due to hematite and/or siderite laminations (microbands). Pure white cherty bands of up to 0.5 cm thickness can be observed sporadically.

**Groenwater Member** – consist of magnetite-siderite-hematite, magnetite-hematite, siderite magnetite bands of rhythmic nature. Known crocidolite deposits occur in the upper parts of this Member. The top of this Member is represented by banded ironstones and jaspilite.

**Daniëlskuil Formation:** A succession of the jaspilite, banded ironstone, chert and mudstone. It becomes chert and mudstone rich upwards with the top succession being mainly banded ironstone and mudstone.

**Koegas Subgroup:** The subgroup consists of six formations. It comprises iron formations and clastic sediments, the later forming the base. It is mainly covered by the Kalahari sediments. Postmasburg group: The Group comprises from the base upwards, Makganyene, Ongeluk, Hotazel and Moodraai Formations and bounded by unconformities at its base and top.

**Makganyene Formation:** Consists of two facies, the first being diamictites and various clastic rocks (siltstones and shale's) and the second diamictite greywacke and siderite lutite. Ongeluk Formation: andesitic volcanic that was mapped using additional geophysical and borehole information by Prinsloo (1994). However, according to the same author, the geophysical data suggests the presence of Molol Complex rocks (ultramatics) in the area. Hotazel Formation: Consist of jaspilites and inferred volcanic- exhalative manganese deposits.

**Moodraai Formation:** Clastic-textured stromatolitic dolomites.

**OLIFANTSHOEK SUPERGROUP:** This Supergroup is represented by the Lucknow and Hartley Formations, Matsap Subgroup and Brushland Subgroup of the Volop Group. Lucknow Formation: Comprises white quartzite and shale's with subordinate dolomite and conglomerates. Hartley Formation: Andesitic basalts and tuffs intercalated with lenses of quartzite and conglomerate. Volop group: The group comprises of; Brushland Subgroup: Brushland Subgroup comprises quartzites, shale's and sub-graywackes. This subgroup has been into three Formations. Vuilnek and Vryboom Formation: Light-grey quartzite with

scattered pebble layers. Top Dog Formation: White to light-grey quartzite with intern-bedded shale.

**Verwater Formation:** Grey quartzite with hematite nodules and pebble layers.

**Matsap Subgroup:** The Matsap Subgroup is represented by sub-greywacke, quartzite and conglomerate and consist of three formations.

**Glen Lyon Formation:** Brown, coarse-grained quartzite with thin grid stone and pebble layers.

**Ellie's Rust Formation:** Grey and brown quartzite with pebble layers.

**Fuller Formation:** Very coarse-grained, poorly sorted, red-brownish feldspathic quartzite with occasional layers and lenses of grit and conglomerate.

**MOLOPO COMPLEX:** The Molopo Complex comprises layered mafic igneous rock assemblage of diorite, pyroxinite, harzburgite, norite and gabbro with the main body occurring in Botswana where it is known for its PGM and Ni mineralization.

**KAROO SUPERGROUP:** The Karoo Supergroup in this area comprises an assemblage of tillite, sandstone, mudstone and shale. These rocks occupy a significant portion of the western part of the area extending all the way from the south to the north. A small body of Karoo diabase has been mapped in the southern part of the area.

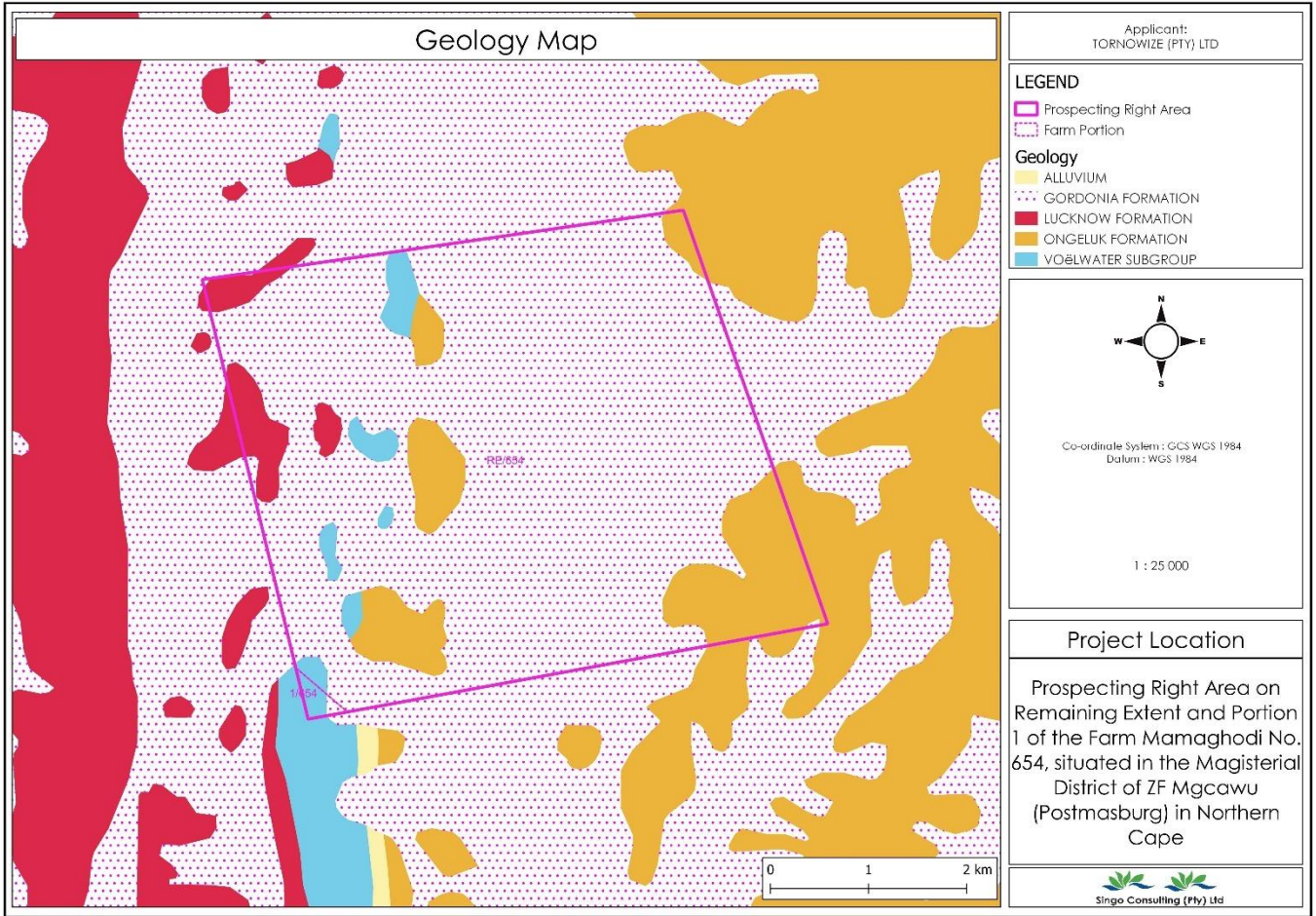


Figure 17: Geological Map.

## 9.2 Regional Climate

The climate in Postmasburg is referred to as a local steppe climate. During the year there is little rainfall. The Köppen-Geiger climate classification is BSh. The temperature here averages 18.2 °C. The rainfall here is around 400 mm per year. The study area is located in an area with 0.1 – 2 degrees Celsius.

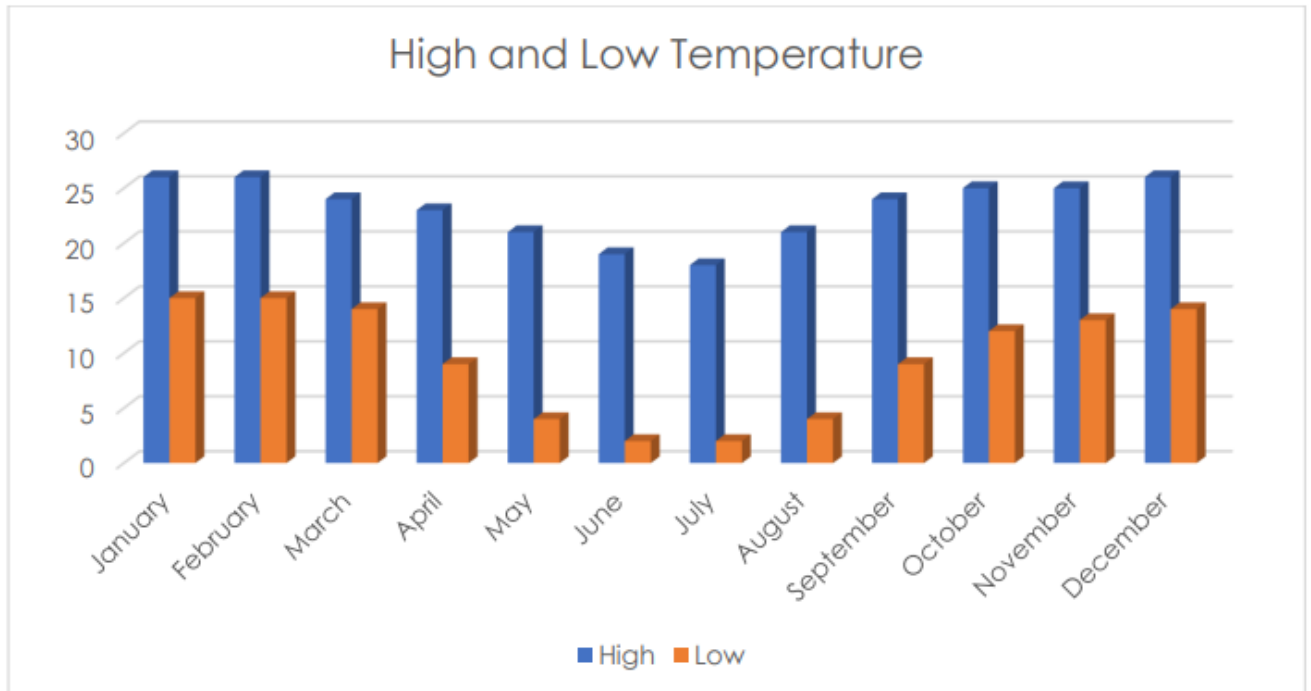
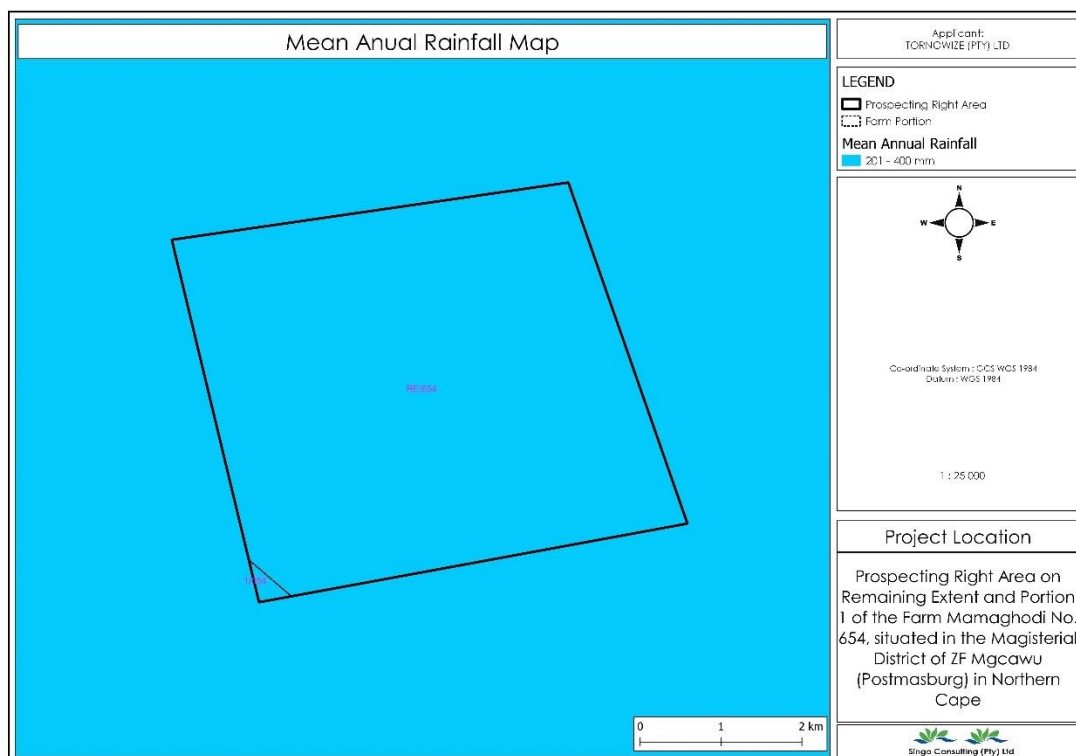


Figure 18: Average day and night-time Temperatures





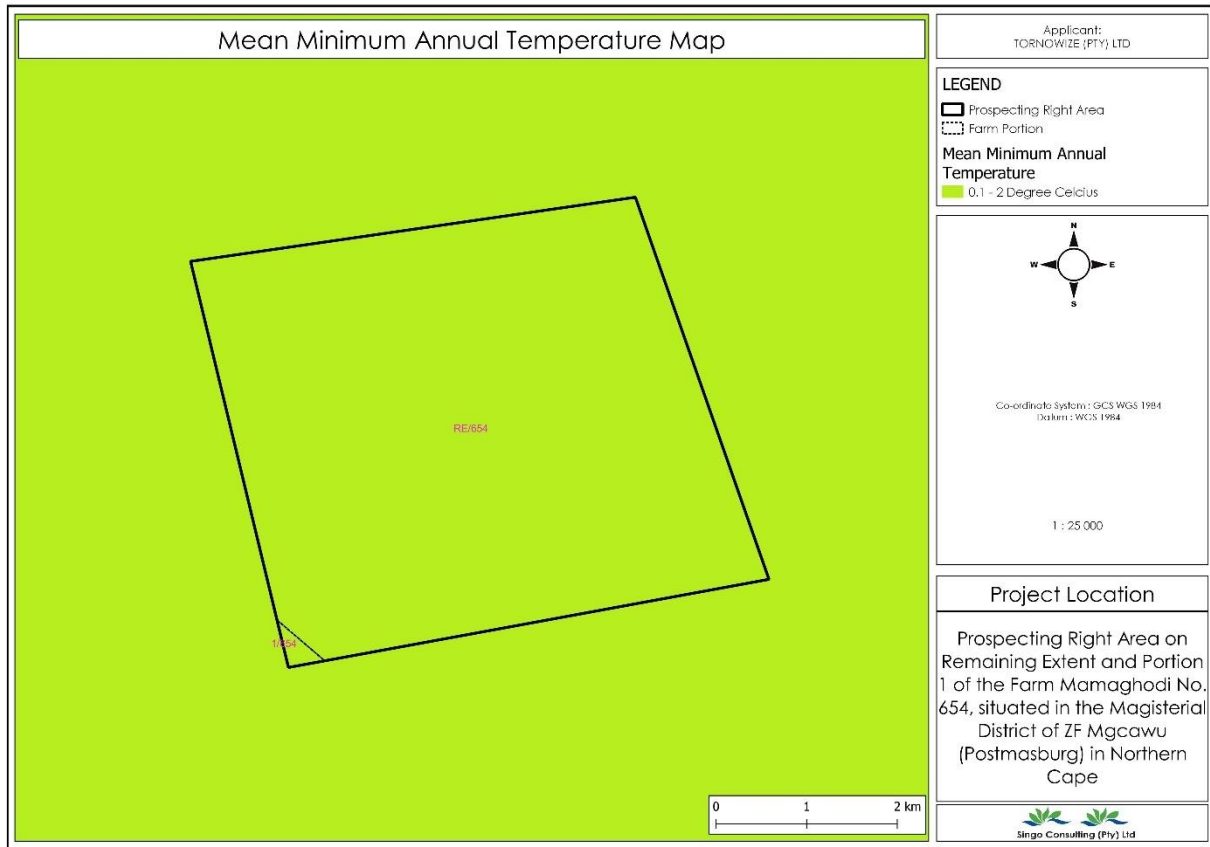


Figure 19: Mean Annual Rainfall and Temperatures of the proposed project area.

### 9.3 Soil Type

Soil Classes present in the study area The soil classes map in Figure 22 below, shows that the prospecting right area is covered with Freely drained, structureless soils. Freely drained, structureless soils. The Freely drained, structureless soils can be defined based on their soil depth, Soil Drainage, erodibility, and natural fertility. Soil depth Depth of the soil profile is from the top to the parent material or bedrock. This type of soil can be classified as a restricted soil depth. A restricted soil depth is a nearly continuous layer that has one or more physical, chemical, or thermal properties.

#### Freely drained, structureless soils.

The Freely drained, structureless soils can be defined based on their soil depth, Soil Drainage, erodibility, and natural fertility.

### **Soil Depth**

Depth of the soil profile is from the top to the parent material or bedrock. This type of soil can be classified as a restricted soil depth. A restricted soil depth is a nearly continuous layer that has one or more physical, chemical, or thermal properties.

### **Soil Drainage**

Soil drainage is a natural process by which water moves across, through, and out of the soil because of the force of gravity. The soils in the proposed area have an excessive drainage due to the soils having very coarse texture. Their typical water table is less than 150.

### **Erodibility**

Erodibility is the inherent yielding or non-resistance of soils and rocks to erosion. The freely drained structureless soils have high erodibility. A high erodibility implies that the same amount of work exerted by the erosion processes lead to a larger removal of material.

### **Natural Fertility**

Soil fertility refers to the ability of soil to sustain agricultural plant growth, i.e., to provide plant habitat and result in sustained and consistent yields of high quality. The soil, as a nature of them, contains some nutrients which is known as 'inherent fertility'. Among the plant nutrients, nitrogen, phosphorus, and potassium is essential for the normal growth and yield of crop. The proposed area has a low natural fertility soil.



Figure 20: Pictorial view of the soil type



Figure 21: Soil Classification Map

## 9.4 Topography

The topology of the area is illustrated below by Figure 6. A Topographic map is a map which indicates, to scale, the natural features of the Earth's surface, as well as human features, with features at the correct relationship to each other (Oxford Dictionary; 2020). The topography map other than showing landform features, rivers, and associated water resources, it also shows the height above sea level with the use of contour lines. Contour lines are an Imaginary line on the ground surface joining the points of equal elevation. The topographical map used is of 20 meters contour interval and a scale of 1: 25 000. The scale is a representation of the real world and that of the map, which implies that 1 unit on the map equals 25 000 units on the ground. In this environmental project, topography is used to determine how surface water flows during rainy seasons or how it would flow during the existence of the project. The topography also influences groundwater vulnerability, as topography also influences run-off and infiltration.

The project area is situated of a gentle topography, however on the west side at about 1.2 km away from the study area the landscape is steep and dominated by Messa hills. During rainy season water will flow from the west towards the eastern direction of the project area.

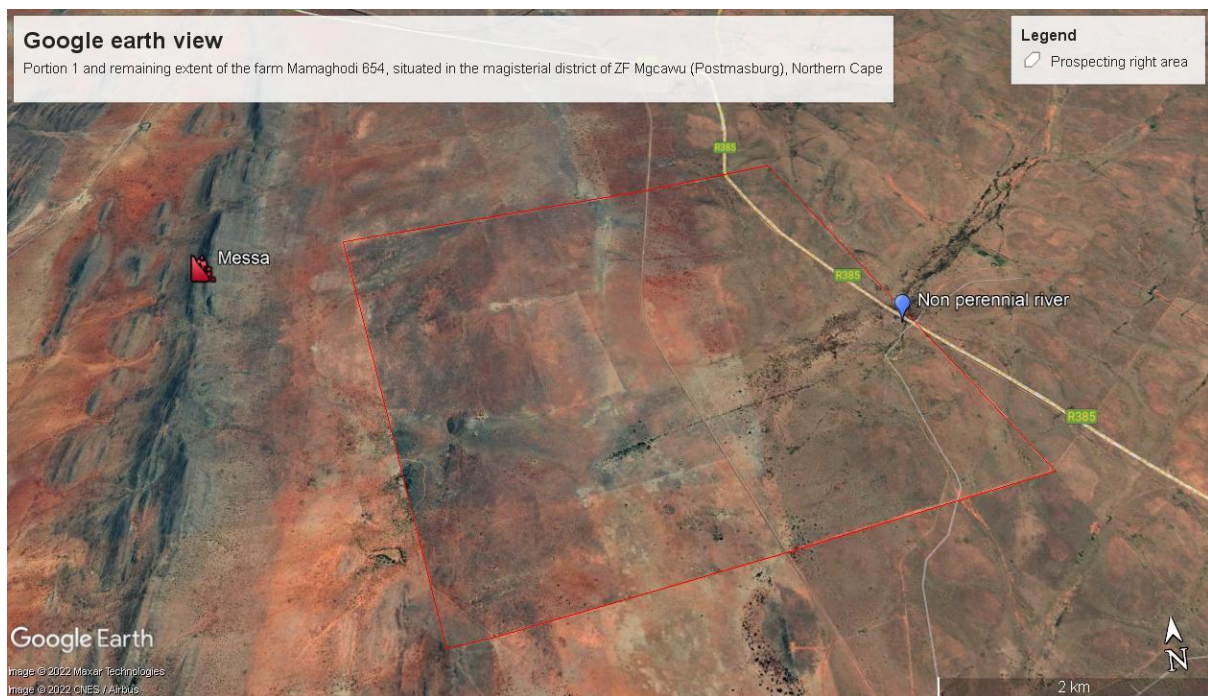


Figure 22: Topology Image of the proposed project area

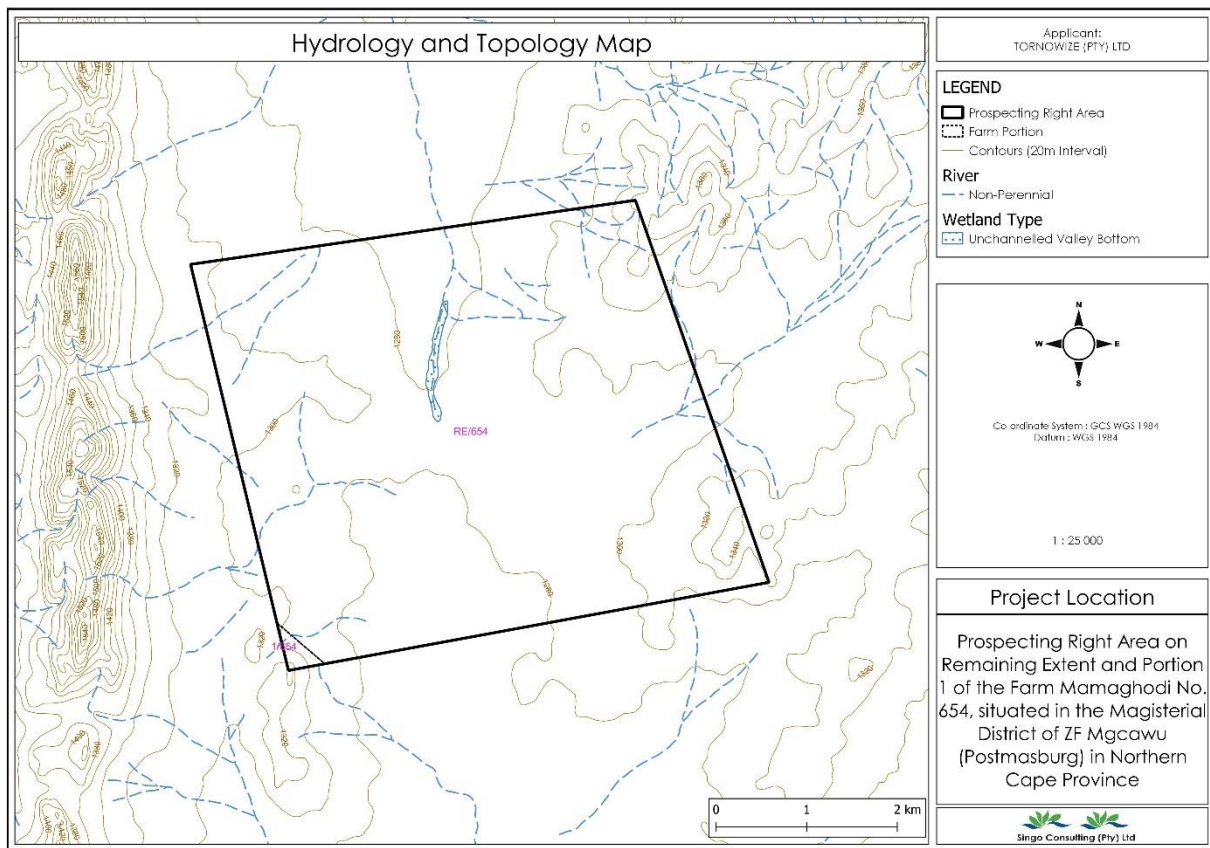


Figure 23: Topology Map of the proposed project area

## 9.5 Hydrology

The hydrology surrounding the proposed area is of vital importance. In this context hydrology is all the surface waters appearing within and nearby the proposed project area, where a potential to be impacted upon by the project exist. The hydrology map, illustrates that the following water bodies exists within and nearby the project area:

