

**DRAFT BASIC ASSESSMENT REPORT  
DIAMOND (GENERAL, ALLUVIAL AND KIMBERLITE) PROSPECTING  
RIGHT APPLICATION ON PORTION OF PORTION 1 AND REMAINING  
EXTENT OF THE FARMS KLEIN LEEUWKUIL 1193 RD AND  
GANNALAAGTE 469 RD**

**IN THE BOSHOFF DISTRICT, FREE STATE PROVINCE.**

**SEPTEMBER 2022**

**DMR REFERENCE: FS 30/5/1/1/3/2/1/10649 EM**



## mineral resources

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

### **FINAL 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).

**NAME OF APPLICANT:** BAY TOWE PROPERTIES 19 (PTY) LTD

**TEL NO:** ++27 82 874 8311

**FAX NO:** N/A

**POSTAL ADDRESS:** P.O. Box 93000  
Boordfontein – West  
0201

**PHYSICAL ADDRESS:** 2421 Extension m, Soshanguve 0152

**FILE REFERENCE NUMBER SAMRAD:** FS 30/5/1/1/3/2/1/10649 EM

**COMPILED BY:** Davhana Geotech Solution (PTY) LTD

**DATE:** September 2022

---

## **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 authorization 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.

## **OBJECTIVE OF THE BASIC ASSESSMENT PROCESS**

The objective of the basic assessment process is to, through a consultative process—

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives,
- (d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on 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;
  - (e) Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
    - (i) Identify and motivate a preferred site, activity and technology alternative;
    - (ii) Identify suitable measures to manage, avoid or mitigate identified impacts; and
    - (iii) Identify residual risks that need to be managed and monitored.

## **EXECUTIVE SUMMARY**

Bay Tower Properties 19 Pty Ltd has applied for an Environmental Authorisation for the proposed prospecting activities for Diamond (Alluvial, General and Kimberlite) on Portion of Portion 1 and Remaining Extent of farms Leeuwkuil 1193 RD and Gaanalaagte 469 RD: situated within Administrative District Boshof Free State.

The application has been lodged in terms of Regulation 16 of the National Environmental Management Act (Act 107 of 1998) (NEMA): Environmental Impact Assessment (EIA) Regulations, 2014 and Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). In terms of the NEMA (Act 107 of 1998). EIA regulations of 2014 (amended April 2017), the proposed prospecting activity triggers Activity 20 and 22 of Listing Notice 1 GNR 327 and the applicant cannot proceed without an Environmental Authorisation.

Davhana Geotech Solutions (Pty) Ltd has been appointed by Bay Tower Properties 19 as an independent environmental assessment practitioner (EAP) to undertake the Environmental Impact Assessment for the proposed prospecting right project. The purpose of the study is to identify and assess all the possible impacts that may arise from the implementation of the proposed project and also to find the most effective way of enhancing environmental benefits and mitigating potential impacts to encourage sustainable development in the area.

The proposed prospecting activities will be undertaken over a period of five (5) years and the activities will be conducted in progressive phases which include Non-invasive and invasive methods. The Non-invasive method will include desktop studies and geological mapping, whereas Invasive methods will include drilling and sampling.

The potential risks and key issues identified were based on consultation with I&APs, internal process based on similar projects and the current state of the environment of the site. A description of the biophysical and social environment is included in the report, to ensure that all potential risks and issues are taken into consideration in all phases of the proposed project. A brief description of the potential aspects that will be impacted include the following:

- Air quality
- Fauna
- Flora
- Waste
- Ground water
- Geology
- Soils
- Cultural and Heritage
- Socio-economic

This document FINAL BASIC ASSESSMENT REPORT (FBAR) and the Environmental Management Programme (EMPr), was compiled in terms of the EIA Regulations of 2014 (amended, April 2017).



## Table of Contents

1	CONTACT PERSON AND CORRESPONDENCE ADDRESS.....	1
1.1	Details of .....	1
1.1.1	Details of the EAP.....	1
1.1.2	Expertise of the EAP.....	1
2	LOCATION OF THE OVERALL ACTIVITY. ....	2
2.1	LOCALITY MAP.....	2
3	DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.....	3
4	LISTED AND SPECIFIED ACTIVITIES .....	4
5	DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN .....	4
6	POLICY AND LEGISLATIVE CONTEXT .....	6
7	NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES. ....	7
8	MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE.....	8
9	FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE.....	8
9.1	Details of the development footprint alternatives considered.....	8
9.1.1	Property on which or location where it is proposed to undertake the activity. ....	8
9.1.2	Type of activity to be undertaken.....	8
9.1.3	Design or layout of the activity.....	9
9.1.4	Technology to be used in the activity .....	10
9.1.5	Operational aspects of the activity.....	10
9.1.6	Option of not implementing the activity.....	10
10	DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED.....	11
10.1	Summary of issues raised by I&APs.....	13
11	BASELINE ENVIRONMENT.....	14
11.1	Climate.....	14
11.2	Temperature .....	14
11.3	Rainfall .....	14
11.4	Wind.....	15
11.5	Topography .....	16
11.6	Geology and Soil.....	16
11.7	Biodiversity.....	17
11.7.1	Vegetation.....	17
11.7.2	Critical Biodiversity .....	18
11.7.3	Noise and Air pollution.....	19