- Non-perennial rivers
- Unchanneled Valley Bottom

These are important natural water resources that should not be disturbed by anthropogenic activities. For this project where prospecting right poses a risk on them, there will be measures and guidelines put in place that will protect the water resources in this area to ensure optimal conservation of water. The prospecting right will take place during dry seasons where the water percentages are exceptionally low in the water bodies. Drilling activity will not be conducted near these water resources, the exploration geologists will be advised to drill and sample away from rivers and wetlands on site. A 100m buffer will apply around the water bodies present within the prospecting right area.

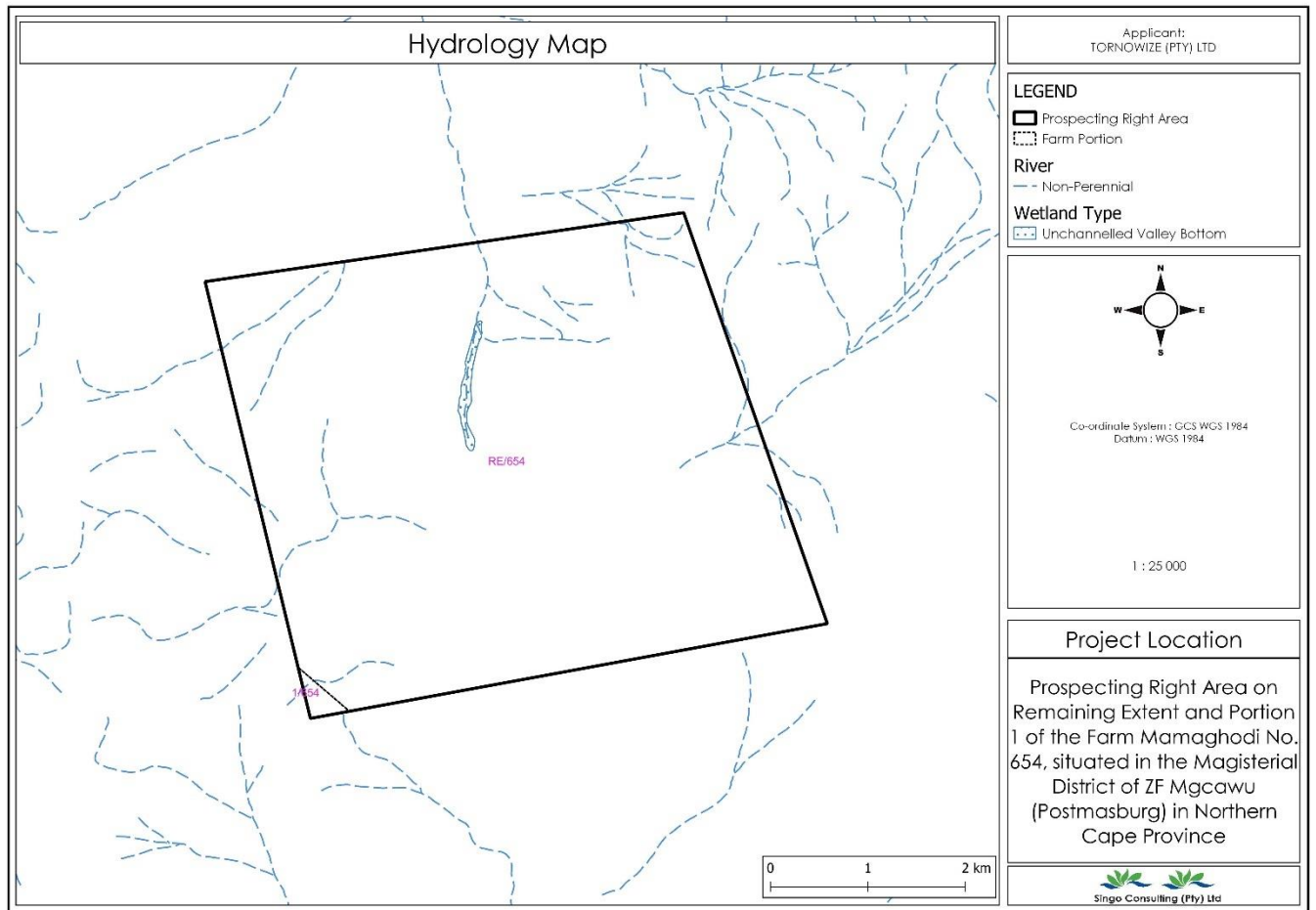


Figure 24: Hydrological Map

### Groundwater Vulnerability

Vulnerability of groundwater is a relative, non-measurable, dimensionless property (IAH, 1994). It is based on the concept that "some land areas are more vulnerable to groundwater contamination than others" (Vrba and Zaporozec 1994). The main concerns in terms of possible groundwater contamination from the proposed prospecting activity are as follows:

- During the prospecting phase, potential contamination may arise due to the drilling wastewater.

Because of the ensuing possibility of possible groundwater contamination from the sources or risks mentioned above, the aquifer's vulnerability is analyzed. The following evaluation methodology was used to establish the aquifer's vulnerability to various pollution sources:

**Method 1:** Aquifer Vulnerability Rating (DRASTIC Method).

Method: 1 evaluates and rates seven key parameters within the hydrogeological setting to determine a final aquifer vulnerability rating.

### **Aquifer Vulnerability Rating (Drastic Method)**

In the DRASTIC method, aquifer vulnerability is determined within hydrogeological settings by evaluating seven parameters denoted by the acronym:

- ✚ **D**epth to groundwater – Determined from DWA, GRA2 data, confirmed with a hydrocensus,
- ✚ **R**echarge – Obtained from DWA, GRA2 data
- ✚ **A**quifer media – Determined from geological maps and test pit profiles
- ✚ **S**oil media – Determined from test pit profiles
- ✚ **T**opography – Determined by digital elevation data
- ✚ **I**mpact on vadose zone – Determined from geological maps and test pit profiles
- ✚ Hydraulic **C**onductivity – Protocol to Manage the Potential of Groundwater Contamination from on-site Sanitation (DWAF, 1997).

### **Recommendations**

- ✚ On site there will be regular maintenance of the mobile toilets.
- ✚ Once drilling, the team will rehabilitate the area and ensure the core is out of site.
- ✚ Drilling within 100 meters of water resources will be avoided
- ✚ The drilling machine used will be of minimum vibrations to avoid creating fissures in underlying rocks which could influence groundwater migration and leads to water contamination
- ✚ Clearing of vast amount of vegetation will be avoided, this is to preserve infiltration.
- ✚ Constant availability of waste bins; Compliance of National Environmental Management: Waste Management Act 59 of 2008.
- ✚ Compliance of GN 704 4(b) and 7(a) and National Water Act 36 of 1998 (Chapter 3 – Part 4, Section 1 (a)(b).
- ✚ No onsite vehicle or machinery repairs such as changing oil.
- ✚ No onsite storage of oil, diesel, or petrol.
- ✚ Cores will be logged on an impervious surface and will be cleared from the site immediately after logging.
- ✚ No washing of vehicles on site.
- ✚ The sump will not be allowed to overflow and will be lined with impervious layer.

#### **9.5.1 Buffer Zones**

The natural environment is still being destroyed at an alarming rate, all over the globe (Ebregt

and Greve, 2000). According to the National Environmental Management: Protected area Act of 2003 no 57, Buffers are areas peripheral to a specific protected area, where restrictions on resource use and special development measures are undertaken to enhance the conservation value of the protected area.

To ensure that such water bodies remain protected throughout the existence of the project, buffers are put in place to mitigate the impacts which such project will have on the protected area. For the proposed site, buffers in place are 100 m, which implies that the proposed project should not operate within 100m from the waterbody.

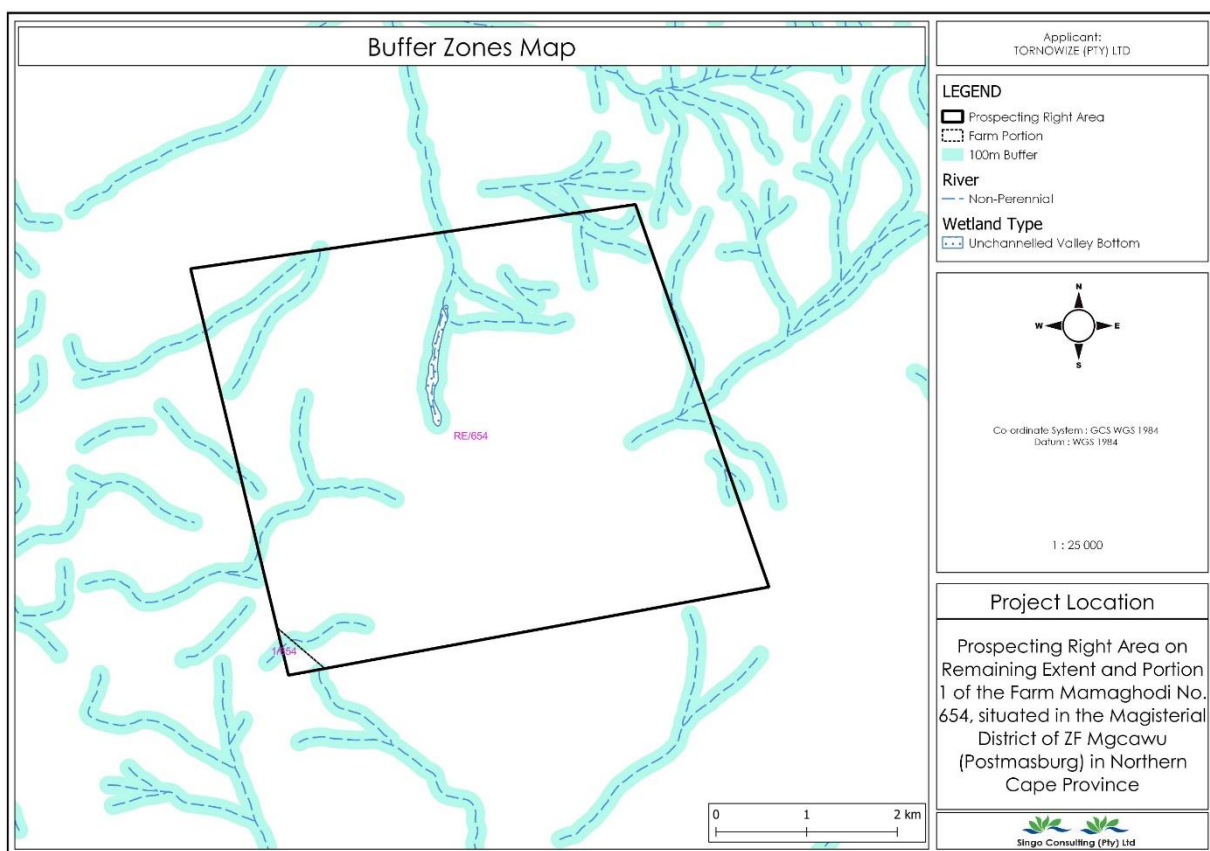


Figure 25: Hydrology Buffer Map of the proposed project area.

### 9.5.2 Catchment Description

South Africa's water resources are divided into quaternary catchments, which are the country's primary water management units (DWA 2011). In a hierarchical classification system, a quaternary catchment is a fourth order catchment below the primary catchments. The primary drainages are further classified as Water Management Areas (WMA) and Catchment Management Agencies (CMA). In accordance with Section 5 subsection 5(1) of the National Water Act, 1998, the Department of Water and Sanitation (DWS) has established nine WMAs



and nine CMAs as outlined in the National Water Resource Strategy 2 (2013). (Act No. 36 of 1998). The purpose of establishing these WMAs and CMAs is to improve water governance in various regions of the country, ensuring a fair and equal distribution of the Nation's water resources while ensuring resource quality is maintained.

The prospecting area falls within the Vaal Water Management Area (WMA). The quaternary catchment is D41J. The WRC 2012 study, presents hydrological parameters for each quaternary catchment including area, mean annual precipitation (MAP) and mean annual runoff (MAR).

Quaternary Catchment	Water Management Area	Catchment area	S-Pan Evaporation		Rainfall	
			Evaporation Zone	MAE (mm)	Rainfall Zone	MAP (mm)
D41J	Vaal	3878	8A	2351	D4D	358

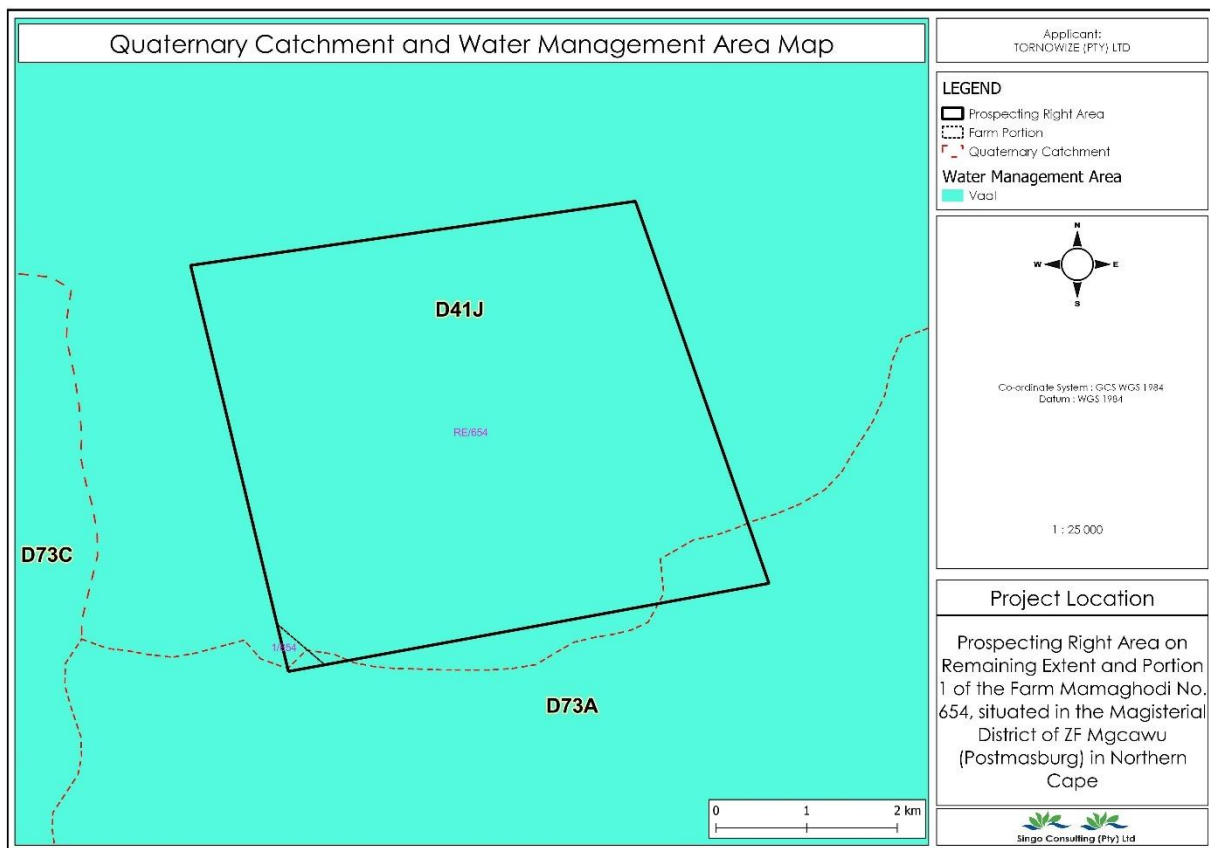


Figure 26: Quaternary catchments with water management area

## 9.6 Vegetation Cover

The proposed site is mainly dominated by Kalahari Mountain Bushveld and Kalahari Plains Thorn Bushveld. According to some scientists, bushveld is considered a primarily

vernacular term used in South Africa and Namibia for the vegetation that comprises South Africa's Savanna Biome. The Bushveld is flatter than the dune areas and comprises open to dense tree savanna with some grassy plains. Typical trees include camel thorn and shepherd's tree.

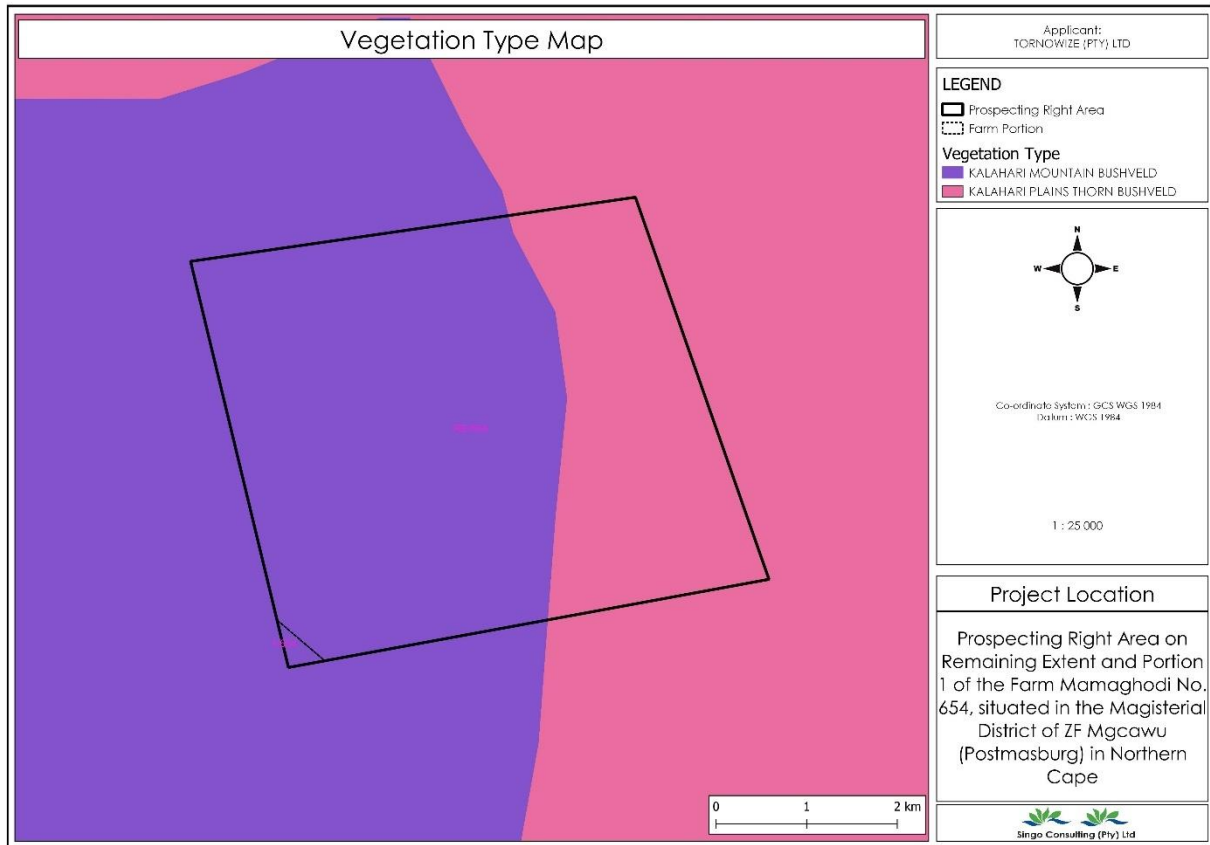


Figure 27: Vegetation Map



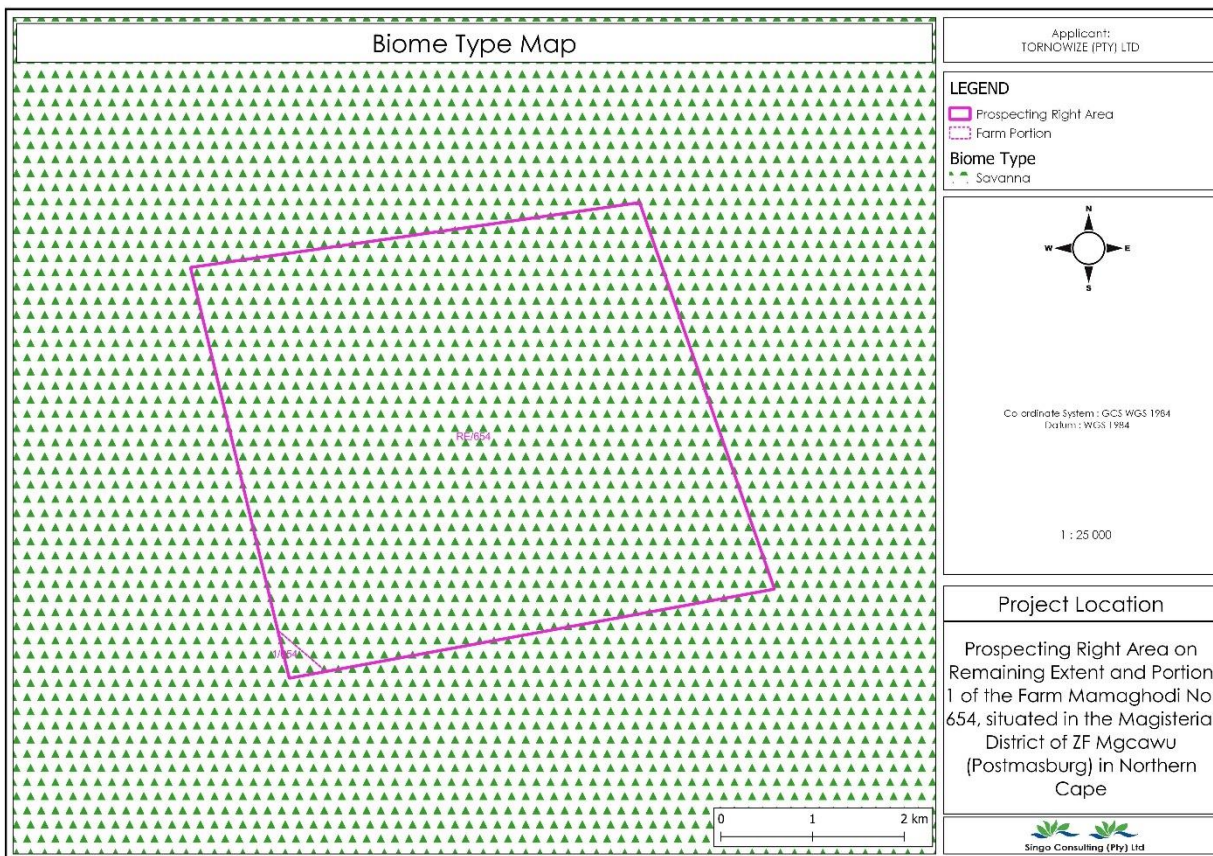
Figure 28: Vegetation type observed on site

## 9.7 Fauna

The proposed project area is located in the Savanna which is suitable to domestic and game farming. The game farms present less than 50% of the area. According to Prof Bothma of the Wildlife Management Centre at the University of Pretoria, the average size of an exempted game farm in the Northern Cape is 5000 ha and generates 54% of their gross income from local hunters, 21% from live animal sales, 18% from foreign trophy hunters, 5% from ecotourism and 21% from meat production.

In terms of number of hunters per province the Northern Cape falls second only to the Limpopo Province, with the province at 23.4% and 24.9% respectively. The same scenario applies to the number for animals hunted per province, with Limpopo Province taking the lead at 33.9% and the Northern Cape following at 20%. Percentage live animals sold at all auctions per province are 22% for the Northern Cape, the second lowest for the country.

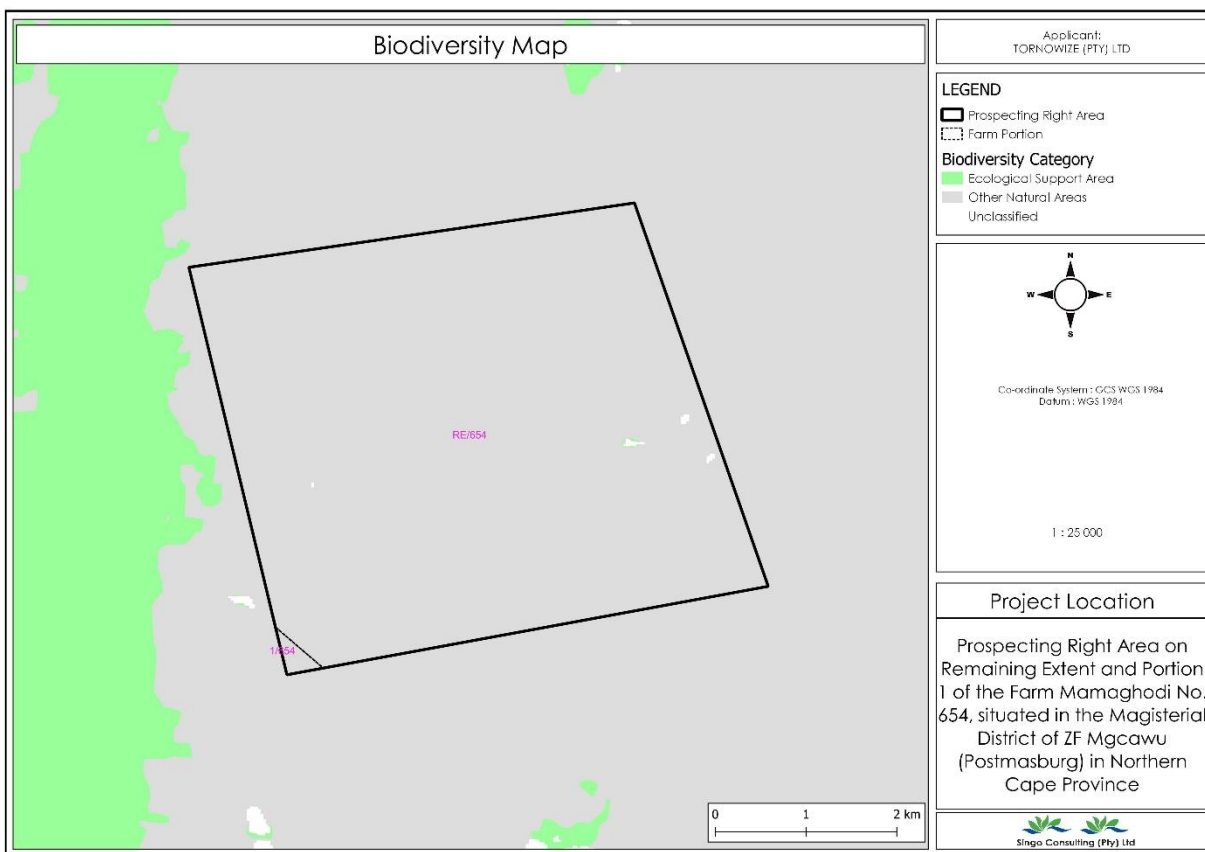
Within the proposed prospecting right area, domestic animals such as Sheep and Goats were observed on the adjacent farms and Game animals were also spotted during site assessment.



**Figure 29:** Biome Type Map of the proposed project area

## 9.8 Biodiversity

As per the map produced by the GIS specialist in house, the proposed project area falls largely on Other Natural Area. Natural area is land dominated by native vegetation and undisturbed by any human activity. These areas comprised at least 60% of natural vegetation species from the area's natural eco-system, measured by biomass. Refereeing to the map below, there are other areas which are unclassified in the proposed project area.



**Figure 30:** Biodiversity Map of the proposed area

## 9.10 Socio Economic Status

### 9.10.1 Demographics

ZF Mgcawu District Municipality forms the mid-northern section of the province on the frontier with Botswana. It covers an area of more than 100,000 square kilometers (almost 30% of the entire Province) out of which 65; 000 square kilometers compromise the vast Kalahari Desert, Kgalagadi Tran frontier Park. A demographic profile of the ZFMDM is useful in understanding the composition and economic potential of the study area. According to the STATSSA 2016 community survey, ZF Mgcawu population growth rate has increased by 1.5% since 2011 (382 083 – 387 741). Slight growth was observed in Sol Plaatje Local Municipality (248 037 – 255 351) and Tsantsabane Local Municipality (46 839 – 48 164), while population declined in Kgatelopele Local Municipality (63 000 – 60 168).

	Northern Cape	FBDM	Kara Hails	Tsantsabane	Kgatelopele	Mire	South Africa
<b>Number of households</b>	353 709	113 330	72 012	14 751	6 970	19 597	16 923 309
<b>Population size</b>	1 193 780	387 741	255 351	48 164	24 059	60 168	55 653 654

**Table 6: Demographic profile (Census, 2016).**

The population of the district is fairly young with 69% of the population aged 40 years and younger. Those between the ages of 41 and 65 years account for 23%, and only 7% of the population (i.e. 66 years and older) is of retirement age (Census 2016). The dominant languages spoken in the district are Setswana, Afrikaans, English and IsiXhosa. Black Africans account for over 250 000 people of population.

### 9.10.2 Education profile

Tsantsabane and Kgatelopele Local Municipalities have a large number of people with some secondary schooling, followed by those with some primary levels. Those with Grade 12 constitute 12.83%, while those higher than Grade 12 only constitute 1.64%. There are a limited number of skilled people from which the labour market can draw skills/expertise. Compared to other local municipalities in the ZFMDM, Tsantsabane and Kgatelopele Local Municipality have a low education and literacy output.

### 9.10.3 Employment profile

The number of those who are not economically active is very high, which means a large portion of the population depends on social grants and those employed. The number of employed people increased from 5 924 in 2001, to 7 841 in 2011; a decrease in unemployment from 45.3% in 2001, to 39.7% in 2011.

The Stats SA 2011 report indicates that black females, in particular, form the majority of the unemployed (and are the most discouraged work seekers), followed by black people in general. There is a need for initiatives that make it easy for women to find employment. According to the strict definition of unemployment, the unemployment rate in the ZFMDM is 54%. According to the ZFMDM EMF, the area has a 65% unemployment rate, which is higher than the country and district average.

### 9.11 Description of the current land uses

See Figure 35 for Land use and land cover classes map of the area.

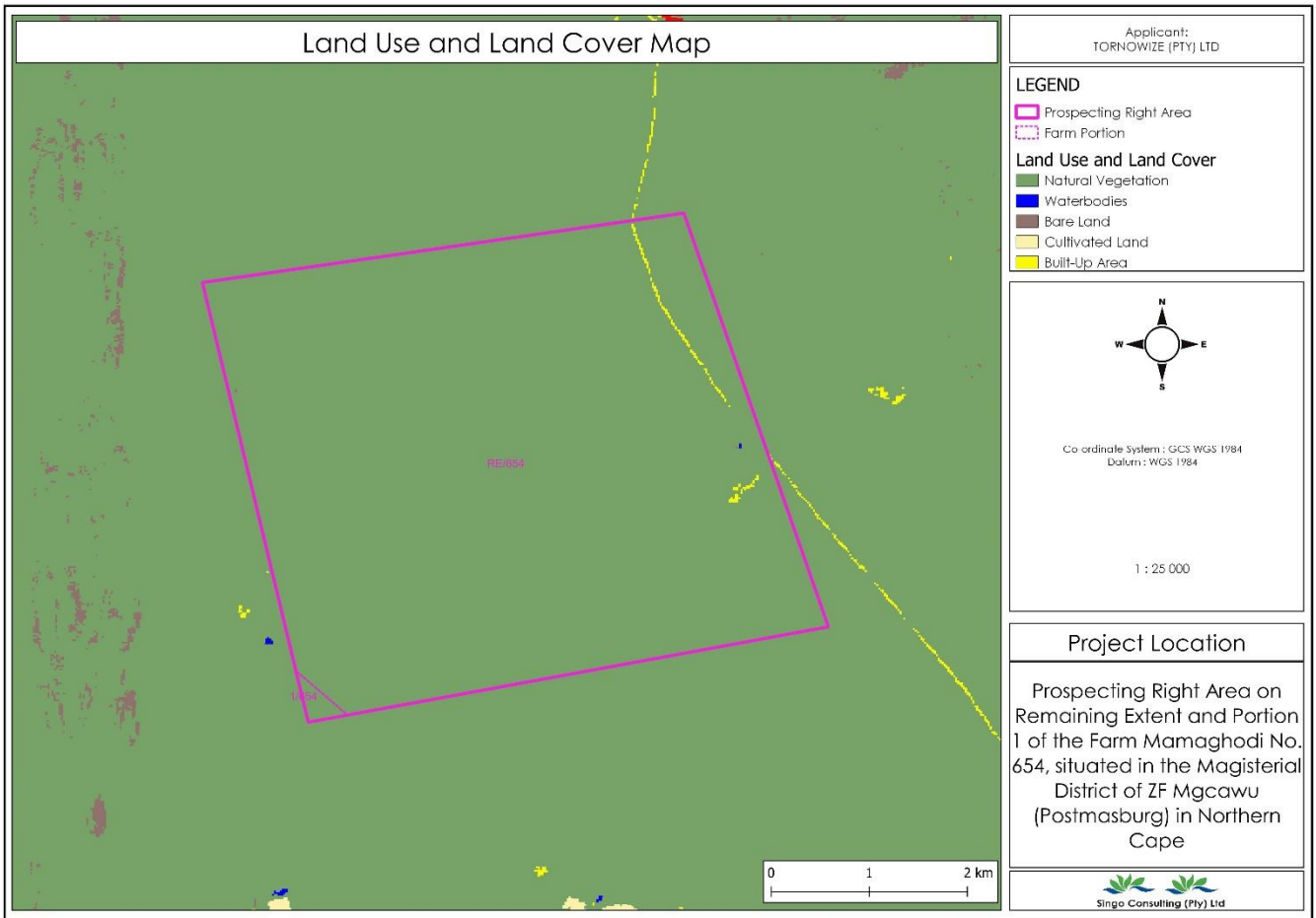
The major sensitive features within the study area include:

- ✚ Houses
- ✚ Railway
- ✚ Powerlines





**Figure 31:** Pictures showing land use



**Figure 32:** Map showing the current land-use in the project area



**10 Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts**

**Table 7:** Impacts Identified, phases and description

<b>Aspects</b>	<b>Phase</b>	<b>Description of Environmental Impacts</b>
<b>Legislative</b>	Planning Phase	Non-compliance with legislative requirements resulting in the Non commencement/ delayed commencement of proposed project
<b>Flora</b>	Site Establishment	Destruction / loss of indigenous vegetation and plants of ecological importance due to Site Establishment activities. Potential spread of alien invader plants/seeds
<b>Fauna</b>	Site Establishment, Drilling Phase	Disturbance of animal and Bird species in the proposed site  Disturbance of Wildlife on neighboring farms.
<b>Groundwater</b>	Site Establishment, Drilling Phase	Potential Groundwater contamination due to spillage of fuels, lubricants and other chemicals.  Potential occurrence of drawdown due to borehole drilling
<b>Geology</b>	Drilling Phase	Removal of rocks and debris for analysis, disturbance of local geological formation.
<b>Soils</b>	Site Establishment, Drilling Phase	Potential soil erosion during site clearance and during Drilling Phases. Potential soil contamination due to spillages.
<b>Air Quality</b>	Site Establishment, Drilling Phase	Nuisance stemming from smoke emissions generated from vehicles and machinery.

<b>Traffic</b>	Site Establishment, Drilling Phase	Increase of traffic in the area as vehicles access and exit the site
<b>Noise and dust</b>	Site Establishment, Drilling Phase	Nuisance to surrounding landowners caused by moving vehicles and drill rigs.  Disturbance of animals in surrounding farms.
<b>Economic</b>	Planning Phase	Project expenditure (incl. direct capital investment)
<b>Socio-economic</b>	Planning, Drilling Phase and Decommissioning phase	Potential friction with I&APs and Landowners due to disturbance of local businesses  Potential employment and skills development opportunities.  Potential increase of theft and poaching in the area.
<b>Visual</b>	Site Establishment, Drilling Phase and Decommissioning	Visual disturbances due to all the machinery vehicles, signs and drilling rigs.
<b>Cultural/Heritage - historical</b>	Site Establishment, Drilling Phase	Potential impact on heritage and archaeological resources
<b>Waste generation</b>	Site Establishment, Drilling Phase	Generation of solid waste and waste from the ablution facilities.
<b>Veld Fire</b>	Site Establishment, Drilling Phase and Decommissioning	Fire outbreaks during the winter fire season.
<b>Health and Safety</b>	Site Establishment, Drilling Phase and Decommissioning	Potential risk on the health and safety of all employees and neighboring occupants

## 11 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

- Nature: A brief written statement of the environmental aspect being impacted upon by particular action or activity.
- Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;
- Duration: Indicates what the lifetime of the impact will be;
- Intensity: Describes whether an impact is destructive or benign;
- Probability: Describes the likelihood of an impact actually occurring; and
- Cumulative: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

**Table 8:** Criteria for evaluating potential environmental impacts

CRITERIA	DESCRIPTION			
<b>Extent</b>	National (4) The whole of South Africa	Regional (3) Provincial and parts of neighboring provinces	Local (2) Within a radius of 2 km of the prospecting site	Site (1) Within the prospecting site

<b>Duration</b>	Permanent (4)	Long-term (3)	Medium-term (2)	Short-term (1)
	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	The impact will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	The impact will last for the period of the site establishment, where after it will be entirely negated	The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the site establishment period

<b>Intensity</b>	Very High (4)	High (3)	Moderate (2)	Low (1)
	Natural, cultural and social functions and processes are altered to extent that they permanently cease	Natural, cultural and social functions and processes are altered to extent that they temporarily cease	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected
<b>Probability of Occurrence</b>	Definite (4) Impact will certainly occur	Highly Probable (3) Most likely that the impact will occur	Possible (2) The impact may occur	Improbable (1) Likelihood of the impact materializing is very low

<b>Impact Reversal</b>	Highly Impossible (4) Impact reversal will certainly be impossible	Moderate (3) Impact can be reversed to some extent with loss of natural resources	Possible (2) High possibility of impact reversal	Definite (1) Impact can be totally reversed
<b>Loss of irreplaceable resources</b>	Definite (4) Resources definitely be lost	Highly Probable (3) Most likely that resources will be lost	Possible (2) Resources may be lost	Improbable (1) Loss of resources is highly unlikely

Significance is determined through a synthesis of impact characteristics. Significance is also 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 total number of points scored for each impact indicates the level of significance of the impact.

Significance=Extent+ Duration +Intensity x Probability Table 7: Criteria for Rating of

**Classified Impacts**

<b>Low impact/ Minor (3 - 10 points)</b>	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of site establishment and drilling procedures.
<b>Medium impact/ Moderate (11 -20 points)</b>	Mitigation is possible with additional inputs.
<b>High impact (21 -30 points)</b>	The design of the site may be affected. Mitigation and possible remediation are needed during the site establishment and drilling phase. The effects of the impact may affect the broader environment.
<b>Very high impact/ Major (31 - 48 points)</b>	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during site establishment and drilling phase. Any activity which results in a "very high impact" is likely to be a fatal flaw.
<b>Status</b>	Denotes the perceived effect of the impact on the affected area.
<b>Positive (+)</b>	Beneficial impact.

<b>Negative (-)</b>	Deleterious or adverse impact.
<b>Neutral (/)</b>	Impact is neither beneficial nor adverse.
It is important to note that the status of an impact is assigned based on the status quo – i.e. should the project not proceed. Therefore, not all negative impacts are equally significant.	

The suitability and feasibility of all proposed mitigation measures is included in the assessment of significant impacts. This was achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

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

Now there is no alternative layout. Should we receive comments that warrant changing site layout, TORNOWIZE (Pty) Ltd will implement changes to ensure that no one is negatively affected.

The invasive activities that entail the drilling of at least 7 exploration holes will not have permanent environmental and social impact as the drill site will be confined to an area of approximately 0.42 Ha of the hectares 2 639,630 Ha sized property. This needs to be viewed in the context of the entire prospecting license area under application which covers, and it needs to be kept in mind that of the identified impacts will occur for a limited time and the extent of the impacts will be localized. All the identified impacts can be suitably mitigated with the residual impact ratings being of low significance. After drilling activities have been completed and the drill pads rehabilitated to predrilling status, the impacts will cease to exist.