11.8	Hydrology.....	19
11.9	Cultural Heritage .....	20
11.10	Socio-economy .....	20
11.10.1	Spatial context .....	21
11.11	Economy Structure and Performance.....	22
11.12	Description of specific environmental features and infrastructure on the site. ....	23
12	IMPACTS AND RISKS IDENTIFIED.....	24
12.1	Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks .....	24
12.2	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. ....	27
12.3	The possible mitigation measures that could be applied and the level of risk.....	28
12.4	Motivation where no alternative sites were considered.....	29
12.5	Statement motivating the alternative development location within the overall site.....	29
12.6	Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site.....	29
13	ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK .....	31
13.1	Environmental impact statement.....	35
13.1.1	Summary of the key findings of the environmental impact assessment.....	35
13.1.2	Final Site Map .....	35
13.1.3	Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives; .....	35
14	PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR.....	36
15	ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION .....	37
16	DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.....	38
17	REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED.....	39
17.1	Reasons why the activity should be authorized or not.....	39
17.2	Conditions that must be included in the authorization.....	39
18	PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED. ....	40
19	UNDERTAKING .....	40
20	FINANCIAL PROVISION.....	40
20.1	Explain how the aforesaid amount was derived. ....	40
20.2	Confirm that this amount can be provided for from operating expenditure. ....	41
21	SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY.....	41



21.1	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:-	41
21.1.1	Impact on the socio-economic conditions of any directly affected person.	41
21.1.2	Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.	42
21.1.3	Other matters required in terms of sections 24(4) (a) and (b) of the Act.	42
1	DETAILS OF THE EAP	43
2	DESCRIPTION OF THE ASPECTS OF THE ACTIVITY	43
3	COMPOSITE MAP	43
4	DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS	43
4.1	Determination of closure objectives.	43
4.2	Volumes and rate of water use required for the operation.	44
4.3	Has a water use license has been applied for?	44
5	IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES	45
6	FINANCIAL PROVISION	50
6.1	Determination of the amount of Financial Provision.	50
6.2	Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.	50
7	CONFIRM SPECIFICALLY THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNER AND INTERESTED AND AFFECTED PARTIES.	51
8	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.	51
8.1	Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.	52
8.2	Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.	53
8.3	Confirm that the financial provision will be provided as determined.	53
9	MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREON, INCLUDING	54
10	INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ ENVIRONMENTAL AUDIT REPORT.	57
11	ENVIRONMENTAL AWARENESS PLAN	57
11.1	Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.	57
11.2	Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.	58
12	SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY	58
13	UNDERTAKING	59

TABLE OF FIGURES

Figure 1: Locality Map showing proposed prospecting area 1: 50 000 ..... 2  
 Figure 2: Locality Map showing proposed prospecting right area (1: 250 000) ..... 3  
 Figure 3: Shows Maximum, Minimum and average temperatures of Boshof ..... 14  
 Figure 4: Rainfall Data over the 10 years in Boshof ..... 15  
 Figure 5: Wind chart data ..... 15  
 Figure 7: Geological Map of the Boshof area ..... 16  
 Figure 8: vegetation Map ..... 17  
 Figure 9: Sensitivity Map ..... 19  
 Figure 10: Cultural Heritage importance Map ..... 20  
 Figure 11: Lejweleputswa district population pyramid ..... 21  
 Figure 12: Population distribution with the Lejweleputswa district ..... 22  
 Figure 13: Bay Tower Properties quantum calculations. .... 41

LIST OF TABLES

Table 1: Listed activities in terms of NEMA ..... 4  
 Table 2: Applicable legislations ..... 6  
 Table 3: Summary of issues raised by I &APs ..... 13  
 Table 4: Sectoral composition of Lejweleputswa's economy by local municipalities: 2014 ..... 23  
 Table 5: Impacts identified ..... 24  
 Table 6: Status of impact ..... 25  
 Table 7: Extent of Impacts ..... 25  
 Table 8: Duration of impacts ..... 25  
 Table 9: Severity of Impacts ..... 26  
 Table 10: Probability of impacts ..... 26  
 Table 11: Significance of Impacts ..... 26  
 Table 12: Perceived Significance of Impacts ..... 26  
 Table 13 Positive and Negative impacts ..... 27  
 Table 14: Impact Assessment ..... 31  
 Table 15: Impacts to be mitigated ..... 45  
 Table 16: Rehabilitation Plan ..... 51  
 Table 17: Mechanisms for monitoring compliance ..... 55  
 Table 18: Environmental Awareness Plan ..... 57



**PART A**  
**SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT**

**1 CONTACT PERSON AND CORRESPONDENCE ADDRESS**

**1.1 Details of**

**1.1.1 Details of the EAP**

Name of The Practitioner: Vhangani Muger

Tel No.: +2781 464 0109

Fax No. :

e-mail address: [Vmugeri17@gmail.com](mailto:Vmugeri17@gmail.com)

**1.1.2 Expertise of the EAP.**

**1.1.2.1 The qualifications of the EAP**

Refer to Appendix A

**1.1.2.2 Summary of the EAP's past experience.**

<b>EAP's past experience</b>	
<b>Name</b>	<b>Background</b>
Vhangani Muger	<p>Vhangani Muger Holds a Bachelor of Science degree majoring in Geology and Environmental Management from the University of Johannesburg (2009 – 2012) and Honours in Geology from the University of Limpopo (2013). Before Joining Tshikovha Green and Climate Change Advocates, Mr Muger worked for the Department of Environmental Affairs as a meteorological technician in Gough Island from July 2014 to October 2015, then Marion Island from January 2016 to May 2017. September 2017 Mr Muger Joined Tshikovha Green and Climate Change Advocates as a junior engineering geologist. Mr Muger interests vary from geotechnical studies, Geohydrological studies, Integrated Waste Water Management Plan and Water Use License Applications, Environmental Compliance Audits, Landfill Audits, and EIA.</p> <p>Since Joining Davhana Geotech Solutions, Mr Muger has been directly involved in conducting Geohydrological studies in Fortress Quarry for Corobrik, Geohydrological studies for Letwaba Petroleum's (Pty) Ltd in Greenside, and water monitoring analyses for Mangwe Mining. He has been also involved in several geotechnical projects as an assistant in Makhado and Greenside. Mr</p>

Mugeri has been involved in mine environmental audits, at Mangwe Mining, Construction environmental compliance audit in Graskop outdoor elevator and restaurant. Mr Mugeri has been working on Landfill audits in the City of Ekurhuleni landfills, Thulamela Local Municipality and Nkomazi Local Municipality. Mr Mugeri worked on compiling closure report for the borrow pit in Ga – Ntata within the Greater Letaba Municipality.