**Table 9:** Positive and Negative Impacts

Impacted Environment	Impact	Status of impact
Planning Phase		
Legislative	Non-compliance with legislative requirements resulting in the No n commencement/ delayed commencement of proposed project	Negative
Economic	Project expenditure (incl. direct capital investment)	Negative/ Positive
Site Establishment		



Fauna and Flora	Destruction / loss of indigenous vegetation and plants of ecological importance due to Site Establishment activities	Negative
	Disturbance of animal and Bird species in the proposed site Disturbance of Wildlife on neighboring farms.	Negative
	Potential spread of alien invader plants/seeds	Negative
Groundwater	Potential Groundwater contamination due to spillage of fuels, lubricants and other chemicals.	Negative
Air Quality	Nuisance stemming smoke emissions from vehicles	Negative
Noise and dust generation	Nuisance to surrounding landowners caused by moving vehicles and drill rigs	Negative
	Disturbance of animals in surrounding farms	Negative
Soils	Potential soil erosion during site establishment. Potential Soil contamination due to spillages.	Negative
Socio Economic	Potential employment and skills development opportunities.	Positive
Visual aspect	Visual disturbances due to all the machinery vehicles, signs and drilling rigs.	Negative
Cultural/Heritage-historical resources	Potential impact on heritage and archaeological resources	Negative
Waste generation	Generation of solid waste and waste from the ablution facilities.	Negative
Traffic	Increase of traffic in the area as vehicles access the sites	Negative

Socio-economic	Potential increase of theft and poaching in the area. Potential friction with I&APs and Landowners due to disturbance of local businesses.	Negative
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Health and Safety	Potential risk on the health and safety of all employees and neighboring occupants	Negative
Drilling Phase		
Fauna and Flora	Destruction / loss of indigenous vegetation and plants of ecological importance due to Site Establishment activities	Negative
	Disturbance of animal and Bird species in the proposed site	Negative
	Disturbance of Wildlife on neighboring farms.	Negative
	Potential spread of alien invader plants/seeds	Negative
Soils	Potential soil erosion during Drilling Phases. Potential soil contamination due to spillages.	Negative
Socio – Economic	Potential friction with I&Aps and Landowners due to disturbance of local businesses.	Negative
	Potential increase of theft and poaching in the area.	Negative
	Potential employment and skills development opportunities.	Positive
Groundwater	Potential Groundwater contamination due to spillage of fuels, lubricants and other chemicals.	Negative
	Potential occurrence of drawdown due to borehole drilling	Negative
Geology	Physical removal of rock material for logging and sampling purposes during drilling phase	Negative
	Nuisance to surrounding landowners caused by moving vehicles and drill rigs	Negative

Noise and dust generation	Disturbance of animals in surrounding farms	Negative
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Cultural-historical resources	Potential impact on heritage resources and archaeological resources	Positive/Negative
Air Quality	Nuisance stemming from smoke emissions generated by vehicles and machinery.	Negative
Socio-economic	Potential increase of theft and poaching in the area.	Negative
Health and Safety	Potential risk on the health and safety of all employees and neighboring occupants	Negative
Decommissioning		
Visual		
Air Quality	Nuisance stemming from smoke emissions generated by vehicles and machinery.	Negative
Noise and dust generation	Nuisance to surrounding landowners caused by moving vehicles and drill rigs	Negative
	Disturbance of wild animals on surrounding farms	Negative
Traffic	Increase of traffic in the area as vehicles exit the site	Negative
Socio-economic	Potential friction with I&APs and Landowners due to disturbance of local businesses	Negative
	Potential increase of theft and poaching in the area.	
Health and Safety	Potential risk on the health and safety of all employees and neighboring occupants	Negative



### **13 The possible mitigation measures that could be applied and the level of risk**

The possible mitigation measures to address issues related to the proposed project and those that were raised by I&APs are addressed in Table 9.

### **14 Motivation where no alternative sites were considered.**

The nature of the proposed activity dictates the proposed site location. The applicant has done preliminary studies that indicated that the minerals to be prospected can only be found within the proposed area.

### **15 Site Establishment**

Since exploration is temporary in nature no permanent structures will be constructed, negotiations and agreements will be made with the farm owners to use any existing infrastructure like accommodation for the explorers, access roads and other things like Workshops. In addition to the information provided, each of the phases is dependent on the results and success of the preceding phase. The location and extent of soil sampling and possible drilling will be determined based on information derived from the geophysics surveys. Sampling and drill sites will be selected to avoid water courses where practicable.

### **Impact significance**

The impact magnitude and significance rating are utilised to rate each identified impact in terms of its overall magnitude and significance.

Table 10: Impact magnitude and significance rating

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures							SIGNIFICANCE	Mitigation Measures			
				I	F	D	E	P	S	C			IS		
		Topography and Visual Environment	Topography changes and the disruption of surface water flow.												
			Soil erosion and topsoil loss.	3	3	4	1	0,8	3,3	2,2	1,7	Low			
			Visual impact caused by vegetation												

			and topsoil removal.										
		Soil	Soil erosion and generation of dust.	3	4	4	1	0,8	3,7	2,3	1,9	Low	Any compacted soils must be ripped to alleviate compaction;  Dust suppression must be conducted to reduce amount of dust emanating from the drill site to the surrounding community or farm dwellers.
			Soil compaction.	4	5	4	1	1,0	4,3	2,7	2,7	Moderate	If possible, vegetation clearance and commencement of drilling related activities can be scheduled to coincide with low rainfall conditions when soil moisture is anticipated to be relatively low such that the soils are less prone to compaction;  The movement of heavy vehicle should



													be limited to existing roads and be limited to areas where drilling is to take place.
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Unit Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
			Loss of land capability and land use potential	2	1	4	1	0,8	2,3	1,7	1,3	Low	<ul style="list-style-type: none"> <li>• Any compacted soils must be ripped to alleviate compaction;</li> <li>• Slopes of the backfilled surface should change gradually since abrupt changes in slope gradient increase the susceptibility for erosion initiation;</li> <li>• The soil fertility status to be determined by soil chemical analysis after levelling (before seeding/re-vegetation).</li> <li>• Soil amelioration should be completed, if necessary, according to recommendations by a soil specialist, to correct the pH and nutrition status before revegetation; and</li> <li>• The footprint should be re-vegetated with a grass seed mixture as soon as possible, preferably in spring and early summer to stabilise the soil and prevent soil loss during the rainy</li> </ul>

															season.
			Loss of vegetation communities.												<ul style="list-style-type: none"> <li>• Ensure site clearing is restricted to the footprint of the designated areas to limit the degradation and destruction of natural habitats;</li> <li>• Vegetate open and exposed areas to prevent soil erosion and the establishment of alien invasive vegetation;</li> <li>• Restrict access and avoid areas of identified faunal and floral SCC, that are adjacent to the mining activities;</li> <li>• No deforestation should take place in a CBA: Irreplaceable area</li> <li>• Rescue and relocate important plant species</li> <li>• Restrict access and avoid sensitive landscapes, such as wetlands and ridges, that are adjacent to the mining operations; and</li> <li>• Topsoil that will be used for rehabilitation must be stockpiled according to the Rehabilitation Plan. Compaction of stockpiled topsoil must be avoided to ensure the seed bank is viable.</li> </ul>
				4	1	5	1	0,8	3,3	2,2	1,7	Low			

			Influx and establishment of alien invasive vegetation.	3	3	4	2	0,8	3,3	2,7	2,1	Moderate	
		Wetlands and Aquatic Ecology	Sedimentation of wetland areas downstream of the stockpiles.	3	3	4	1	0,8	3,3	2,2	1,7	Low	<ul style="list-style-type: none"> <li>• Ensure soil management programme is implemented and maintained to minimize erosion and sedimentation;</li> <li>• Implement and maintain alien vegetation management programme;</li> <li>• Appropriate sanitary facilities must be provided for the duration of the drilling activities and all waste must be removed to an appropriate waste facility.</li> </ul>
			Contamination of soils as a result of the ingress of hydrocarbons	3	5	4	1	1,0	4,0	2,5	2,5	Moderate	<ul style="list-style-type: none"> <li>• Ensure soil management programme is implemented and maintained to minimize erosion and sedimentation;</li> <li>• Active rehabilitation, re-sloping, and re-vegetation of disturbed areas immediately after construction;</li> <li>• Implement and maintain alien vegetation management programme;</li> <li>• Limit the footprint area of the construction activities to what is absolutely essential in order to</li> </ul>

												<p>minimize impacts as a result of vegetation clearing and compaction of soils;</p> <ul style="list-style-type: none"> <li>• All erosion noted within the construction footprint should be remedied immediately and included as part of an ongoing rehabilitation plan;</li> <li>• All delineated watercourses and their associated 100 m zones of regulation in terms of GN704 should be designated as "No-Go" areas and be off limits to all unauthorized vehicles and personnel, with the exception of approved construction and operational areas unless authorized as part of the IWUL;</li> <li>• No unnecessary crossing of the watercourses should take place and wherever possible, existing infrastructure should be utilized;</li> <li>• Suitably designed culverts should be installed under road crossings where any watercourses are anticipated to be crossed;</li> <li>• The number of culverts installed</li> </ul>
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												<p>should be suitable for the gradient, width and flow profiles of the watercourses being crossed so as to avoid upstream inundation, erosion and incision, and alterations to the natural channel;</p> <ul style="list-style-type: none"><li>• Crossings should make use of existing roads wherever possible and should either utilize or be constructed downgradient of barriers associated with impoundments on the affected systems;</li><li>• No material may be dumped within delineated watercourses;</li><li>• No vehicles or heavy machinery may be allowed to drive indiscriminately within any delineated watercourses. All vehicles must remain on demarcated roads and within the construction footprint;</li><li>• All vehicles must be regularly inspected for leaks;</li><li>• Re-fueling must take place on a sealed surface area away from wetlands to prevent ingress of hydrocarbons into topsoil;</li></ul>
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																<ul style="list-style-type: none"> <li>• All spills should be immediately cleaned up and treated accordingly; and.</li> </ul>
			Loss of catchment yields and surface water recharge, potential loss of biodiversity, impaired water quality, potential loss of instream integrity, potential impacts to freshwater resources further downstream of this point.	3	5	4	3	0,6	4,0	3,5	2,1	Moderate	<ul style="list-style-type: none"> <li>• Ensure that as far as possible all infrastructures are placed outside of delineated watercourse areas and their associated zones of regulation;</li> <li>• Ensure that sound environmental management is in place during the planning phase;</li> <li>• Design of infrastructure should be environmentally and structurally sound and all possible precautions taken to prevent spillage and/or seepage to the surface and groundwater resources present;</li> </ul>			

## 16 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 10: Potential impacts and risk

NAME OF ACTIVITY	POTENTIALIMPACT	ASPECTSAFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
Desktop Study	None Identified	N/A	Planning Phase	N/A	No mitigation proposed	N/A
Identification and adherence to legislative requirements	Non-compliance with legislative requirements resulting in the Non commencement/ delayed commencement of proposed project	Policy and legal Requirements	Planning Phase	High (-ve)	The applicant must ensure that all relevant legislations and regulations have been adhered to before commencement of the project.	Low (-ve)



NAME OF ACTIVITY	POTENTIALIMPACT	ASPECTSAFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
Site establishment and the set-up of drilling equipment	Clearing of Vegetation	Flora and Fauna	Site Establishment	Low (-ve)	Already cleared areas should be preferred over heavily dense areas	Low (-ve)
Set-up of drillingEquipment	Theft	Socio-Economic	Site Establishment	Low (-ve)	The site camp must be secured and entrance into the site must be controlled	Low (-ve)
Preparation of drilling sites and access roads	Loss of indigenous vegetation	Flora and Fauna	Site Establishment	High (-ve)	The use of exiting access roads which lead to the proposed site	Medium (-ve)
Drilling Activities	Ground & Surface Water contamination	Hydrology	Drilling Phase	Medium (-ve)	The drill bits must be maintained in good condition to prevent leakages of oil when in the underground.	Low (-ve)

NAME OF ACTIVITY	POTENTIALIMPACT	ASPECTSAFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
					Aquifer detection methods should be applied before drilling can be undertaken.	Low (-ve)
	Mortality and displacement of fauna	Fauna	Drilling Phase	Medium(-ve)	Search and rescue mission should be undertaken for species on drilling site	Low(-ve)
	Waste Generation	Waste	Drilling Phase	High (-ve)	The mud generated from the drilling activities must be contained, and contaminated mud must be handled separately, treated or disposed of at an appropriate landfill. Skips and marked bins must be provided at the site for waste separation.	Medium (-ve)

Drilling Activities		Soil & geology;	Drilling Phase	Medium (-ve)	All substances required for vehicle maintenance and repair must be stored in sealed containers until	Low (-ve)
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NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	Spillages of hazardous chemicals	Hydrology			they can be disposed of / removed from the site. All drill holes must be capped off and closed off with cement.	
				Medium (-ve)	Hazardous substances / materials are to be transported in sealed containers or bags.	Low (-ve)
				Medium (-ve)	Spillages must be attended to as soon as they occur. Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site.	Low (-ve)

	Destruction of Heritage Resources	of Cultural and Social Heritage	Drilling Phase	Medium (-ve)	Should any paleontological or cultural artefacts be discovered work at the point of discovery must stop, the location be clearly demarcated and SAHRA	Low (-ve)
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NAME OF ACTIVITY	POTENTIALIMPACT	ASPECTSAFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
					contacted immediately. Work at the discovery site may only be recommenced on instruction from SAHRA.	
Decommissioning of Site Camp	Waste generation	Waste management	Decommissioning Phase	Medium (-ve)	The uncontaminated stockpiled materials must be used for backfilling	Low (-ve)
Decommissioning of Site Camp	Contamination of the Soil and Water	Soil and Hydrology	Decommissioning Phase	Medium (-ve)	<p>The hazardous substances onsite must be stored in marked containers.</p> <p>All the equipment must be shipped out of the site</p> <p>The compacted soils must be loosened and the topsoil must be spread above it. The seed spreading of indigenous species</p>	Low (-ve)

NAME OF ACTIVITY	POTENTIALIMPACT	ASPECTSAFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
					must take place to ensure regrowth.	

## 17 Summary of Studies.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and ermined that the prospecting must be in the following tabular form): -

**Table 11:** Summary of studies.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
<b>Baseline Hydrogeological Study</b>	<ul style="list-style-type: none"> <li>✚ The sump will not be allowed to overflow and will be lined with impervious layer.</li> <li>✚ Cores will be logged on an impervious surface and will be cleared from the site immediately after logging.</li> <li>✚ No onsite vehicle or machinery repairs such as changing oil and no onsite storage of oil, diesel, or petrol.</li> </ul>	<b>X</b>	Section 9.9
<b>Baseline Hydrological Study</b>	<ul style="list-style-type: none"> <li>✚ Stormwater will be prioritized, and the management to prevent surface water contamination.</li> <li>✚ On site there will be regular maintenance of the mobile toilets.</li> <li>✚ Stormwater measures which include the identified rivers, Dams and wetlands, will not be disrupted as they manage surface run</li> </ul>	<b>x</b>	Section 9.5



	<p>off in an area, Buffer zone will be adhered to.</p> <ul style="list-style-type: none"> <li>✦ During raining periods, drilling process will be paused, to avoid possible contamination</li> <li>✦ of water leading to surface water bodies.</li> </ul>		
<p><b>Baseline Soil Study</b></p>	<ul style="list-style-type: none"> <li>✦ The pathways will be stripped according to the stripping guideline and management plan, and further recommendations contained within the rehabilitation plan.</li> <li>✦ The period of exposure of soil disturbances will be minimized through a planning schedule.</li> <li>✦ Absorbent kits will be made available near the drill rigs during drilling activities to</li> <li>✦ prevent oil spills from contaminating the surrounding soil.</li> <li>✦ Drilling on steep slopes will be avoided, to prevent soil erosion.</li> <li>✦ The exploration geologist will be advised to drill and sample more than 100m away from the waterbody on site.</li> <li>✦ The proposed prospecting land should be returned to its origin as before prospecting activities and the rehabilitation performance assessment in the proposed land must be done progressively (annually) during the operational phase by a soil specialist.</li> <li>✦ Dust suppression should be conducted regularly.</li> </ul>	<p style="text-align: center;"><b>x</b></p>	<p>Section 9.3</p>

## **18 Environmental impact statement**

- ❖ Summary of the key findings of the environmental impact assessment.

In nature impacts associated with prospecting will have very low impacts on the environment or socially. Usually, the impacts caused during the prospecting activity can be reversed or rehabilitated. The invasive impacts that can be envisaged is the drilling of the 7 exploration holes which collectively amounts to 0.42 Ha which makes up to less than 1% of area that is being applied for which is 2 639,630 Ha

The proposed prospecting operation may affect existing alternative land uses on adjacent property or non-adjacent properties as the area predominantly breeds wildlife and is surrounded by farms. The following actions are subject to the proposed mitigation measures and require monitoring:

- The clearing of vegetation
- The storage of hydrocarbon-based materials on site
- On-site waste management
- The creation of roads/tracks
- The soil and groundwater contamination
- Monitor traffic in the area
- Monitor vehicles and equipment used for drilling
- Noise generation
- Impact on species which are of ecological importance
- Monitor potential fire outbreaks

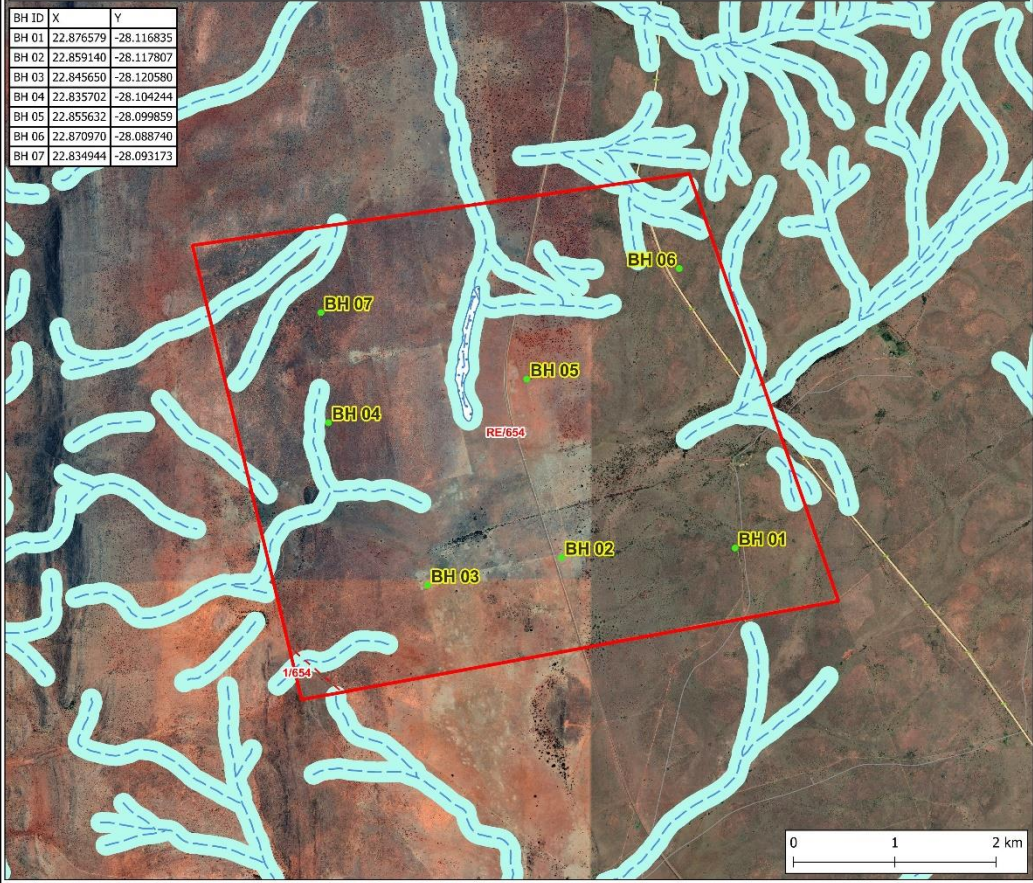
Monitoring of the required mitigation measures is to take place on site daily by the site geologist. Annual monitoring audits are to take place by an appointed independent environmental assessment practitioner.

## **19 Final Site Map**

The final site map will be provided after the phase 1 of the prospecting phase.

# Proposed Boreholes Map

BH ID	X	Y
BH 01	22.876579	-28.116835
BH 02	22.859140	-28.117807
BH 03	22.845650	-28.120580
BH 04	22.835702	-28.104244
BH 05	22.855632	-28.099859
BH 06	22.870970	-28.088740
BH 07	22.834944	-28.093173



Applicant:  
TORNOWIZE (PTY) LTD

**LEGEND**

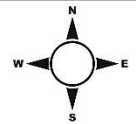
- Proposed Borehole
- ▭ Prospecting Right Area
- ▭ Farm Portion
- ▭ 100m Buffer

**River**

- Non-Perennial

**Wetland Type**

- ▭ Unchannelled Valley Bottom



Co-ordinate System : GCS WGS 1984  
Datum : WGS 1984

1 : 25 000

### Project Location

Prospecting Right Area on Remaining Extent and Portion 1 of the Farm Mamaghodi No. 654, situated in the Magisterial District of ZF Mgcawu (Postmasburg) in Northern Cape



## 20 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

Positive and negative impacts associated with the proposed prospecting activities include:

### Positive

- ✚ The area will be rehabilitated
- ✚ Direct employment and skills development

### Negative

- ✚ Destruction / loss of indigenous natural vegetation and plants of ecological importance due to Site Establishment activities
- ✚ Disturbance of animal species in and around the proposed site
- ✚ Potential spread of declared weeds and alien invader plants
- ✚ Potential Groundwater contamination due to spillage of fuels, lubricants and other chemicals.
- ✚ Nuisance stemming smoke emissions from vehicles
- ✚ Nuisance to surrounding landowners caused by moving vehicles and drill rigs
- ✚ Disturbance of animals in surrounding farms
- ✚ Potential soil erosion during site clearance and Drilling Phases. Potential Soil contamination due to spillages.
- ✚ Visual Disturbance (vegetation clearance and temporary infrastructures including equipment on site )
- ✚ Potential impact on heritage and archaeological resources
- ✚ Generation of solid waste. Waste from the ablution facilities.
- ✚ Increase of traffic in the area as vehicles access the sites
- ✚ Potential friction with I&Aps and Landowners. Disturbance of local businesses
- ✚ Physical removal of rock material for logging and sampling purposes during drilling phase
- ✚ Disturbance of animals on surrounding farms

The proposed activities have low significance impacts since these are short term activities, however socio-economic impacts such as employment has a medium significance due to the impacts on the surrounding community. The probability of occurrence of an impact was determined and most of these activities can be controlled and impacts can be reduced or avoided. Generally prospecting activities have low impact on the environment. The planned activities negative impacts can be controlled and avoided or minimized therefore the layout does not require revision. Mitigation measures will be utilized to control, avoid and/or minimize all identified potential impacts.

## **21 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr.**

The EMPr will seek to achieve a required end state and describe how activities could have an adverse impact on the environment will be mitigated, controlled and monitored. The EMPr will address the environmental impacts during the Site Establishment, Drilling Phases, and Decommissioning Phases of the proposed project. Due regard will be given to environmental protection during the entire project. A number of environmental recommendations will therefore be made to achieve environmental protection. The environmental and social objectives will be set to allow prospecting in an environmental and socially responsible manner while ensuring that sustainable closure can be achieved. To achieve closure, the correct decisions need to be taken during the planning phase of the project.

The overall goal for environmental management for the proposed project is to prepare the site and operate the project in a manner that:

- ✚ Minimizes the ecological footprint of the project on the local environment;
- ✚ Facilitates harmonious co-existence between the project and other land uses in the area;
- ✚ Contributes to the environmental baseline and understanding of environmental impacts of Prospecting activities in a South African context.