## 2 LOCATION OF THE OVERALL ACTIVITY.

### 2.1 LOCALITY MAP

(Show nearest town, scale not smaller than 1:250000).

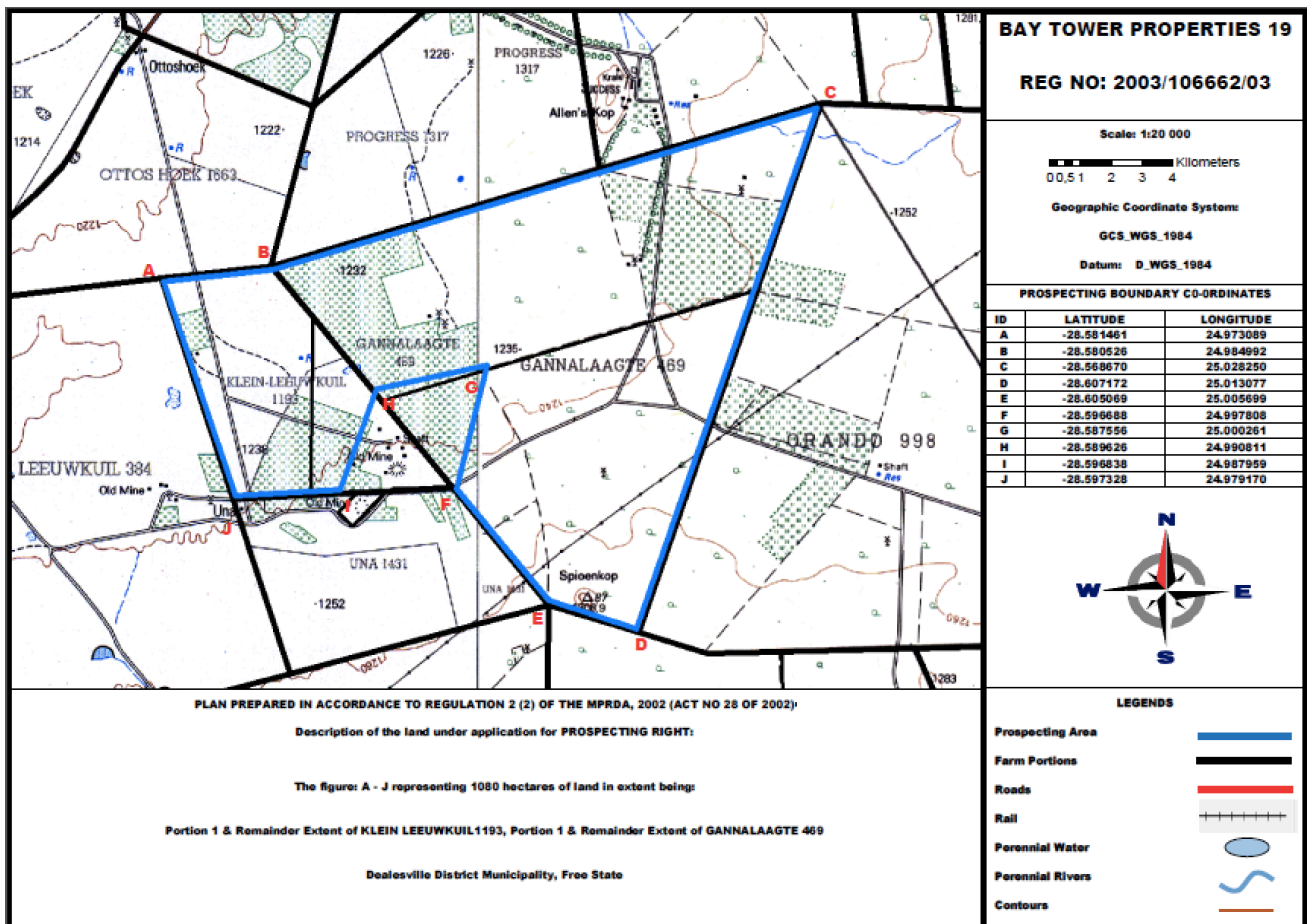


Figure 1: Locality Map showing proposed prospecting area 1: 50 000

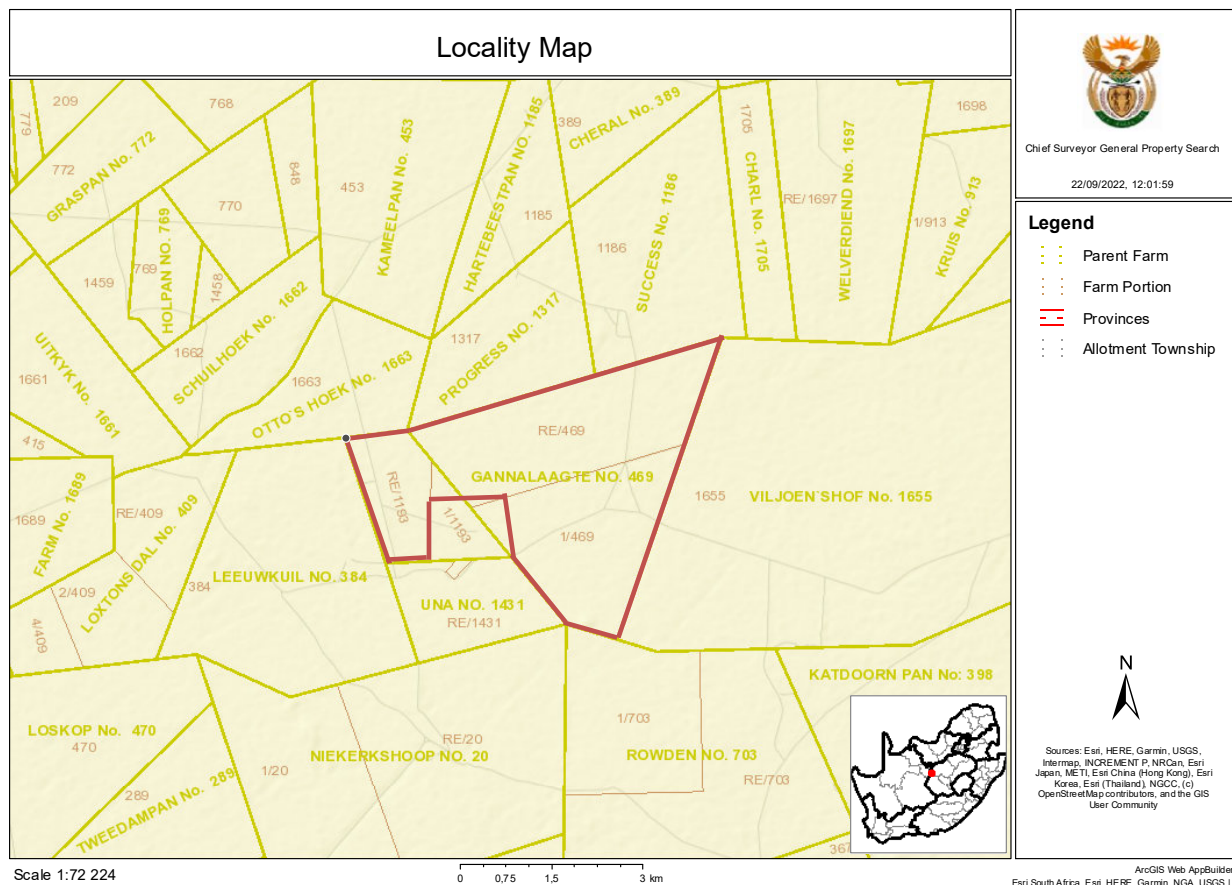


Figure 2: Locality Map showing proposed prospecting right area (1: 250 000)

A larger locality maps will be attached as Appendix 3

### 3 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.

Please take note: Prospecting tries to find out whether a mineral occur in an area, and if it does, how much of the mineral occur there; it is not mining. Prospecting means intentionally searching for any mineral by means of both non-invasive and invasive methods which disturbs the surface or subsurface of the earth. Prospecting starts with desktop studies that survey the land and gather information with no physical disturbance. The results from this study then allow the applicant to make an informed decision on where to drill, with minimal disruption to the existing landowner and the biophysical environment. All disturbances caused by the prospecting operations on the properties will be rehabilitated on a concurrent basis. Please note that prospecting does not necessarily guarantee mining of the deposit in the future.

In Phase 1 (Desktop study) there will be no activity on site apart from a few site visits. However Phases 2 to 5 will require work on site. Phase 2, 3, 4 and 5 Site Visit, Geomorphological Studies, Geophysical Survey, Drilling and Pitting will require access to the farm to be able to carry out a farm wide soil geochemistry and geophysical survey where existing farm access roads will need to be used. When drilling is carried out it is possible that access roads will need to be created. This will be discussed with the respective landowners. Since exploration

is temporary in nature no permanent structures will be constructed, negotiations and agreements will be made with the farm owners to set up temporary site camps for accommodation for the exploration team, access roads, storage and ablution facilities. The location of holes that will be drilled will be determined after desktop study results.

#### 4 LISTED AND SPECIFIED ACTIVITIES

Table 1: Listed activities in terms of NEMA

NAME OF ACTIVITY (E.g. For prospecting - drill site, site)	Aerial extent of the Activity Ha or m <sup>2</sup>	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
Drilling	4000 Ha is the cadastral area for the prospecting area but the footprint of all 60 boreholes will be 0.3 Ha and one borehole will be 0.005 Ha (50 m <sup>2</sup> ) per drilling site	X	GNR 327 (as amended 07 April 2017) Listed Activity 20
Rehabilitation of drilling site	1.023 Ha	X	GNR 327 (as amended 07 April 2017) Listed Activity 22
Site Preparation	0.2 Ha		
Access Roads	0.045 ha		
Sampling and storage	Less than 300 m <sup>2</sup>		

#### 5 DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

(Describe Methodology or technology to be employed, including the type of commodity to be prospected/mined and for a linear activity, a description of the route of the activity)

The commodity to be prospected is Alluvial Diamond. The prospecting activities are anticipated to be undertaken for a period of 5 years of which only 2 years will involve on site drilling activities. These prospecting activities will be conducted in phases, with the succeeding phase depending on the results and success of preceding phase. The intended phases in sequence are indicated below:

- Phase 1- Desktop Study:
  - Literature Review

Before any field work can commence, a desktop study will be conducted to obtain comprehensive knowledge of the regional geology of the drainage basin on which the proposed prospecting area is located, the constituent lithologies of the gravel being prospected for, the geomorphic and climatic factors which have affected the exploration area, the type of deposit to be sought and any post-depositional processes which may have affected the alluvial deposits being considered for exploration.