The following environmental management objectives are recommended for the proposed mineral prospecting development and associated infrastructure:

- ✚ Monitor soils so as to avoid unnecessary erosion and implement erosion control measures to preserve the quality of the topsoil for rehabilitation.
- ✚ Project planning must restrict the area of impact to designated areas only.
- ✚ Monitor and prevent contamination and undertake appropriate remedial actions.

- ✚ Limit the visual and noise impact on receptors.
- ✚ Avoid impact on possible heritage and archaeological resources.
- ✚ Promote health and safety of workers.
- ✚ Limit dust and other emissions to allowable limits

## **22 Aspects for inclusion as conditions of Authorisation**

TORNOWIZE (Pty) Ltd should comply with all Environmental legislations. Specific environmental legislation to be adhered to include National Environmental Management Act, Act 107 of 1998 (NEMA) as amended in 2017 and Minerals and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA)

- ✚ Notice must be given to landowners and surrounding landowners 1 month prior to any prospecting activities.
- ✚ Landowners and land occupiers should be engaged (re-consulted) at least 1 month prior to any site activities being undertaken once drill sites are known;
- ✚ A map detailing the drilling locations should be provided to the landowners as well as the DMRE prior to commencement of prospecting activities.
- ✚ A record must be kept of the implementation of the EMPr measures and monitoring of the efficiency of the implemented measures; and
- ✚ A buffer of 100 m from any water courses should be established during the Site – Preparation phase and Drilling Phases phase.

## **23 Description of any assumptions, uncertainties and gaps in knowledge**

- ✚ The EAP does not accept any responsibility in an event that additional information comes to light at a later stage of the process
- ✚ All information provided by the EAP was correct at the time it was provided
- ✚ The data from unpublished researches is valid and accurate
- ✚ The scope of this investigation is limited to accessing the potential environmental impacts associated with the proposed project.

## **24 Reasoned opinion as to whether the proposed activity should or should not be authorized**

Based on the site investigations and analysis of the EAP it is suggested that the proposed activity should be authorized due to the following:

- ✚ Monitoring of the required mitigation measures is to take place on site daily by the site Geologist

- ✦ The EAPs believes that the project should be considered for authorization, and that a flora survey is necessary for decision-making.
- ✦ If the proposed project receives environmental approval, due diligence in terms of ensuring ecological sustainable development and use of natural resources must be exercised to ensure that the activity will cause minimal disruption to the environment as the alignment and is not expected to affect environmentally sensitive sites if all recommendations and mitigations are implemented.

- The environmental impacts associated with the limited drilling activities are minimal provided that the proposed mitigation measures are implemented

- ✚ The desktop studies have proven that the site is located on a mineralized zone, prospecting activities must be undertaken to confirm the ore reserves
- ✚ The option of not approving the activities will result in a significant loss to valuable information regarding the status of the ore bodies present on these properties.
- ✚ In addition to this, should economical reserves be present and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost as well.
- ✚ The spatial extent of the physical impact is 0.42 ha over a prospecting right license area of drill sites and an access road which will be established in total throughout the duration of the drilling programme, Therefore the actual footprint to be permanently disturbed is minimal in comparison to the total site area thus only 0.008% of the total farm area will be impacted.
- ✚ With appropriate care and consideration, the impacts resulting from drilling can be suitably avoided, minimized or mitigated
- ✚ It has also been noted that mining sector is the pillar of South African economy and also provides employment opportunities for many.
- ✚ A buffer of 100 m from any water courses should be established during the drilling phase.

## **25 Conditions that must be included in the authorisation**

- ✚ Maintain a minimum 100 m buffer from any infrastructure or dwelling (schools, churches, homes)
- ✚ Landowners and land occupiers should be engaged (re-consulted) at least 1 month prior to any site activities being undertaken once drill sites are known;
- ✚ A map detailing the drilling locations should be provided to the landowners as well as the DMRE prior to commencement of prospecting activities.
- ✚ Record must be kept of the implementation of the EMPr measures and monitoring of the efficiency of the implemented measures; and
- ✚ A buffer of 100 m from wetlands and water courses should be established during the planning phase.
- ✚ A suitable closure plan must be submitted to show sufficiently providence for the avoidance, management and mitigation of environmental impacts associated with



the decommissioning of the proposed activities.

**26 Period for which the Environmental Authorisation is required.**


The Prospecting Right has been applied for a period of five (5) years. The Environmental Authorisation should therefore allow for the five years of prospecting and one year for decommissioning and rehabilitation.

## 27 Undertaking

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report. The undertaking provided at the end of the EMPr is applicable to both, this Basic Assessment Report and the EMPr in Part B, below

## 28 Financial Provision

**Table 12:** Quantum of the financial provision

CALCULATION OF THE QUANTUM							
Applicant: Evaluator: <b>SITHOKOZILE GCABASHE</b>		23-Oct-22					
							
No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	132,7	49	0,1	1	650,23
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha		284292	1	1	0
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0
8 ( C )	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612	1	1	0
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	0,42	150138	0,7	1	44140,572
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0	57087	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum	0			1	0
Sub Total 1							44790,802
1	Preliminary and General		5374,89624		weighting factor 2 1		5374,89624
2	Contingencies			4479,0802			4479,0802
Subtotal 2							54644,78
<b>SITHOKOZILE GCABASHE</b>						VAT (15%)	8196,72
<b>Grand Total</b>							<b>62841</b>

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation. A financial provision of **R62 841.00** will be made available by TORNOWIZE (Pty) Ltd for rehabilitation purposes.

### 29 Explain how the aforesaid amount was derived.

This information has been provided in the Prospecting Work Programme that was submitted to the DMRE. The drilling contractor will be responsible for rehabilitating the drill pad once the drilling activities have been completed at each exploration hole. The financial guarantee was calculated using the DMRE official financial quantum

calculator. In relation to the Government Notice 24 in Government Gazette 42956 dated 17 January 2020

### **30 Confirm that this amount can be provided for from operating expenditure.**

Should an Environmental Authorisation be granted to TORNOWIZE (Pty) Ltd, provision will be made for the estimated closure cost by means of a Bank Guarantee or any other means available and accepted by the Competent Authority.

### **31 Specific Information required by the competent Authority**

**31.1 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:-**

#### **31.1.1 Impact on the socio-economic conditions of any directly affected person.**

The surrounding area of the proposed site is used for farming and accommodation purposes. The proposed project may directly affect the surrounding businesses if prospecting is done not following best practices.

#### **31.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.**

Mitigation measures proposed in this report include that no drill site will be located within 100 m of any identified heritage site (which may occur during the prospecting programme) based on the desktop work undertaken. Should any paleontological or cultural artefacts be discovered work at the point of discovery must stop, the location be clearly demarcated and SAHRA contacted immediately. Work at the discovery site may only be recommenced on instruction from SAHRA.

#### **31.1.3 Other matters required in terms of sections 24(4) (a) and (b) of the Act.**

This BAR and EMPr has been compiled in accordance with the NEMA (1998), EIA Regulations (2014, amended April 2017) and MPRDA (2002). The EAP managing the application confirms that this BAR and EMPr is being submitted for Environmental

Authorisation in terms of the National Environmental Management Act, 1998 in respect of listed activities that have been triggered by application in terms of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) (as amended). Should the DMRE require any additional information, this will be provided upon request. No reasonable or feasible alternatives exist for this Prospecting Right Application and as such, motivation for no alternatives has been provided in the relevant sections above.

## **PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

### **1. Environmental Management Programme.**

#### **Details of EAP**

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

### **2. Description of the Aspects of the Activity**

The requirement to describe the aspects of the activity that are covered by the environmental management programme is already included in PART A

#### **2.1. Description of Impact Management objectives including management statements**

##### **Determination of closure objectives.**

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

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 all people in the environment by pursuing the selection of the best practicable environmental option

#### **3.1.1. Volumes and rate of water use required for the operation**

After careful consideration of the scale of operation it has been deduced that approximately 500 L will be used as potable water. It is anticipated that water will be purchased from a private water filter dealer such as Oasis and brought onto the site

### **3.1.2. Has a water use license has been applied for?**

No, the Water Use Licence has not been applied. The main prospecting right activities that will take place includes Drilling, Logging, Sampling and Mapping, these activities will take place 100m from the water courses. It should be noted that these activities do not include any mining activities nor bulk sampling, and No PCD, Trenches and Berms will be constructed, There will be no stockpiles. The drilling activity will only take up about 0.06 ha per planned borehole. No water for commercial use will be abstracted from the drilled exploration boreholes. From the above listed activities, we won't trigger any of the section 21 water uses of the National Water Act, 1998 during the prospecting period. Therefore, we will not be applying for a water use license.

### **3.2 Impacts to be mitigated in their respective phases, Impact Management Outcomes and Impact Management Actions**

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

**Table 13:** Impacts to be mitigated.

POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<b>SITE –ESTABLISHMENT PHASE</b>					
<b>Site Establishment- access roads, to prospecting sites, establishment of the campsite, physical surveying of the site and pegging of drilling boreholes (0,42Ha)</b>					
Potential soil erosion during site clearance and potential soil contamination due to spillages	Soil	<p>Site establishment on areas with sensitive soils, steep slopes, etc. must be avoided as far as possible</p> <p>Topsoil must be stockpiled immediately after clearing vegetation to prevent erosion of soil through surface runoff and wind.</p> <p>Where applicable, construct berms in order to prevent rill erosion and donga formation.</p>	<p>Rehabilitation in terms of MPRDA and NEMA principles.</p> <p>Applicable guidelines from NEM:BA and</p>	Avoid and Control	Avoid Soil erosion and contamination, and control potential occurrences

(oil, fuel and other chemicals)		All cleared areas are to be monitored for erosion daily; any erosion forming is to be remediated with immediate effect.	Department of Agriculture,		
		<p>Vehicles and machinery used on site must be serviced before entering the site and potential leaks must be monitored daily by the site manager. Spill kits must be available on site and used immediately after any spillages occur. If spillage is excessive the site manager must do an incident report and the incident must be reported to the authority.</p> <p>No topsoil or fertile soil (dark soil) may be stored within 32 m of a drainage line, watercourse or wetland</p>	Forestry and Fisheries (DAFF) and Conservation of Agricultural Resources Act (CARA) regarding		



			removal of species		
			Mining and Biodiversity Guidelines		
Destruction/Loss of indigenous vegetation and plants of ecological importance	Flora.	<p>Prior to the commencement of the project, a qualified person should identify, demarcate and keep a register of plants that are of ecological importance, so they remain protected. The site manager should monitor vegetation clearance and potential spread of alien plant species and/or seeds.</p> <p>Alien plants and areas with sparse vegetation should be the first preference when clearing vegetation compared to areas with plants of ecological</p>	<p>Rehabilitation in terms of MPRDA and NEMA principles.</p> <p>Adherence to CARA for removal</p>	Avoid and Control	To protect plant species of ecological importance in the area and prevent the

		importance and areas with dense vegetation.			
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<p>Potential spread of alien invader plants/seeds</p>		<p>Avoid any damage to large individuals of any of the protected tree species on site</p> <p>Unnecessary driving within the site must be avoided and designated routes must be used at all times.</p> <p>Site manager's responsibilities should include, but not necessarily be limited to, ensuring adherence to EMPr guidelines, guidance of activities, planning, reporting to authorities.</p>	<p>of species in terms of NEM:BA</p> <p>Mining and Biodiversity Guidelines</p>		<p>spread of alien species/seeds</p>
		<p>An annual audit of the activity and site, must be completed by an external environmental practitioner and the report must be submitted to the DMRE</p> <p>Areas that have been extensively cleared and are not required for prospecting activities should be re-seeded with locally-sourced seed of suitable species. Bare areas can also be packed with brush removed from other parts of the site to encourage natural</p>	<p>Identification of potentially threatened and or endangered species in terms of NEM:BA</p>		

		vegetation regeneration and limit erosion.			
Disturbance of animal and Bird species in the proposed site	Fauna	<p>The establishment activities must be carried out during the day, (07h00 – 17h00) and prospecting project must be carried in phases to avoid bombarding the area with activity.</p> <p>To avoid habitat loss, alien plants and areas with minimal vegetation should be the first preference when clearing vegetation compared to areas with plants of ecological importance and areas with dense vegetation.</p>	General implementation of activities taking Biodiversity Act and its guidelines into account.	Avoid and control	Avoid and control impact on fauna

<p>Disturbance o f Wildlife o n neighboring farms</p>		<p>No animal or bird, within the site and in surrounding farms, may be hunted, trapped, snared or captured for any purpose whatsoever</p> <p>The establishment site should be searched for raptors nests and must be avoided as far as possible.</p>			
		<p>Establishment activities should follow the operational plan and be kept to the minimum so that mammals can roam undisturbed in the farm area and around the areas that are being used for prospecting purposes.</p>			
<p>Potential Groundwater contaminatio n due to spillages of fuel s, lubricants an d other chemicals</p>	<p>Groundwater.</p>	<p>Groundwater monitoring network (both quality and quantity) should be established</p> <p>Vehicles and machinery used on site must be serviced before entering the site and potential leaks must be monitored daily by the site manager.</p> <p>Spill kits must be available on site and used immediately after any spillages occur. If spillage is excessive the site manager must do an incident report and the incident must be</p>	<p>Water management measures in compliance with NWA, 1998 and DWS guidelines</p>	<p>Avoid and minimise</p>	<p>Avoid groundwater contamination and minimise the waste of water</p>

		reported to the authority.				
Nuisance	Air quality.	All equipment and vehicles must be serviced and be in good condition to reduce emissions.	Standards set out	Minimise	Minimize	
stemming from			in the NEM:AQA	impact	smoke	
smoke emission					emissions	in
generated by						

vehicles and machinery.					and around the site.
Noise generated from prospecting operations activities may add to the current noise levels. This may have impacts on surrounding property owners and wildlife.	Noise and Dust Nuisance	<p>Limit the maximum speed to 30 km/h or less on unpaved roads</p> <p>Vehicles and machinery must be equipped with engine silencers and the equipment must be kept in good working condition to avoid excessive noise generation</p> <p>To avoid excessive dust generation, prospecting activities must be carried out in phases.</p>	National Noise Control Regulations, SANS10103:2008 guidelines.	Minimise impacts	To minimise excessive dust and noise generation.
Visual disturbances due to all the machinery vehicles, signs and drilling rigs.	Visual	<p>Due to the undulating topography, visibility for the most part will most probably be restricted to short distances, however the prospecting area shall be enclosed to minimize visual disruption from machinery and equipment to be used, if necessary.</p> <p>Inform the surrounding land owners on the</p>	Measures will be undertaken to ensure that the visual aspects from the site comply with the relevant visual standards and	Minimize impact	Minimize visual impact to surrounding landowners

		type of machinery and equipment to be used at the prospecting site, also inform the landowners of the activities that will be occurring during each phase.(e.g. Drilling, Surveying)			
--	--	--	--	--	--



		To minimize visual impact to the surrounding landowners, the activity should be carried out in phases	objectives including Municipal By Laws.		
Potential friction with local business individuals who are running tourist attractions.	Socio-Economic	Extensive public consultations must be conducted to increase public awareness and to reduce potential friction	Measures taken will be in line with the company's recruitment policies.	Control and avoid	Control relations between stakeholder and avoid poaching and theft.
Temporary employment opportunities		Record and address comments, concerns, and questions prior to commencement of the activity. Farm laborer's will not be employed unless agreed to with the farm owners.	Follow public participation legislation according to NEMA.		
		Ensure that all laborer's are trained and adhere to all health and safety standards.	Follow anti-poaching		
		Prior to commencement activity, TORNOWIZE (Pty) Ltd must notify the adjacent landowners of the employees that will be working on site to avoid conflict.			

		Prospecting should be conducted following best practices is to minimize negative economic impacts on local business.			
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<p>Potential decline in local business due to prospecting activities.</p>		<p>Prospecting project should be conducted in the time frame provided in the plans to avoid prolonged disturbances to surrounding businesses</p> <p>Prior to the commencement of the activity, environmental awareness training must be provided to all employees to avoid poaching.</p>	<p>legislation NEMBA and CARA</p>		
<p>Potential increase in theft and poaching</p>		<p>All employees must be registered as laborer's and access to the site must be monitored.</p> <p>A Daily register for people visiting and working on the farm during prospecting Activities must be kept on site.</p>			

<p>Generation of solid waste and waste from ablution facilities that can have an impact on environmental aspects.</p>	<p>Waste</p>	<p>Minimize littering on site and ensure that all laborer's are trained in environmental awareness.</p> <p>Bins (sufficient number and capacity) to store general and hazardous produced on a daily basis shall be provided at each drilling site.</p> <p>The waste bins must be sealed to avoid, leakage of leachate material and must be waterproof so that rainwater cannot enter into them.</p> <p>Bins shall be emptied on a weekly basis.</p> <p>An integrated waste management approach shall be used, based on the principles of waste minimization, reduction, re-use and recycling of materials.</p>	<p>Align all operations with the NEM:WA</p>	<p>Avoid</p>	<p>Avoid the excessive generation of general waste.</p>
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		Temporary ablution facilities on site should be emptied on regular basis.			
Increase of traffic in the area as vehicles access and exit the site	Traffic	<p>Vehicles and machinery must move in and out of the site during off peak hours, to avoid congestion.</p> <p>Vehicles accessing and exiting the site must use designated routes, and only during off peak hours. The speed limit must be 30 km/h when driving on gravel road.</p> <p>Only authorized vehicles should be allowed to access the site.</p>	<p>National traffic Act 93 of 1996.</p> <p>EMPr guidelines in relation to traffic and speed limit</p>	Minimise	Minimise impact of traffic
Health and safety of all employees and neighboring occupants	Health and Safety	<p>Neighboring occupants should be warned about any disruptions prior the commencement of the prospecting activity and the potential impacts it may have on their personal health.</p> <p>Ensure that health and safety measures are put in place to protect employees and neighbouring occupants</p> <p>Environmental awareness training must be provided to all employees to avoid injuries</p>	Occupational Health and Safety Act	Avoid	Avoid health risks and injury incidents

		<p>caused by natural factors(e.g. snake bites)</p> <p>First aid kit and a first aid administrator must be present on site throughout the projects lifespan.</p> <p>Provide employees with adequate personal protective Equipment (PPE)</p>			
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<p>Potential impact on heritage resources and archaeological resources</p>	<p>Cultural/Heritage, historical resources</p>	<p>Should any paleontological or cultural artefacts be discovered work at the point of discovery must stop, the location be clearly demarcated and LIHRA contacted immediately. Work at the discovery site may only be recommenced on instruction from LIHRA</p>	<p>Adherence to the National Heritage Resource Act, and its accompanying regulations  Limpopo Heritage Resource Agency</p>	<p>Avoid</p>	<p>Avoid disturbance and destruction of Heritage, Cultural and or historical resources</p>
<p>Potential fire outbreaks during the winter fire season</p>	<p>Veld Fires</p>	<p>Measures will be put in place during prospecting activities to avoid and mitigate potential fire outbreaks. These measures include the</p> <ul style="list-style-type: none"> <li>• The prohibition of starting fires on site</li> <li>• Compulsory fire fighting training for all employees on site</li> <li>• Ensuring that that all fire extinguishers are present and well maintained and strategically placed on site and prospecting machinery</li> </ul> <p>The National veld and fire act (no 11 of 1998) must be adhered, to avoid the potential</p>	<p>National Veld and Fire act (No 11 of 1998)</p>	<p>Avoid</p>	<p>Avoid man caused fires in the farm</p>

		<p>spread of veld fires into neighboring farms.</p> <p>should liaise with the landowner in terms of creating a fire break before prospecting activities can commence.</p>			
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POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	MITIGATION TYPE	STANDARD TO BE ACHIEVED
DRILLING PHASE					
The drilling of prospecting boreholes on the proposed site.(0.2 Ha)					
Potential soil erosion during Drilling Phases..	Soil	<p>Drilling on areas with sensitive soils, steep slopes, etc. must be avoided as far as possible</p> <p>Topsoil must be stockpiled immediately after clearing vegetation to prevent erosion of soil through surface runoff and wind.</p> <p>Where applicable, construct berms in order to prevent rill erosion and donga formation.</p> <p>All cleared areas are to be monitored for erosion daily; any erosion forming is to be remediated with immediate effect.</p> <p>Vehicles and machinery used on site must be serviced before entering the site and potential leaks must be monitored daily by the site manager. Spill</p>	<p>Rehabilitation in terms of MPRDA and NEMA principles.</p> <p>Operational control procedures (e.g. spill / leak handling).</p> <p>Incident Reporting System;</p>	Control and avoid	Control soil erosion and avoid contamination

	kits must be available on site and used immediately after			
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<p>Potential Soil contamination due to spillages.</p>		<p>any spillages occur. If spillage is excessive the site manager must do an incident report and the incident must be reported to the authority.</p>	<p>Environmental Inspections; Planned Maintenance System; water quantity (abstraction) monitoring; continued communication with surrounding landowners.</p>		
<p>Destruction/Loss of indigenous vegetation and plants of ecological importance</p>	<p>Flora</p>	<p>Identified plants that are of ecological importance that have been demarcated must be avoided and registered, so they remain protected. The site manager should monitor vegetation clearance and potential spread of alien plant species and/or seeds.</p> <p>Alien plants and areas with sparse vegetation should be the first preference</p>	<p>Rehabilitation in terms of MPRDA and NEMA principles.</p> <p>Applicable guidelines from NEM:BA and</p>	<p>Avoid and Control</p>	<p>Avoid erosion and Soil and contamination, and control potential occurrences</p>

		<p>when drilling areas are selected vegetation compared to areas with plants of ecological importance and areas with dense vegetation.</p> <p>Avoid any damage to large individuals of any of the protected tree species on site</p>			
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<p>Potential spread alien of invader plants/seeds</p>		<p>Unnecessary driving within the site must be avoided and designated routes must be used at all times.</p> <p>Site manager's responsibilities should include, but not necessarily be limited to, ensuring adherence to EMPr guidelines, guidance of activities, planning, reporting to authorities.</p> <p>An annual audit of the activity and site, must be completed by an external environmental practitioner and the report must be submitted to the DMRE</p> <p>Areas that have been extensively cleared and are not required for prospecting activities should be re-seeded with locally-sourced seed of suitable species. Bare areas can also be packed with brush removed from other parts of the site to encourage natural vegetation regeneration and limit erosion.</p>	<p>Department of Agriculture, Forestry and Fisheries (DAFF) and Conservation of Agricultural Resources Act (CARA) regarding removal of species</p> <p>Mining and Biodiversity Guidelines</p>		
<p>Disturbance of animal and Bird species in the proposed site</p>	<p>Fauna</p>	<p>The drilling activities must be carried out during the day, (07h00 – 17h00) and the prospecting project must be carried in phases to avoid bombarding the area with activity.</p>	<p>General implementation of activities taking Biodiversity Act and its guidelines into account.</p>	<p>Control through visual monitoring</p>	<p>Minimize impact on fauna</p>

Disturbance of Wildlife  
on

To avoid habitat loss, alien plants and areas with minimal vegetation should be the first preference when allocating a drill site compared to areas with plants of ecological importance and areas with dense vegetation.

No animal or bird, within the site and in surrounding farms, may be hunted, trapped, snared or captured for any purpose whatsoever

and  
inspection

neighboring farms		<p>The drilling site must be searched for raptors nests and must be avoided as far as possible.</p> <p>Drilling activities should follow the operational plan and be kept to the minimum so that mammals can roam undisturbed in the farm area and around the areas that are being used for prospecting purposes.</p>			
Nuisance stemming from smoke emission generated by vehicles and machinery.	Air Quality	The vehicles and equipment must be serviced before entering the site, to avoid excessive emissions to the atmosphere.	National Environmental Management Air Quality Act	Control and minimise	Maintain air quality

<p>Potential Groundwater contamination due to spillages of fuels, lubricants and other chemicals</p>	<p>Groundwater</p>	<p>Groundwater monitoring network (both quality and quantity) should be established.</p> <p>Vehicles and machinery used on site must be serviced before entering the site and potential leaks must be monitored daily by the site manager. Spill kits must be available on site and used immediately after any spillages occur. If spillage is excessive the site manager must do an incident report and the incident must be reported to the authority.</p>	<p>Water management measures in compliance with NWA, 1998 and DWS guidelines</p>	<p>Avoid</p>	<p>Avoid Groundwater contamination as far as possible.</p>
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<p>Potential occurrence of drawdown due to borehole drilling</p>		<p>Ensure that the land owners' borehole yield is observed during the Drilling Phase. Should it be proven that the operation is indeed is affecting the quantity and quality of groundwater available to users and surrounding water resources; the affected parties must be compensated.</p> <p>The drilling machines should be monitored before and after the drilling for spillages and leaks. Equipment that is in good condition must be used.</p>			
<p>Dust resulting from Drilling Phases, will cause nuisance to the surrounding farms</p>	<p>Dust and Noise</p>	<p>Limit the maximum speed to 30 km/h or less, subject to risk assessment.</p> <p>Vehicles and machinery must be equipped with engine silencers and the equipment must be kept in good working condition to avoid excessive noise generation.</p> <p>To avoid excessive dust generation, prospecting activities must be carried out in phases</p>	<p>National Noise Control Regulations, SANS10103:2008 guidelines.</p>	<p>Minimise</p>	<p>Minimal noise levels</p>

Possible visual disturbance to surrounding farms from vehicles and drill rigs	Visual	<p>Due to the undulating topography, visibility for the most part will most probably be restricted to short distances, however the prospecting area shall be enclosed to minimize visual disruption from machinery and equipment to be used, if necessary.</p> <p>Inform the surrounding land owners on the type of machinery and equipment to be used at the prospecting site, also inform the landowners of the activities that will be occurring during each phase.(e.g. Drilling, Surveying)</p>	Measures will be undertaken to ensure that the visual aspects from the site comply with the relevant visual	Minimize	Minimize visual impacts to the surrounding landowners
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		To minimize visual impact to the surrounding landowners, the activity should be carried out in phases.	standards and objectives including Municipal By Laws.		
Potential impact on heritage resources and archaeological resources	Cultural/Heritage, historical resources	Should any paleontological or cultural artefacts be discovered drilling activities at the point of discovery must stop, the location be clearly demarcated, and Northern Cape Heritage Resource Agency (NCHRA) contacted immediately. Any Drilling activities at the discovery site may only be recommenced on instruction from NCHRA	Adherence to the National Heritage Resource Act, and its accompanying regulations  Northern Cape Heritage Resource Agency	Avoid	Avoid disturbance and destruction of Heritage, Cultural and or historical resources
Health and safety of all employees and neighboring occupants	Health and Safety	Neighboring occupants should be warned about any disruptions prior the commencement of the prospecting activity and the potential impacts it may have on their personal health.  A Safe distance must be kept from the drilling machinery and vehicles by employees to avoid injuries	Occupational Health and Safety Act	Avoid	Avoid health risks and injury incidents

		Ensure that health and safety measures are put in place to protect employees and neighboring occupants			
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		<p>Environmental awareness training must be provided to all employees to avoid injuries caused by natural factors(e.g. snake bites)</p> <p>First aid kit and a first aid administrator must be present on site throughout the projects lifespan.</p> <p>Provide employees with adequate personal protective Equipment (PPE)</p>			
Increase of traffic in the area as vehicles access and exit the site	Traffic	<p>Vehicles and machinery must move in and out of the site during off peak hours, to avoid congestion.</p> <p>Vehicles accessing and exiting the site must use designated routes, and only during off peak hours. The speed limit must be 30 km/h when driving on gravel road.</p> <p>Only authorized vehicles should be allowed to access the site.</p>	<p>National traffic Act 93 of 1996.</p> <p>EMPr guidelines in relation to traffic and speed limit</p>	Minimize	Minimize impact of traffic

<p>Generation of solid waste and waste from ablution facilities that can have an impact on environmental aspects.</p>	<p>Waste</p>	<p>Minimize littering on site and ensure that all laborer's are trained in environmental awareness.</p> <p>Bins (sufficient number and capacity) to store general and hazardous produced on a daily basis shall be provided at each drilling site.</p> <p>The waste bins must be sealed to avoid, leakage of leachate material and must be waterproof so that rain water cannot enter into them.</p> <p>Bins must be emptied on a weekly basis.</p>	<p>Align all operations with the NEM:WA</p>	<p>Avoid</p>	<p>Avoid the excessive generation of general waste.</p>
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		<p>An integrated waste management approach shall be used, based on the principles of waste minimization, reduction, re-use and recycling of materials.</p> <p>Temporary ablution facilities on site should be emptied on regular basis.</p>			
<p>Potential friction with local business individuals who are running tourist attractions.</p>	Socio-Economic	<p>Extensive public consultations must be conducted to increase public awareness and to reduce potential friction</p> <p>Record and address comments, concerns, and questions prior to commencement of the activity.</p> <p>Farm laborer's will not be employed unless agreed to with the farm owners.</p>	<p>Measures taken will be in line with the company's recruitment policies.</p> <p>Follow public participation legislation according to NEMA.</p>	Control and avoid	Control relations between stakeholder and avoid poaching and theft.
<p>Temporary employment opportunities</p>		<p>Ensure that all laborer's are trained and adhere to all health and safety standards.</p> <p>Prior to commencement drilling activities</p>	<p>Follow anti-poaching legislation NEMBA and CARA</p>		

Potential decline in local business due to

TORNOWIZE (Pty) Ltd must notify the adjacent landowners of the employees that will be working on site to avoid conflict.

Drilling activities should be conducted following best practices is to minimise negative economic impacts on local business.

Drilling should be conducted in the time frame provided in the plans to avoid prolonged disturbances to surrounding businesses

Prior to the commencement of the activity, environmental awareness training must be provided to all employees to avoid poaching.



prospecting activities.		<p>All employees must be registered as labourers and access to the site must be monitored.</p> <p>A daily register for people visiting and working on the farm during prospecting Activities must be kept on site.</p>			
Potential increase in theft and poaching					
Potential fire outbreaks during the winter fire season	Veld Fires	<p>Measures will be put in place during prospecting activities to avoid and mitigate potential fire outbreaks. These measures include the</p> <ul style="list-style-type: none"> <li>• The prohibition of starting fires on site</li> <li>• Compulsory fire fighting training for all employees on site</li> <li>• Ensuring that that all fire extinguishers are present and well maintained and strategically placed on site and prospecting machinery</li> </ul> <p>Sparks and flares which may occur due to friction between the drill rig and the rocks must be monitored to avoid accidental fires.</p>	National Veld and Fire act (No 11 of 1998	Avoid	Avoid man caused fires in the farm

		The National Veld and Fire act (No 11 of 1998) must be adhered to, to avoid the potential spread of veld fires into neighbouring farms.			
Removal of rocks, debris	Geology	The drilling activities should be limited to only designated areas only.  Where there is a geological fault, the position of the drill borehole must be moved.	EMPr guidelines	Minimise and avoid	Avoid unnecessary

and altering geological features and formations.		Rocky ridges are part of wildlife corridors links. Prospecting at rocky ridges should be avoided as far as possible  Cap off and cement drill holes after the removal of mineral cores. Only drill in areas form part of the operational plan and keep to 7 drill boreholes to minimise the impact.			drilling on geological feature
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POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	MITIGATION TYPE	STANDARD TO BE ACHIEVED
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DECOMMISSIONING PHASE

Removal of temporary vehicles and machinery on site, rehabilitation of cleared areas(0.2562 Ha)

<p>Rehabilitation of the prospecting site</p>	<p>Soil, Fauna and Flora, Geology</p>	<p>All temporary facilities, vehicles and machinery must be removed off site when the prospecting period has come to an end.</p> <p>Rehabilitation of drilling sites shall be undertaken in line with closure objectives and in consultation with landowners.</p> <p>All vehicles and machinery used at the rehabilitation site must be kept in good working order.</p> <p>No repairs of vehicles or machinery will be conducted at the rehabilitation site unless it is emergency repairs, which will be conducted on protected ground.</p>	<p>Rehabilitation in terms of MPRDA and NEMA principles.</p> <p>General implementation of activities taking Biodiversity Act</p>	<p>Control</p>	<p>Ensure that adequate measures are being undertaken to rehabilitate the site.</p>
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	<p>Movement of vehicles and machinery should be limited to demarcated routes, which will be rehabilitated when no longer in use</p> <p>Ensure that the soil in the vicinity of the rehabilitation site is not detrimentally impacted. All the waste from drilling activities must be collected from site for disposal.</p> <p>Areas that have not had topsoil striped are to be monitored for alien plant growth and vegetation recovery. If after a year the vegetation has not recovered the area is to be hand seeded with indigenous grass</p> <p>Ensure that all drill holes have been refilled with rocks and or cement to avoid potential injuries</p>	<p>and its guidelines into account.</p>		
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		<p>to fauna , employees and potential occupants</p> <p>Trapping and killing of fauna will be prohibited at the prospecting site.</p>			
<p>Nuisance stemming from smoke emission generated by vehicles and machinery.</p>	<p>Air quality.</p>	<p>All equipment and vehicles must be serviced and be in good condition to reduce emissions when rehabilitation is being carried out.</p>	<p>Standards set out in the NEM:AQA</p>	<p>Minimise impact</p>	<p>Minimize smoke emissions in and around the site.</p>

<p>Increase of traffic in the area as vehicles access and exit the site</p>	<p>Traffic</p>	<p>Vehicles and machinery must move in and out of the site during off peak hours, to avoid congestion.</p> <p>Vehicles accessing and exiting the site must use designated routes</p> <p>The speed limit must be 30 km/h when driving on gravel road.</p> <p>Only authorised vehicles should be allowed to access the site.</p>	<p>National traffic Act 93 of 1996.</p> <p>EMPr guidelines in relation to traffic and speed limit</p>	<p>Minimise</p>	<p>Minimise impact of traffic</p>
<p>Health and safety of all employees and neighbouring occupants</p>	<p>Health and Safety</p>	<p>Neighbouring occupants should be warned about any disruptions prior the commencement of the decommissioning and the potential impacts it may have on their personal health.</p> <p>Ensure that health and safety measures are put in place to protect employees and neighbouring occupants</p> <p>Environmental awareness training must be provided to all employees to avoid injuries caused by natural factors(e.g. snake bites)</p> <p>First aid kit and a first aid administrator must be</p>	<p>Occupational Health and Safety Act</p>	<p>Avoid</p>	<p>Avoid health risks and injury incidents</p>

		present on site throughout the projects lifespan.			
Possible visual disturbance to surrounding farms from	Visual	<p>All temporary facilities, vehicles and machinery must be removed off site when the prospecting period has come to an end</p> <p>Inform the surrounding land owners on the decommissioning of the project also inform the landowners of the activities that will be occurring during this phase.</p>	Measures will be undertaken to ensure that the visual aspects from the site comply with the	Minimise	Minimise visual impacts to the surrounding landowners



vehicles and drill rigs			relevant visual standards and objectives including Municipal By Laws.		
Dust resulting from Drilling Phases, will cause nuisance to the surrounding farms	Dust and Noise	Limit the maximum speed to 30 km/h or less, subject to risk assessment.  Vehicles and machinery must be equipped with engine silencers and the equipment must be kept in good working condition to avoid excessive noise generation.	National Noise Control Regulations, SANS10103:2008 guidelines.	Minimise	Ensure that the rehabilitation activities minimize detrimental impacts on people.

### **3 Financial Provision**

#### **3.1 Determination of the amount of Financial Provision.**

A total of **R 62 841.00** is required to both manage and rehabilitate the environment in respect of rehabilitation. TORNOWIZE (Pty) Ltd must update and review the quantum of the financial provision annually.

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

For a prospecting operation such as this, the primary closure and environmental objectives are to:

- Minimize the area to be disturbed and to ensure that the areas disturbed during the prospecting activities are rehabilitated and stable, as per the commitments made in this EMP.
- Sustain the pre-prospecting land use.
- To record and communicate the results of the monitoring programme during decommissioning to the participating stakeholders.

#### **3.3 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 the farmers and affected parties. It will be explained that should the prospecting yield negative results, then the end use for area will revert to its pre-prospecting land use (minutes to be incorporated on the final report). The end-use of the area will therefore not be changed by the prospecting operations.

#### **3.4 Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.**

Table 12: Rehabilitation Plan

Aspect/ Impact	Rehabilitation Measure	Monitoring Frequency & Responsibility
Vegetation clearing/Replanting	<ul style="list-style-type: none"> <li>Remove any emerging alien and invasive vegetation to prevent further establishment;</li> <li>All planting work is to be undertaken by suitably qualified personnel making use of the appropriate equipment;</li> <li>Transplant during the winter (between April and September); and</li> <li>Plant indigenous plants to minimise the spread of alien and invasive vegetation.</li> </ul>	When re-vegetation is done and in blooming season; TORNOWIZE (Pty) Ltd or sub-contractor appointed

Aspect/ Impact	Rehabilitation Measure	Monitoring Frequency & Responsibility
Removal of Temporary structures	<ul style="list-style-type: none"> <li>Clear and completely remove from site all prospecting equipment, storage containers, signage, temporary ablution facilities, fixtures and any other temporary works; and</li> <li>Ensure that all access roads utilised during Site Establishments (which are not earmarked for closure and rehabilitation) are returned (as far as possible) to their state prior to prospecting.</li> </ul>	Once-off; Tornowize

<p>Topsoil replacement</p>	<ul style="list-style-type: none"> <li>• Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas of the prospecting site, including temporary access routes and roads. Replace topsoil to the original depth (i.e. as much as was removed prior to prospecting activities).</li> <li>• Prohibiting the use of topsoil suspected to be contaminated with the seed of alien vegetation. Alternatively, the soil is to be sprayed with specified herbicides.</li> <li>• Where local soil has poor drainage, broken rock (Approx. 75 mm in diameter) must be placed to a depth of 150mm at the bottom of the planting hole prior to planting and backfilling with approved plant medium mixture.</li> </ul>	<p>Once-off; Tornowize</p>
<p>Waste and Rubble Removal</p>	<ul style="list-style-type: none"> <li>• Remove from site all domestic waste and dispose of in the approved manner at a registered waste disposal site.</li> </ul>	<p>Once-Off; Tornowize</p>

Solid and Hazardous Waste	<ul style="list-style-type: none"><li>• Dispose of all hazardous waste not earmarked for reuse, recycling or resale at a registered hazardous waste disposal site.</li><li>• Remove from site all temporary fuel stores, hazardous substance stores, hazardous waste stores and pollution control sumps. Dispose of hazardous waste in the approved manner.</li><li>• Do not hose oil or fuel spills into a storm water drain or sewer, or into the surrounding natural environment.</li></ul>	Once-off; Tornowize
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#### **4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.**

TORNOWIZE (Pty) Ltd is required to make the prescribed financial provision for the rehabilitation or management of negative environmental impacts. If TORNOWIZE (Pty) Ltd fails to rehabilitate or manage any negative impact on the environment, the DMRE may, upon written notice to the company, use all or part of the financial provision to rehabilitate or manage the negative environmental impact in question. TORNOWIZE (Pty) Ltd will specify that the appointed contractor is required to comply with all the environmental measures specified in the EMP. This will include avoiding unnecessary disturbance of natural vegetation and the rehabilitation of each drill site, immediately after drilling has been completed. All tracks to the drill sites must be rehabilitated at the end of the prospecting programme. The financial provision provides for the final checking of all sites before site clearance

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

**CALCULATION OF THE QUANTUM**



Applicant: SITHOKOZILE GCABASHE  
 Evaluator: SITHOKOZILE GCABASHE

23-Oct-22

No.	Description	Unit	A	B	C	D	E=A*B*C*D	
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)	
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0	
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0	
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0	
3	Rehabilitation of access roads	m2	132.7	49	0.1	1	650.23	
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0	
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0	
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0	
6	Opencast rehabilitation including final voids and ramps	ha	0	284282	1	1	0	
7	Sealing of shaft adits and inclines	m3	0	146	1	1	0	
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528	1	1	0	
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0	
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612	1	1	0	
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0	
10	General surface rehabilitation	ha	0.42	150138	0.7	1	44140.572	
11	River diversions	ha	0	150138	1	1	0	
12	Fencing	m	0	171	1	1	0	
13	Water management	ha	0	57087	1	1	0	
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0	
15 (A)	Specialist study	Sum	0			1	0	
15 (B)	Specialist study	Sum	0			1	0	
Sub Total 1							44790.802	
1	Preliminary and General		5374.89624	weighting factor 2 1			5374.89624	
2	Contingencies			4479.0802			4479.0802	
Subtotal 2							54644.78	
SITHOKOZILE GCABASHE							VAT (15%)	8196.72
Grand Total							62841	

**4.2 Confirm that the financial provision will be provided as determined.**

TORNOWIZE (Pty) Ltd undertakes to provide financial provision for the implementation of the rehabilitation plan.

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

- a) Monitoring of Impact Management Actions
- b) Monitoring and reporting frequency



- c) Responsible persons
- d) Time period for implementing impact management actions

**Table 14:** Mechanism for monitoring compliance.

SOURCE ACTIVITY MONITORING AND REPORTING	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Site Establishment	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Noise</li> <li>• removal of vegetation</li> <li>• disruption of animal life</li> <li>• habitat destruction</li> <li>• loss of geology</li> </ul>	<ul style="list-style-type: none"> <li>• Daily dust and noise monitoring.</li> <li>• Daily monitoring of plant species of ecological importance</li> </ul>	Geologist and Project Manager	Daily and monthly

Traffic management	<ul style="list-style-type: none"> <li>• animal life disruption</li> <li>• Traffic Congestion</li> <li>• Disruption of surrounding businesses.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor traffic access to the site and the frequency thereof, and notify surrounding business owners</li> </ul>	Geologist and Project Manager	Monthly and when necessary
Ablution Facility	<ul style="list-style-type: none"> <li>• Land contamination</li> <li>• Water contamination</li> <li>• health hazard</li> </ul>	<ul style="list-style-type: none"> <li>• service the toilet facility</li> <li>• monitor water quality</li> </ul>	Geologist and Project Manager	When necessary and monthly
Existing/Access routes	Animal life disruption	<p>Monitor traffic access to the site and the frequency thereof, and</p> <p>Disruption of surrounding businesses Traffic Control</p> <p>Disruption of surrounding businesses Traffic Control</p>	<p>Geologist and Project Manager</p> <p>notify surrounding business owners</p> <p>Monitor speed limits on the road.</p>	Monthly and when necessary

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

Regular monitoring of all the environmental management procedures and mitigation measures shall be carried out by TORNOWIZE (Pty) Ltd in order to ensure that the provisions of this EMP are adhered to. Formal monitoring and performance assessment of the EMP will be undertaken on a monthly basis

**6 Environmental Awareness Plan**

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

The following Environmental Awareness Training will be implemented by TORNOWIZE (Pty) Ltd in order to inform employees and contractors of the environmental risk that may result from their work, or the risk of their interaction with the sensitive environment. The training will be conducted as part of the induction process for all new employees (including contractors) that will perform work in terms of the proposed activities. Proof of all training provided must be kept on-site. The Environmental Awareness Training will, as a minimum cover the following topics within Table 15.

**Table 15:** Environmental Awareness Plan

<b>Air Quality</b>	<ul style="list-style-type: none"><li>• Activities that may result or mitigate impact on air quality; speeding on roads, the requirements for dust suppression, etc.</li><li>• Negative impacts on the receiving environment if mitigation measures are not implemented.</li></ul>
<b>Surface and groundwater</b>	<ul style="list-style-type: none"><li>• Risks to groundwater, e.g. fuel and chemical handling and further risks of erosion or damage to riparian vegetation.</li><li>• How incidents should be reported, and emergency requirements.</li></ul>

	<ul style="list-style-type: none"> <li>• The importance to reuse water and to prevent spillages.</li> </ul>
Cultural Heritage	<ul style="list-style-type: none"> <li>• To respect all cultures and believes.</li> <li>• How to report any sightings of heritage importance as identified during operation activities (e.g. fossils)</li> </ul>
<b>Fauna</b>	<ul style="list-style-type: none"> <li>• Overview of the fauna found on/around site and the uniqueness thereof.</li> <li>• Mitigation measures that all contractors and employees need to abide by.</li> <li>• No contractor or personnel allowed to catch or kill any species, and how any sightings should be reported if further actions are required (e.g. to catch and release).</li> </ul>
<b>Flora</b>	<ul style="list-style-type: none"> <li>• Overview of the flora diversity on site, and the rare and endangered nature thereof.</li> <li>• Measures taken by the company to protect species.</li> <li>• No contractor or personnel allowed to remove, harvest or destroy any flora species unless clearly instructed based on the site establishment and operational plans.</li> </ul>
<b>Waste management</b>	<ul style="list-style-type: none"> <li>• Measures to avoid waste generation and to participate in waste minimization/reduction.</li> </ul>
<b>Traffic strategies.</b>	<ul style="list-style-type: none"> <li>• To stay on designated roads and not create new roads on areas that will not be used for prospecting purposes.</li> <li>• To be aware of the fauna species and to be on the lookout and avoid collisions.</li> </ul>
<b>Emergency Preparedness and Response</b>	<ul style="list-style-type: none"> <li>• How to report any emergency or incident.</li> <li>• Incident and emergency reporting requirements</li> </ul>
<b>General rules and conduct</b>	<ul style="list-style-type: none"> <li>• Respect for the sensitive environment.</li> <li>• Do not litter.</li> <li>• Respect for each other and for different cultures.</li> <li>• Safety and health requirements</li> </ul>

## **6.2 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.**

All employees must be provided with environmental awareness training to inform them of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. Employees should be provided with environmental awareness training before prospecting operations start. All new employees should be provided with environmental awareness training. Induction courses will be provided to all employees by a reputable trainer.