This comprehensive information will be obtained through the collection and interpretation of all available data such as aerial photos, orthophotos, aeromagnetic data, topo-cadastral maps, geological maps, historic

---

exploration programmes and any other published literature and maps relating to alluvial diamond deposits in the Boshof area.

All the information compiled during the desktop study will assist in constructing a concise, comprehensive regional model upon which to base any diamond exploration program on the proposed prospecting area.

- Phase 2- Invasive prospecting (Drilling)

A site visit will be conducted to verify the desktop study findings.

- Phase 3- Geomorphological Studies

Geomorphological studies will be conducted to determine whether the palaeo-river straddles the proposed prospecting area, and to determine the direction of its flow..

- Phase 4- Geophysical Survey

The Electrical Resistivity method will be used to confirm the presence of gravel deposits in the river channel.

- Phase 5 - Reverse Circulation (RC) Drilling And Pitting:

Reverse circulation percussion drilling will be conducted to delineate the deposit. The exact number of boreholes and their locations will depend on the result of Phase 1: Desktop study, Phase 2: Site visit, Phase 3: Geomorphological studies and Phase 4: Geophysical Survey. For budget purposes, 60 RC holes will be drilled. The locations of the boreholes will be communicated to the DMR once finalized.

#### *Pitting*

The exact number of pits and their locations will depend on the result of RC drilling. The pits are likely to be dug in the vicinity of the paleo river channel. Should the pitting results prove negative, the pits will be backfilled, and should the results prove positive, they will be left open to cater for bulk sampling. A Section 20 application will be submitted should bulk sampling be required.

- Phase 6 – Pre-feasibility Study

After RC drilling and pitting and possibly after bulk sampling, should the first-pass recovery tests from RC drilling and pitting samples prove positive for diamonds, detailed test work program (bulk sampling) will be considered to assist in making a final project decision. Should programme prove to be successful; a pre-feasibility study will be conducted to determine the viability of a mining operation prior to applying for a mining right application.

Pre-feasibility studies usually include a range of options for the technical and economic aspects of a project and are used to justify continued exploration, to complete the required project permitting or to attract a joint venture partner. The aim of a pre-feasibility study is to select the preferred option (base case scenario) for the project development. This base case scenario is then developed in enough detail to underpin decisions to



devote any additional funds required to move the project through subsequent stages of development and to a final feasibility study..

## 6 POLICY AND LEGISLATIVE CONTEXT

Table 2: Applicable legislations

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
Constitution of the Republic of South Africa, 1996	During Operational and Decommissioning phase of the proposed development	Rights of all personnel who are directly or indirectly involved in the project has been respected and their concerns attended to during public consultation
National Environmental Management Act, 1998 (Act No. 107 of 1998)	During Planning phase of the project, the proposed development is listed in GNR 327 Listing Notices 1. Activity Number 20 is triggered.	This is the key national legislation underpinning environmental Authorisations in South Africa. In terms of NEMA a Basic Assessment has been applied for. An impact Assessment is included and the appropriate mitigation measures and recommendations are made.
Mineral and Petroleum Resources Development Act	The prospecting right activities requires the prospecting right from the Department of Mineral Resources	A Prospecting Right Application has been submitted to the DMR by the Applicant ( <b>FS 30/5/1/1/3/2/1/ (10649)</b> EM
National Heritage Resources Act (Act No 25 of 1999)	All cultural and heritage resources should be protected if or when encountered	A permit may be required if identified cultural/heritage sites on the proposed site will be disturbed or destroyed as a result of the prospecting activities.
National Environmental Management: Air Quality Act (Act No 39 of 2004)	Minimal Dust from moving vehicles and drilling can be generated.	Standards for particulates and dust used in Impact Assessment to regulate the concentration of a substance that can be tolerated without any environmental deterioration
Occupational Health and Safety Act (No 85 Of 1993)	During operational phase, contractors and employees should adhere to the requirements of this legislation for a safe working environment.	The Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of machinery; the protection of persons other than persons at work, against hazards to health and safety arising out of or in connection with the activities of persons at work.
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	The prospecting activities may encounter critical endangered species	The appropriate buffer areas and sensitive areas to be excluded are applied. Species of conservation concern are protected or where required, a search and rescue operation will be carried out by a professional registered scientist. Alien invasive species management

National Forests Act (Act No. 84 of 1998)	During the Site establishment, there may be a clearance of vegetation which includes trees.	In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree.
Mine Health and Safety Act ,1996 ( No. 29 of 1996	The mine Health and Safety Act, 1996 (No, 29 of 1996) provides for the protection of the health and safety of employees and other persons at mines and, for that purpose- promote culture of health and safety	Bay Tower properties will be required to meet the requirements of the Mine Health and Safety Act during invasive and non-invasive prospecting phases.
National Water Act (Act No. 36 of 1998)	The proposed activities requires minimum use of water, however it will not consume enough water to trigger a water use license application.	No water use license is required for this application.
National Environmental Management: Waste Act, Act 59 of 2008	Management measures environmental awareness plan	The generation of potential waste will be minimized through ensuring employees of the drilling contractor are subjected to the appropriate environmental awareness campaign before commencement of drilling. All waste generated during drilling activities will be disposed of in a responsible legal manner.
Conservation of Agricultural Resources Act, 1983	The overall Prospecting Activities	The project should promote the conservation of soil, water and vegetation
Section 34 of the Local Government: Municipal Systems Act, 2000 (ACT 32 of 2000)	The overall prospecting activities	Municipal System Act compels municipalities to draw up the IDP's as a singular inclusive and strategic development plan. In terms of section 26 of the MSA, A municipality produces an IDP every five year.
National Development Plan 2030	The overall prospecting activities	The NDP aims to eliminate poverty and reduce inequality by 2030. According to the plan, South Africa can realize these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnership throughout society.