## **7 Specific information required by the Competent Authority**

No risks have been identified other than those that have been identified within this document, these are to be communicated to all contractors and all contractors are to be provided with a copy of the approved EMP. Environmental training needs for each section should to be identified and addressed to ensure environmental management is part of day-to-day operations. The environmental risk responsibilities guide the training requirements of each individual. The responsibility for each level of management according to the Integrated Risk Management and ISO14001 role descriptions are. Environmental training recommended for the different levels of management guide the training needs identification process. This is a minimum guideline and any additional training can be added where section specific issues or high-risk items require training and awareness. It is the responsibility of the line manager to ensure environmental training needs for individual staff members are identified, agreed to, facilitated and tracked.

## 8 Undertaking

The EAP herewith confirms

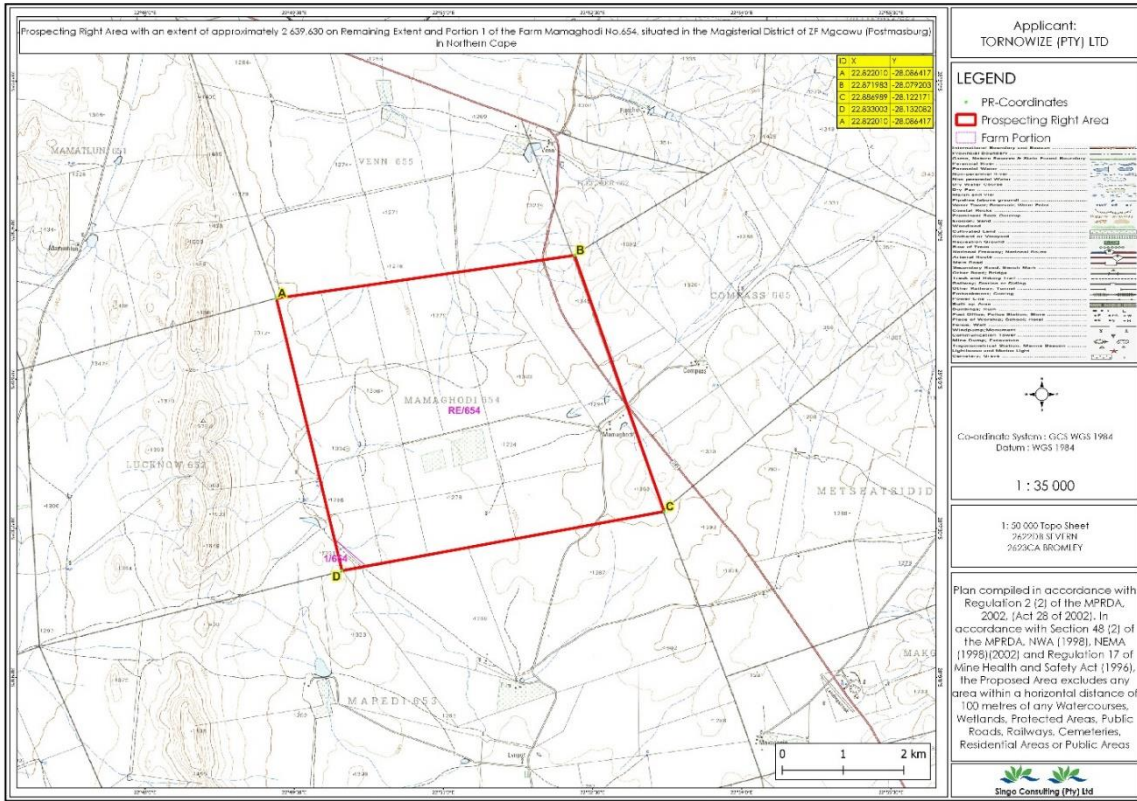
- i. the correctness of the information provided in the reports
- ii. the inclusion of comments and inputs from stakeholders and I&APs ;
- iii. the inclusion of inputs and recommendations from the specialist reports where relevant; and
- iv. that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. parties are correctly reflected herein.

<b>SIGNATURE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER:</b>	
<b>NAME OF THE COMPANY:</b>	<b>SINGO CONSULTING PTY LTD</b>
<b>DATE:</b>	<b>OCTOBER 2022</b>