## 7 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

---

Should prospecting prove successful and a resource is quantified, it would indicate a potential viable economic activity in the form of mining. Mining will contribute greatly to local economic growth through direct employment, future business opportunities, royalties and tax revenues.

The potential benefits of the proposed project are:

- Infrastructure development in the neighboring town.
- Needed job creation and other local, provincial and national socio-economic benefits.
- Local growth in the economy in the surrounding areas, and for local businesses
- Economic benefits for contractors and other suppliers of goods and services.

## **8 MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE.**

The proposed site was selected based on extensive research and also following on information from previous prospecting activities in the area. There are known alluvial diamonds deposits in the area and The are companies that has mined in the past for alluvial diamond and some are still mining upstream from the preferred site. In terms of the technologies proposed, the proposed prospecting methods (i.e. RC drilling) have been chosen based on the known success of prospecting using the above method. 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.

## **9 FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE.**

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

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

With reference to the site plan provided as **Appendix 4** and the location of the individual activities on site, provide details of the alternatives considered with respect to:

The development can only be on the predetermined location as this site was chosen for its economic importance.

#### **9.1.1 Property on which or location where it is proposed to undertake the activity.**

No location alternative has been considered. The applicant's property or location is being guided by the presence of higher probability of alluvial diamond deposits thus not any location or property is suitable for the proposed activity.

#### **9.1.2 Type of activity to be undertaken**

##### **Description of planned Non-invasive Activities**

Desktop studies to be undertaken over the area would include studying of all available geological maps/plans, aerial photographs, topography maps and any other related geological information about this area. Upon

---

completion of the desktop study, field geological mapping of the area will be conducted, and Geomorphological Studies and Geophysical Survey will be conducted to map out the occurrence of alluvial diamonds in the paleo streams

### **Description of planned Invasive Activities**

This Prospecting Work Program is designed to establish the extent of the area of the alluvial and kimberlite diamonds deposits, and all available geological information will be utilized to better predict occurrence of alluvial diamonds and the economic viability of the Project.

Borehole planning will involve drilling program design and implementation procedures to ensure that drilling is conducted as safe and economic as possible. This phase will include cooperation between the drilling contractor, services contractors, geologists and other technical specialists. The planning process will also ensure that the health and safety of all working on the drilling sites and the environment are protected. It is envisaged that 60 core boreholes will be drilled at an average depth of 100m, the location for proposed borehole will be determined by the results from the Non – Invasive techniques of prospecting.

Reverse circulation percussion drilling will be conducted to delineate the deposit, holes are set up similarly to conventional holes, and the most important element of RC drilling is the sample. The goal is to capture as much as possible from the hole, preferably through the inner tube. High inside samples circulation is achieved by having the appropriate clearance between the bit shroud and the hole wall. This should forge a seal, thereby forcing the samples inside.

- Sample Analysis

The borehole information will be logged on site and captured in the Microsoft Excel while the database is being compiled using the Rockworks software. The 3-D geological model will be created and analysed by the Datamine 3-D modelling package. All samples collected throughout drilling will be submitted to a SANAS-accredited laboratory for comprehensive analyses and metallurgical recovery tests aimed at determining diamond quality.

#### **9.1.3 Design or layout of the activity**

Since exploration is temporary in nature limited 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.

Various designs and layouts for the prospecting operations have been considered and the layout has been altered to avoid potentially high impacted sensitivity areas.

The infrastructure/ processing area will be located in existing disturbed areas to ensure that less land will be lost and outside sensitive areas.

---

#### 9.1.4 **Technology to be used in the activity**

The RC drilling technique is the only major method used in exploring for placer 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.

#### 9.1.5 **Operational aspects of the activity.**

Fluvial diamond are found at basal strata of the paleochannels, the first course of action is to find the paleochannels and depth of basal strata through drilling, and record the results of each borehole. The RC drilling is the preferred method at this stage of the project based on the its effectiveness on this type of strata.

#### 9.1.6 **Option of not implementing the activity.**

The 'no-go' alternative is the option of not undertaking prospecting activities on the project site. The no-go option assumes the site remains in its current state. Drilling is required in order to investigate the potential and feasibility of the minerals on site. There is no potential for any future investment in a mine without the confirmation of the mineral resources availability which can only be obtained from drilling activities. Should the prospecting right not be granted, effectively the minerals being applied for will not benefit the local community. The socio-economic benefit and most notably the future employment and potential of mine development will be lost if the prospecting activities are not implemented in order to determine the feasibility of any deposits that may occur within the area.

The mining sector forms part of the backbone of the South African economy. Diamond prospecting can give rise to the local economy and also add to the scientific body of knowledge of the area.

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 which may lead to ground water contamination;
- No excessive generation of wastes from the proposed activities;
- No compaction of path ways affecting the growth pattern of grasses and movement of micro animals;
- No disturbance of wild life in the surrounding game farms will occur; and
- The biodiversity will not be altered as there will be no removal of plants and induced noise from prospecting activities.

---

## 10 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

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

- a) Identification of key Interested and Affected Parties (affected and adjacent landowners) and other stakeholders (organs of state and other parties);
- b) Placement of site notices on farms, and other accessible public areas;
- c) Formal notification of the application to key Interested and Affected Parties and other stakeholders;
- d) Consultation and correspondence with I&APs and Stakeholders and the addressing of their comments. This appendix will be included in the Final Basic Assessment; and
- e) Newspaper adverts.

The objectives of PPP include:

- Provides Interested and Affected parties (I&APs) with an opportunity to voice their support, concerns and raise questions regarding the project, application or decision;
- Provides an opportunity for I&APs, Environmental Assessment Practitioners (EAPs) and the Competent Authority (CA) to obtain clear, accurate and understandable information about the environmental, social and economic impacts of the proposed activity or implications of a decision;
- Provides I&APs with the opportunity of suggesting ways of reducing or mitigating negative impacts of an activity and for enhancing positive impacts; and
- Enables the applicant to incorporate the needs, preferences and values of affected parties into the application.

The PPP must comply with the several important sets of legislation that require public participation as part of an application for authorisation or approval; namely:

- The Mineral and Petroleum Resources Development Act (Act No. 28 of 2002 - MPRDA); and
- The National Environmental Management Act (Act No. 107 of 1998 - NEMA).

Adherence to the requirements of the above-mentioned Acts will allow for an Integrated PPP to be conducted, and in so doing, satisfy the requirement for public participation referenced in the Acts.

During the process, the following methods are used to develop a stakeholder database which will be utilised to ensure a proper representation of stakeholders interested in or affected by the proposed Project.

This included the following:

- 
- Search works and desktop searches are conducted in and around the project area to verify land ownership and obtain contact details;
  - Responses received from newspaper advertisements, public notices and site notices;
  - Identification and consultation with stakeholders including commenting authorities (local and district municipalities);
  - Organs of state, other than the competent authority, such as the Department of Agriculture, Forestry and Fisheries (DAFF), Free State Department of Agriculture and Rural Development, and Department of water and Sanitation having jurisdiction in respect of any aspect of the proposed project and affected authorities; and
  - Consultations with affected landowners.

The PPP commenced on 2 September 2022 with a site visit which included the placing site notices in and around the fences of the respective farms. A registration period commenced the 3<sup>rd</sup> September 2022 ending on the 6<sup>th</sup> October 2022.

- Newspaper advertisement: published in the “Independent Media Newspaper” on the 30<sup>th</sup> September 2022;
- Site Notices: erected at prominent points on 2<sup>nd</sup> September 2022; and
- Public Notices: distributed to identified stakeholders, landowners and residence (where possible) on 2<sup>nd</sup> September 2022 and throughout the registration period.

Consultation meeting will be held should the need arises, though Davhana Geotech Solutions has placed more sites notices around the site and town, so that the communities can register on the database and be sent draft report, so they may comment.

**10.1 Summary of issues raised by I&APs**

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

See attached Consultation Report.

*Table 3: Summary of issues raised by I &APs*



## 11 BASELINE ENVIRONMENT

### 11.1 Climate

The nearest climate data that could be found is for Boshof Town. This town is situated approximately 20 km from the site. In Boshof, the summers are long and hot; the winters are short, cold, and dry; and it is mostly clear year-round. Over the course of the year, the temperature typically varies from 1°C to 31 °C and is rarely below -2.7°C or above 35. °C.

### 11.2 Temperature

The hot season lasts for 4 months, from November 8 to March 9, with an average daily high temperature above 28°C. The hottest day of the year is December 28, with an average high of 31°C and low of 16°C.

The cool season lasts for 2.6 months, from May 24 to August 11, with an average daily high temperature below 20°C. The coldest day of the year is June 29, with an average low of 1°C and high of 17°C.

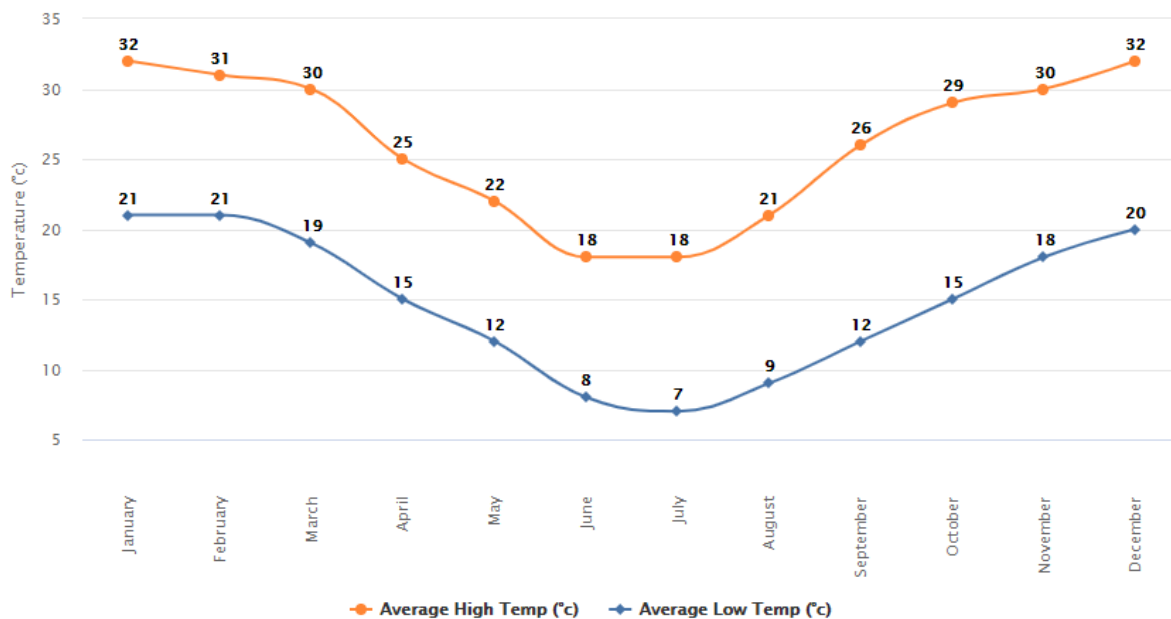


Figure 3: Shows Maximum, Minimum and average temperatures of Boshof

### 11.3 Rainfall

The average rainfall of the Boshof area is in the region of 300 mm. However, according to World Weather Online, the measured rainfall average for 2019 was  $\pm 37.2$  mm (Boshof & Kimberley). As shown in the above chart (figure 2) the areas received the lowest rainfall during the winter months (June – August) and the highest in the summer (March – April).