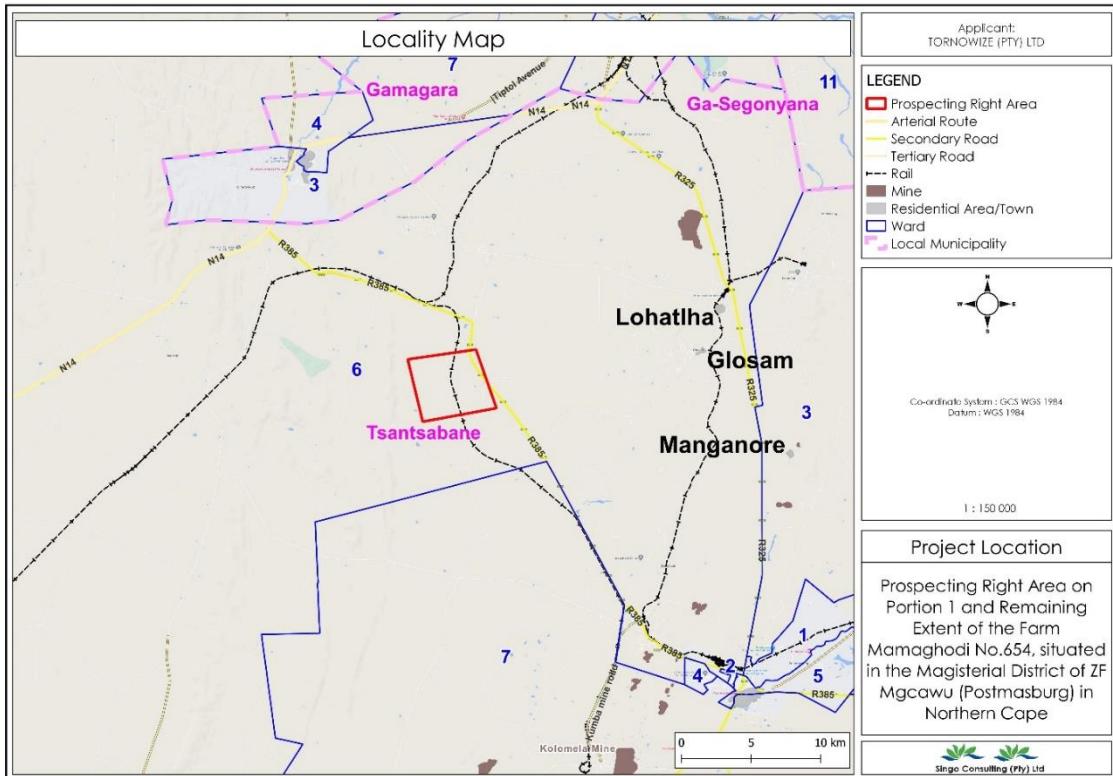
# APPENDICES

## APPENDIX 1: PROJECT MAPS

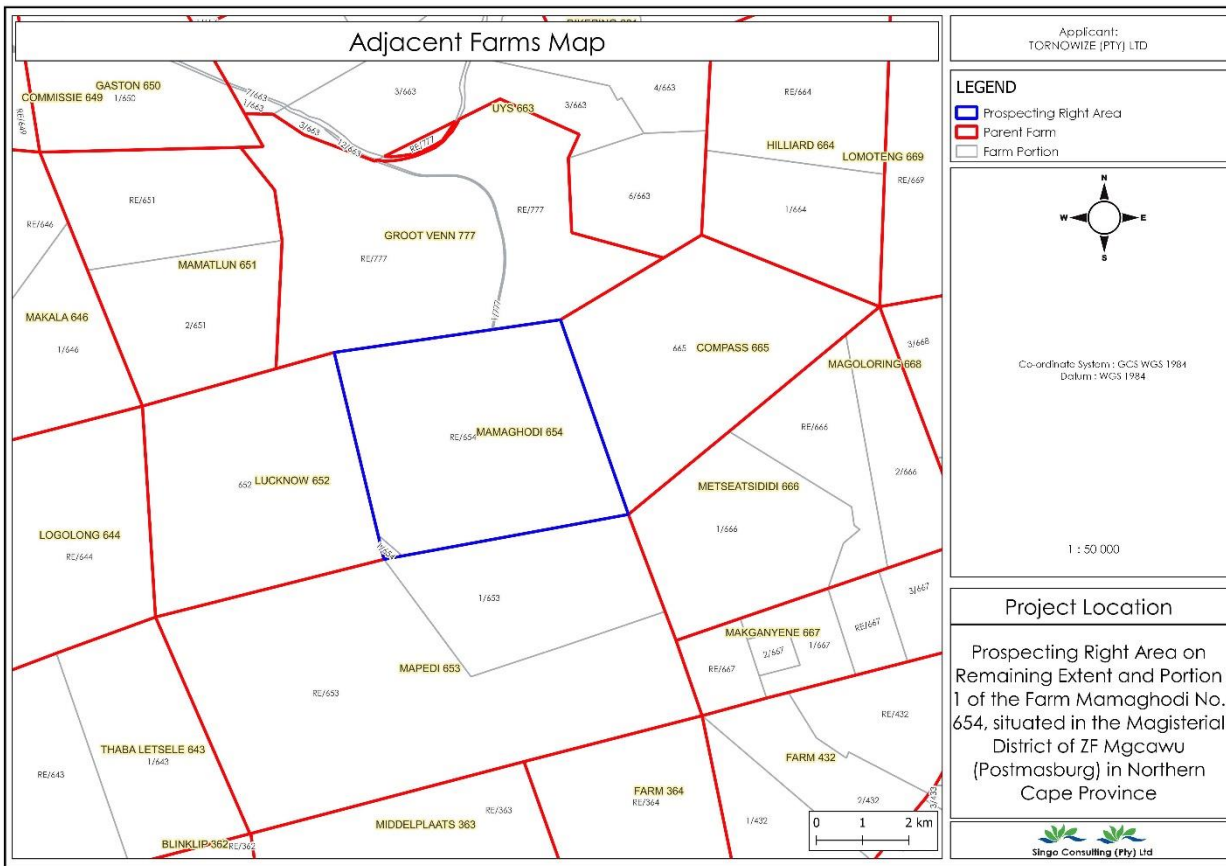
### Regulation 2. (2) Map



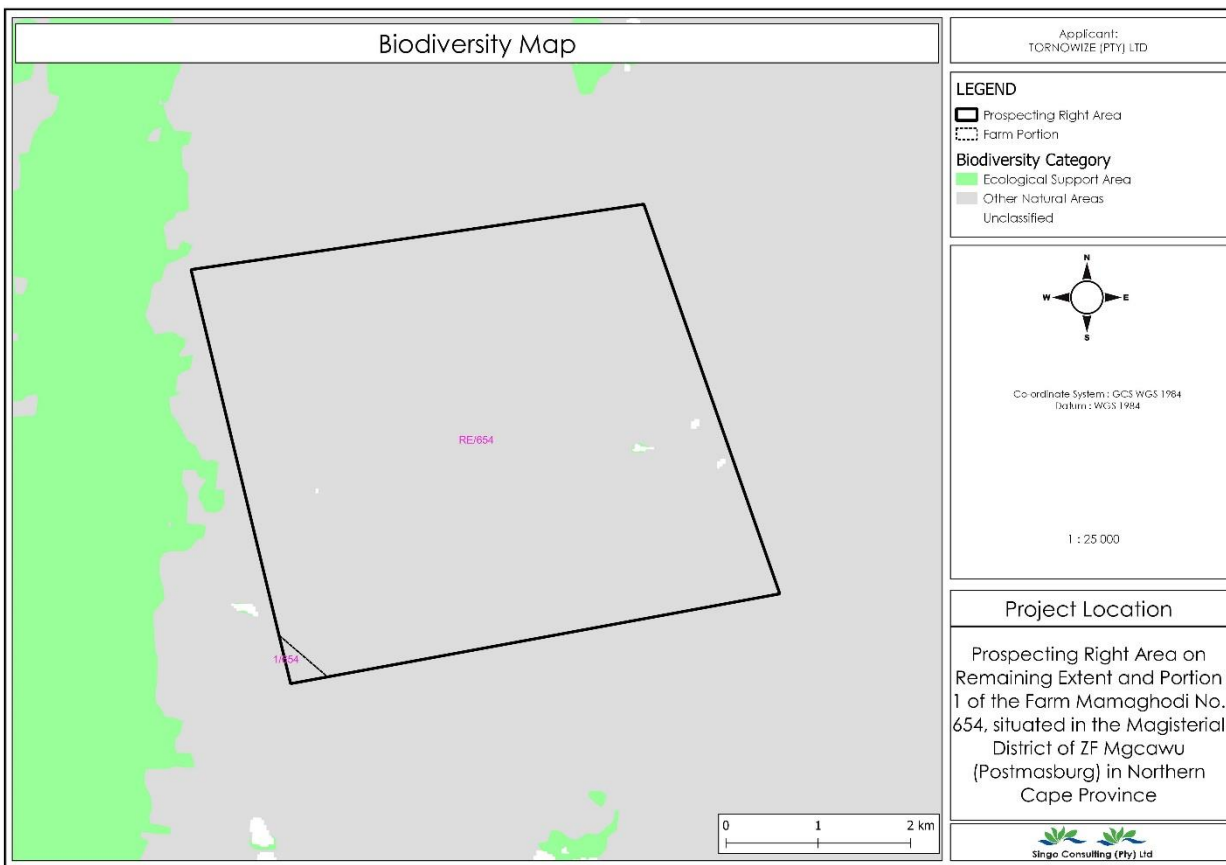
### Locality Map



## Adjacent Farms Map

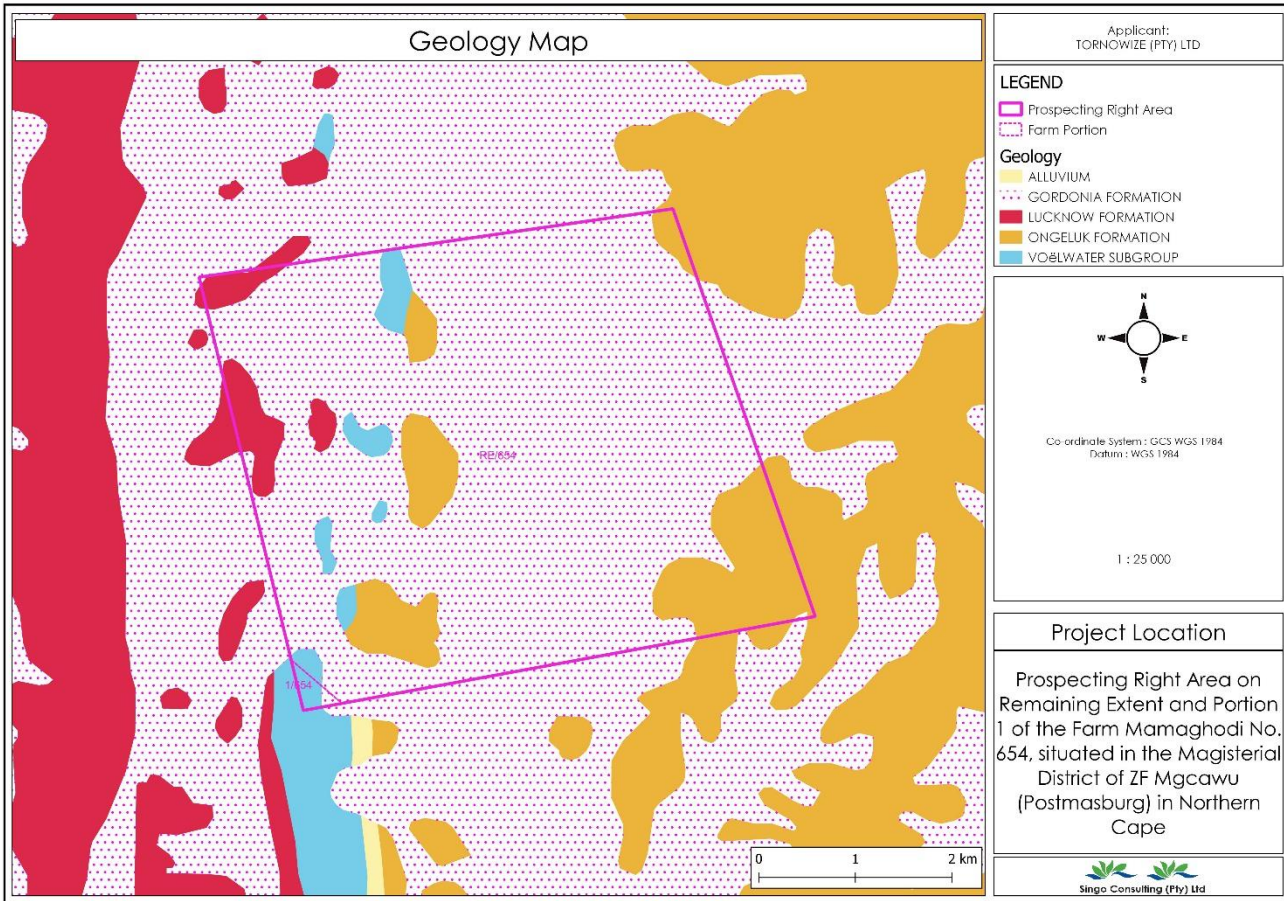


## Biodiversity Map of the proposed area

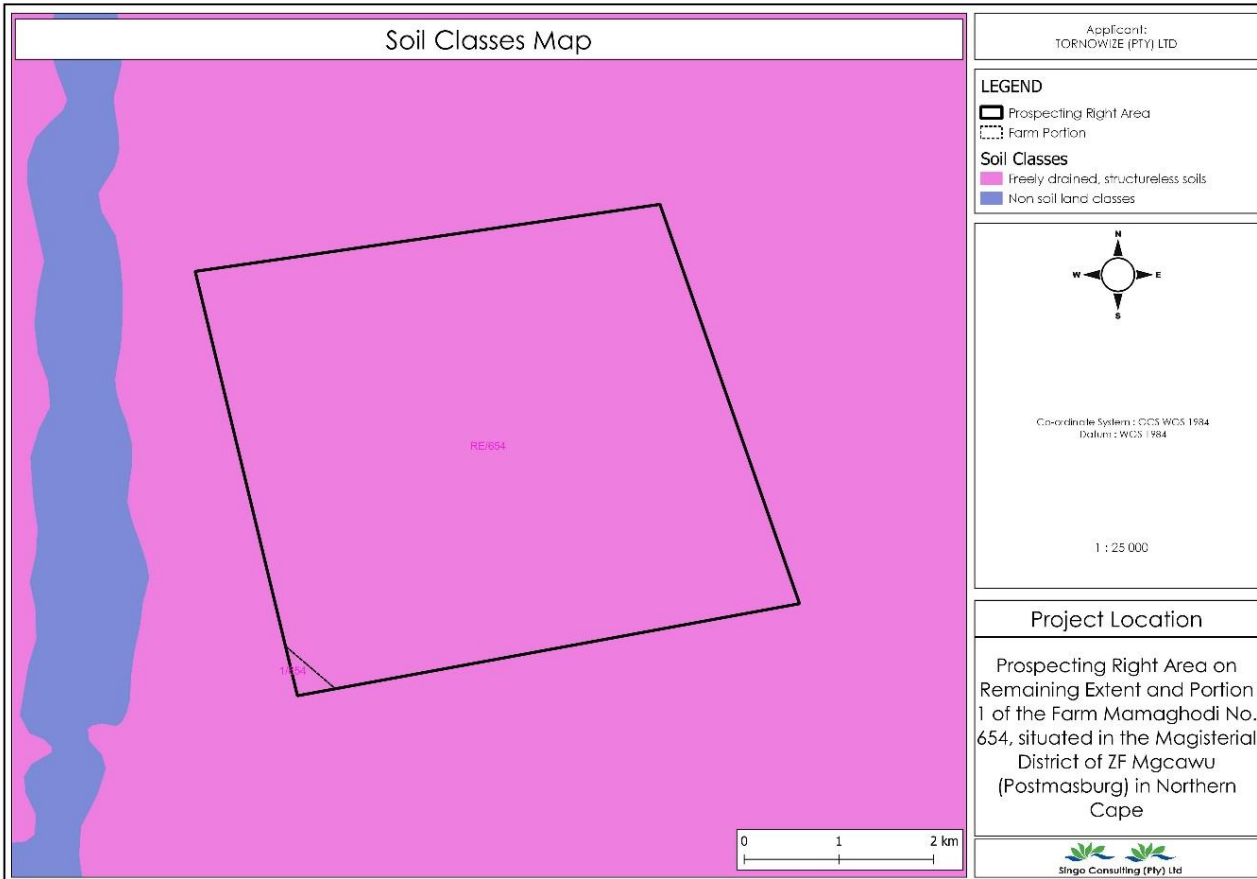




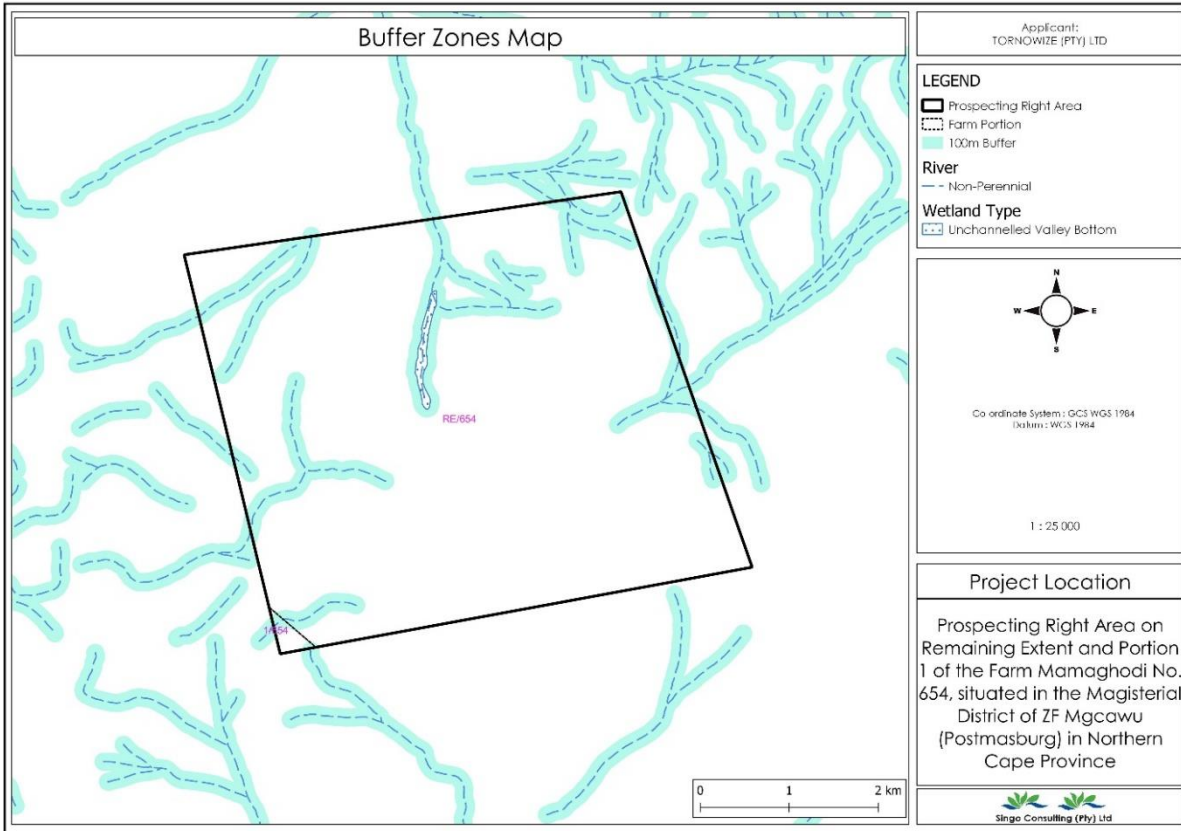
**Geology Map of the proposed area**



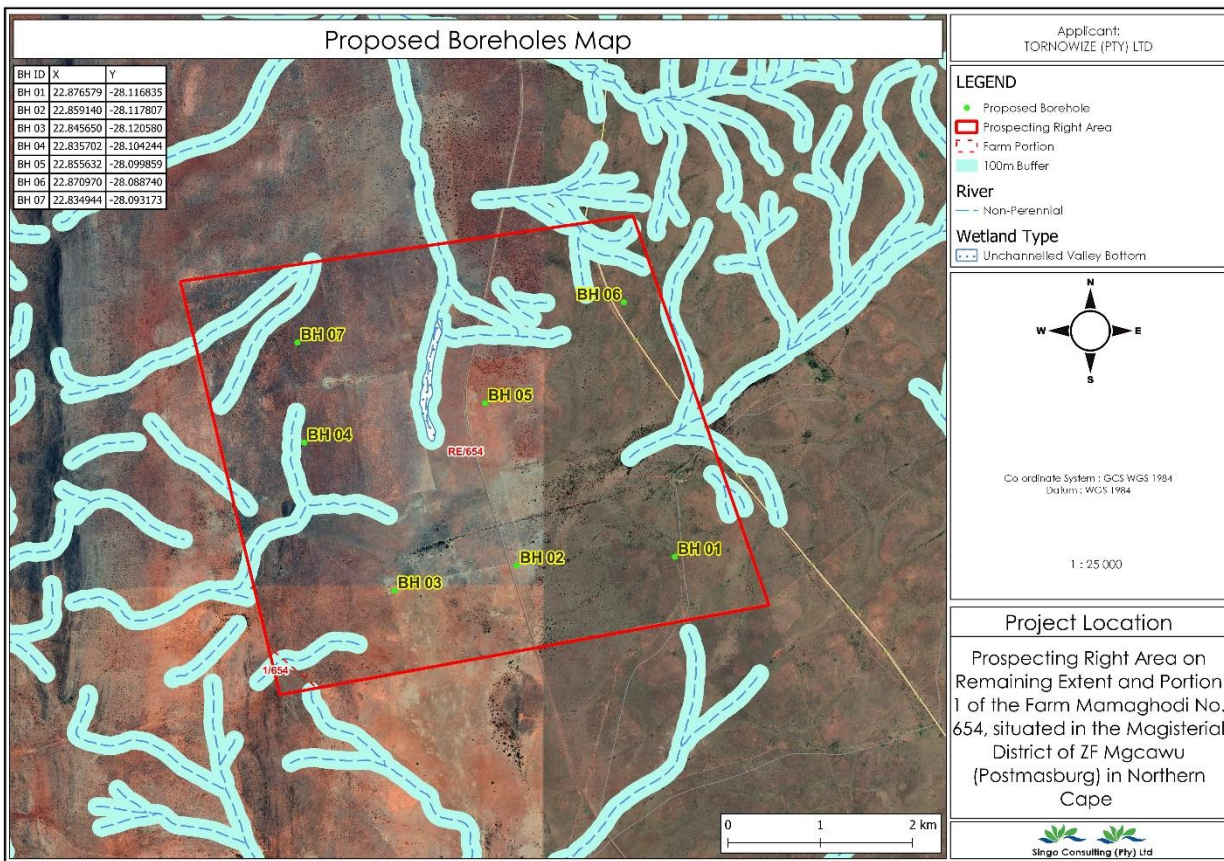
**Soil Classes map of the proposed area**



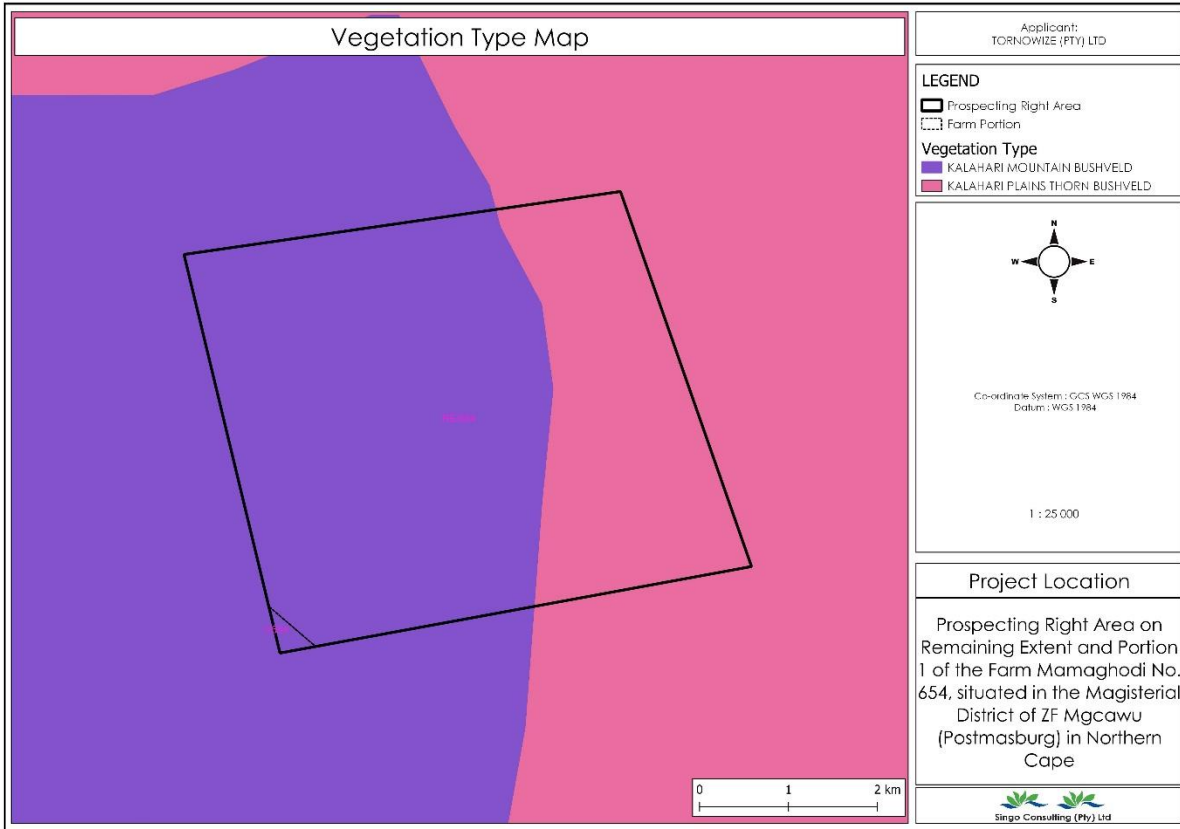
## Buffer Map of the proposed area



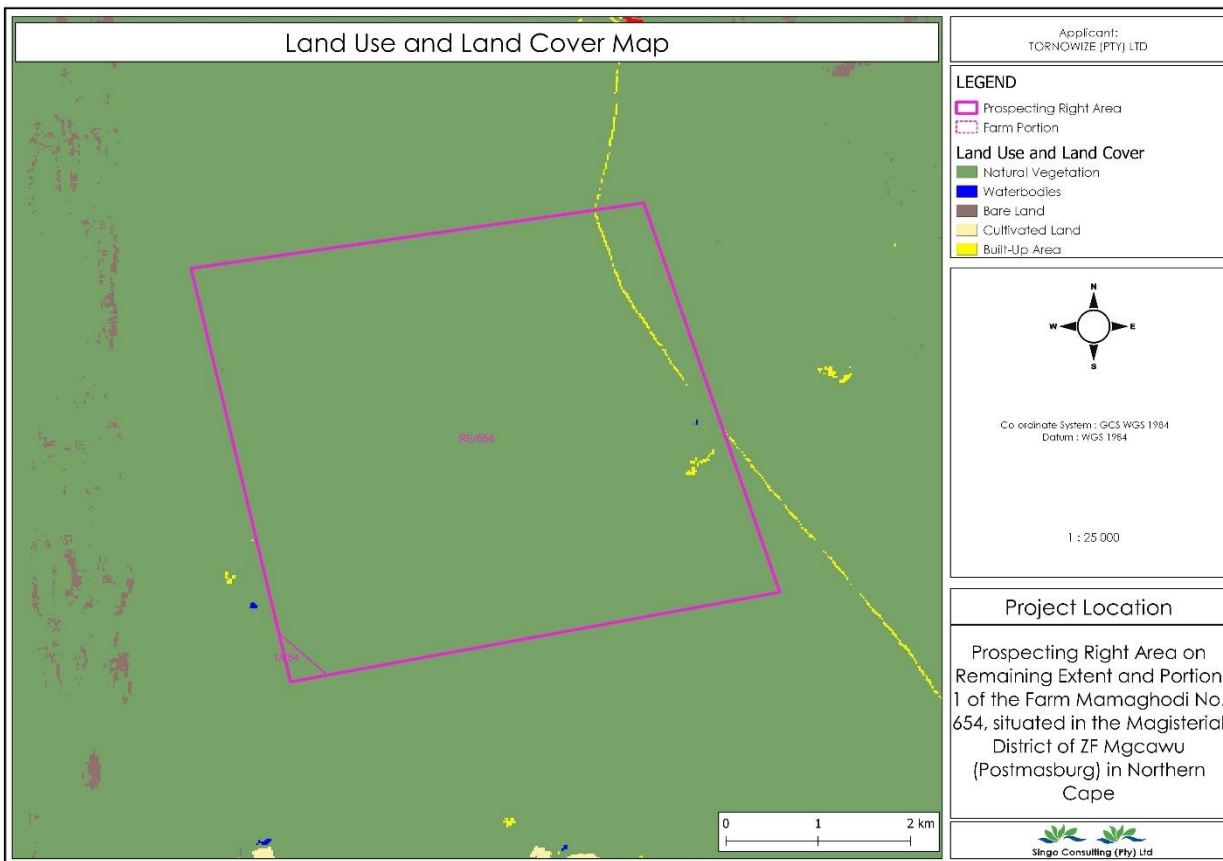
## Borehole Map



### Vegetation Map of the proposed area



### Land Use Map of the proposed area



# BACKGROUND INFORMATION DOCUMENT

PROSPECTING RIGHT APPLICATION  
FOR GEMSTONE, COBALT, LEAD, GOLD,  
COPPER, NICKEL, SILVER AND ZINC  
ORE ON THE REMAINING EXTENT AND  
PORTION 1 OF THE FARM MAMAGHODI  
654



## APPLICANT:



## CONSULTANT:



DMRE REF: NC  
30/5/1/1/2/13204 PR

## INTRODUCTION AND THE PURPOSE OF THIS DOCUMENT

Singo Consulting (Pty) Ltd has been appointed as an independent Environmental Consultant by **TORNOWIZE (PTY) LTD** to conduct Environmental Impact Assessment (EIA), Compile an Environmental Management Programme report (EMPr) and undertake Public Participation Process (PPP). This is done for processes of acquiring Environmental Authorization for the proposed Prospecting Right Application within **Remaining Extent and Portions 1** of the Farm **Mamaghodi 654** situated in the Magisterial District of **Postmasburg** in **Northern Cape Province**. The Department of Mineral Resources and Energy (DMRE) reference for this project is: **NC 30/5/1/1/2/13204 PR**.

The Purpose of this Background Information Document (BID) is to provide a perfunctory description of the project and outline EIA processes to be followed and contributions from Interested and Affected Parties (I&APs) on the issues related to the project in question, allowing comments and concerns to be raised. Results of the EIA through a BAR & EMPr, both negative and positive will be submitted and made available to the relevant Departments such as the Department of Mineral Resources and Energy and if requested, Environmental Affairs, Water and Sanitation, Landowners and other interested stakeholders.

This Background Information Document therefore requests and invite I&APs to comment on the environmental, physical, social and economic impacts associated with the proposed Prospecting Right activities. Be assured that your comments are of great value as they ensure that relevant issues are taken into consideration. Attached at the end of this document is a registration form, kindly complete it and send it back to **Ms Sithokozile Gcabashe** through given means of communication also attached there.

## PROJECT DESCRIPTION

Prospecting Right Application has been submitted for the exploration of Gemstone, Cobalt, Lead, Gold, Copper, Nickel, Silver and Zinc Ore resource on the properties mentioned above. The project area is located in Tsantasabane Local Municipality, under ZF Mgcawu District in the Northern Cape Province. The project is located approximately 22 km Southeast of Olifantshoek and 33 km Northwest of Postmasburg. The proposed project area covers 2639 hectares.

Prospecting activities will be undertaken over a period of five (5) years and are designed in phases, each phase conditional on the success of the previous phase. Both invasive and non-invasive methods will be implemented. Desktop study of the area has commenced, and this incorporates desktop geographical and geological mapping. This will be followed by detailed geochemical and geotechnical surveys. In turn, this is followed by detailed geophysical studies and later, a detailed drilling, sampling, assaying and mineralogical study. Diamond core drilling methods will be utilised to prospect in situ ore deposits. To ensure or minimise impacts on the receiving environment, All the activities will be guided by the project's EMPr.

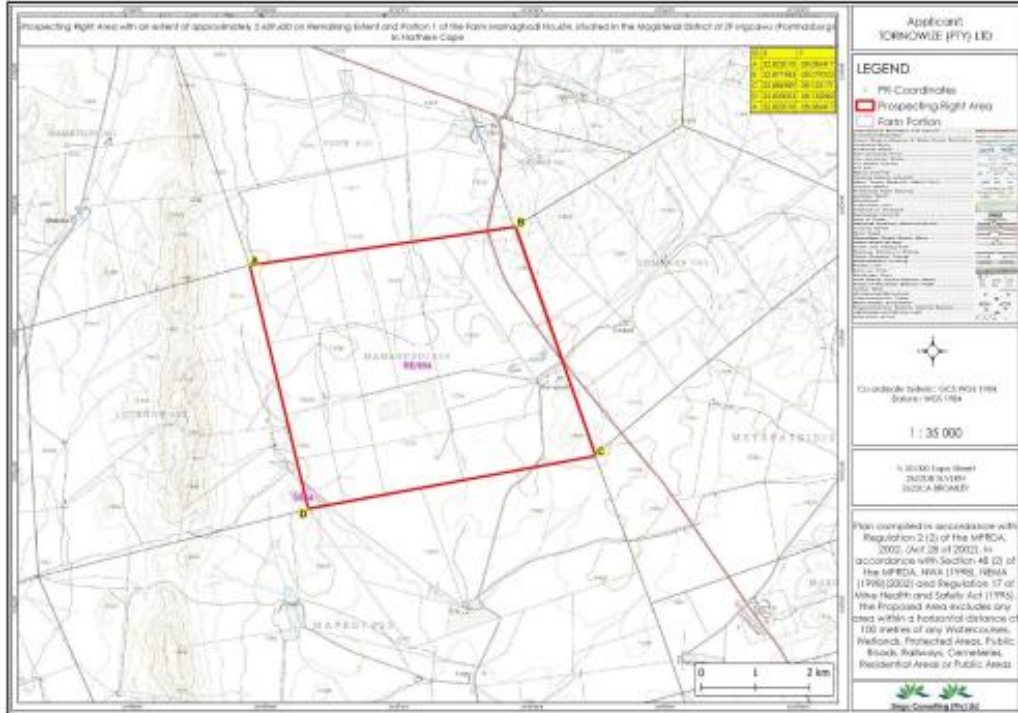
## REGULATORY FRAMEWORK

The EIA process through BAR & EMPr to be undertaken will be conducted in accordance with the National Environmental Management Act (Act 107 of 1998) and Environmental Impact Assessment regulations as amended (April 2017).

The activity is to extract the existence and occurrence of the applied mineral; therefore, this will be conducted in accordance with Mineral and Petroleum Resources Development Act, (Act 28 of 2002). Other regulatory guidelines to be followed include: National Water Act, 1998 (Act 36 of 1998), National Air Quality Standards (GN 1210: 2009) and National Dust Control Regulations (GN No. 827 of 2013).

These all will accurately be followed to ensure that identified impacts are assessed and mitigated according to their significance so that the protection of the receiving environment and populations is met.

## PROJECT LOCATION



**Figure 1: Regulation 2.2 map with coordinates**

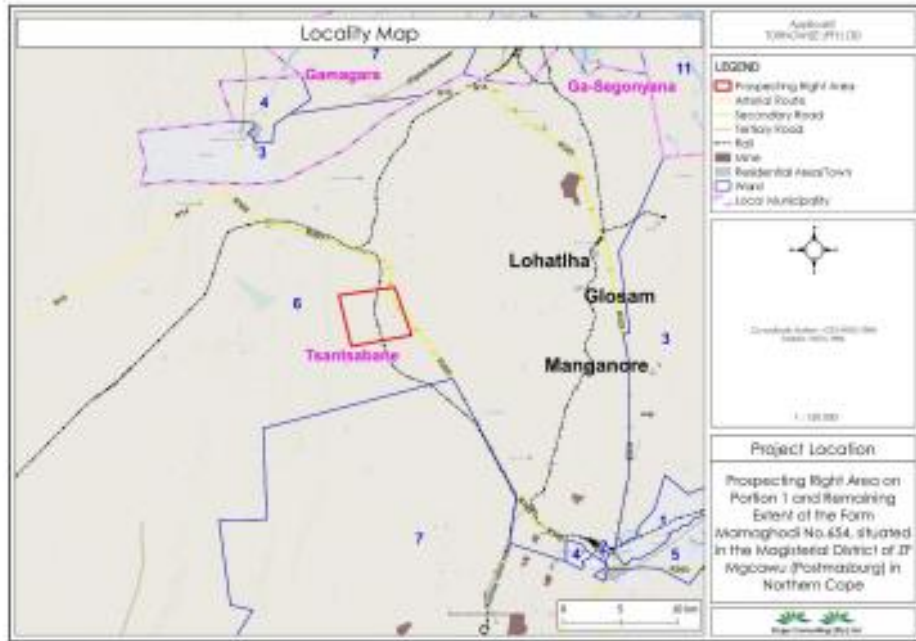


Figure 2: Locality Map



## BASIC AND ENVIRONMENTAL IMPACT ASSESSMENT & PUBLIC PARTICIPATION PROCESS

These are planning and decision-making tools used in identifying potential environmental, economic, and social consequences of a proposed activity prior the commencement of the activity. These together with the public issues and concerns are to be identified sufficiently early so that they can be assessed and incorporated into the final reports when/if necessary.

These tools are regarded crucial because they are utilized in order to demonstrate to the relevant stakeholders about the potential impacts, which in turn leads to the Prospecting Right application process being a success or declined.

Public Participation remains a cornerstone of the Environmental Impact Assessment process. It ensures provision of relevant and enough information with openness and transparency. Public Participation Process presents to I&APs, an opportunity to understand what the project is about, and affords them an opportunity to make valuable contributions towards the EIA process.

I&AP can be any person, group of persons or organization interested in or affected by the proposed activity, and any organ of state that may have jurisdiction over any aspect of the activity.

Kindly keep the following dates:

- Announcement of the project: **9<sup>th</sup> of September 2022**

The BAR & EMPr will be available at **Postdene Public Library (13 springbok street, Postmasburg, Northern Cape)** and a soft copy(via emails; Dropbox link; Google drive; WeTransfer, etc) upon request from Singo Consulting (Pty) Ltd using the detailed Environmental Technician's contacts.







## Appendix 4: Proof of Site Assessment



## Appendix 5: Screening Report

## Appendix 6: Specialist Studies