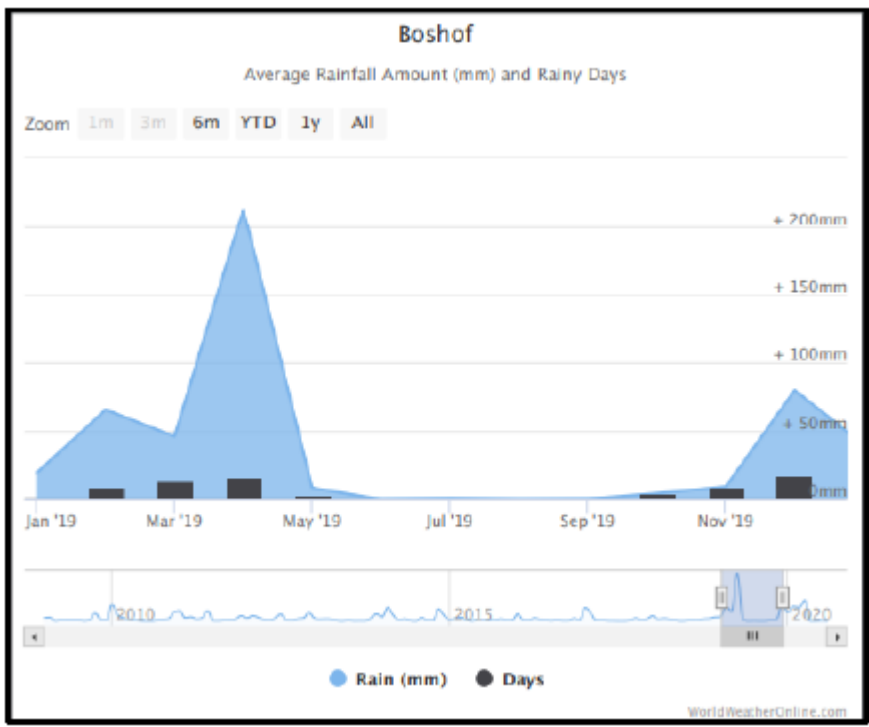


Figure 4: Rainfall Data over the 10 years in Boshof

### 11.4 Wind

The dominant wind direction of Boshof region is fairly constant ranging from north to west-north-west, with the average wind speed being  $\pm 6$  knots (11.11 km/h) as shown in the figure 3 below (measured at the Kimberley Airport).

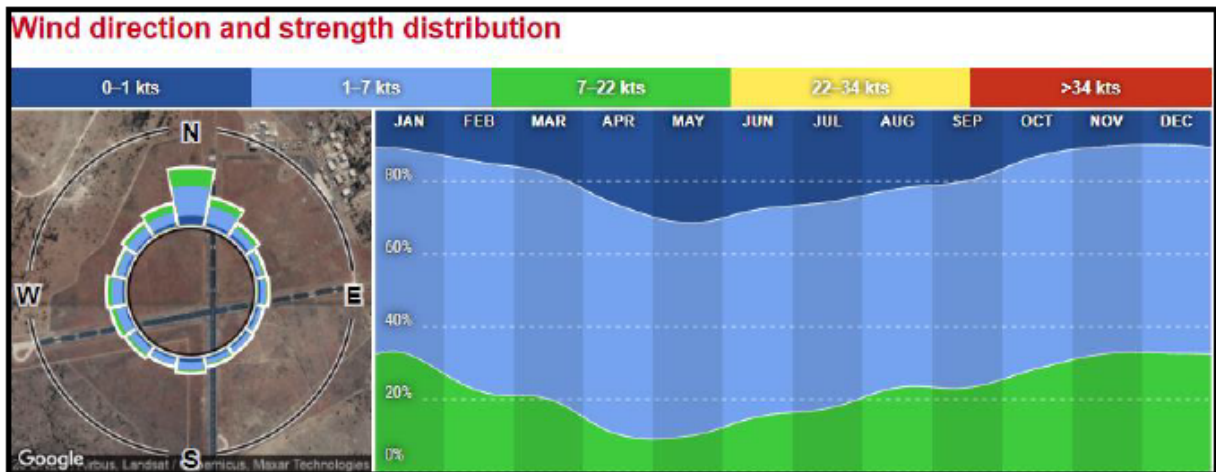


Figure 5: Wind chart data

## 11.5 Topography

The topography of the prospecting area is undulating with a gradual increase from the Southern boundary at  $\pm 1202,741$  amsl. From the highest point of the rise the topography again declines in a western direction towards the lowest point ( $\pm 1168,908$  amsl) along the western boundary as shown in the figure 4 below.

## 11.6 Geology and Soil

According to the geological map series 2824 Kimberly, the site is generally underlain by sedimentary sequences of the Karoo Supergroup, comprising bioturbated shale of Prince Albert formation of the Ecca group. The shaley units are overlain to the north east of the site by calcrete surface deposits of the Quaternary period. Alluvium sandy material are observed along the north west boundary of the site. Moreover, the geological map indicates intrusive dolerite of the Jurassic period south of the site.

Alluvium and surficial deposits that are generally made up of red Hutton sand and clayey silt. The Olifantsfontein Kimberlite is a Bilobate Group 1 Kimberlite, which has intruded at the contact of Ecca Shales of the Karoo Sequence and the Karoo-aged dolerite sill.

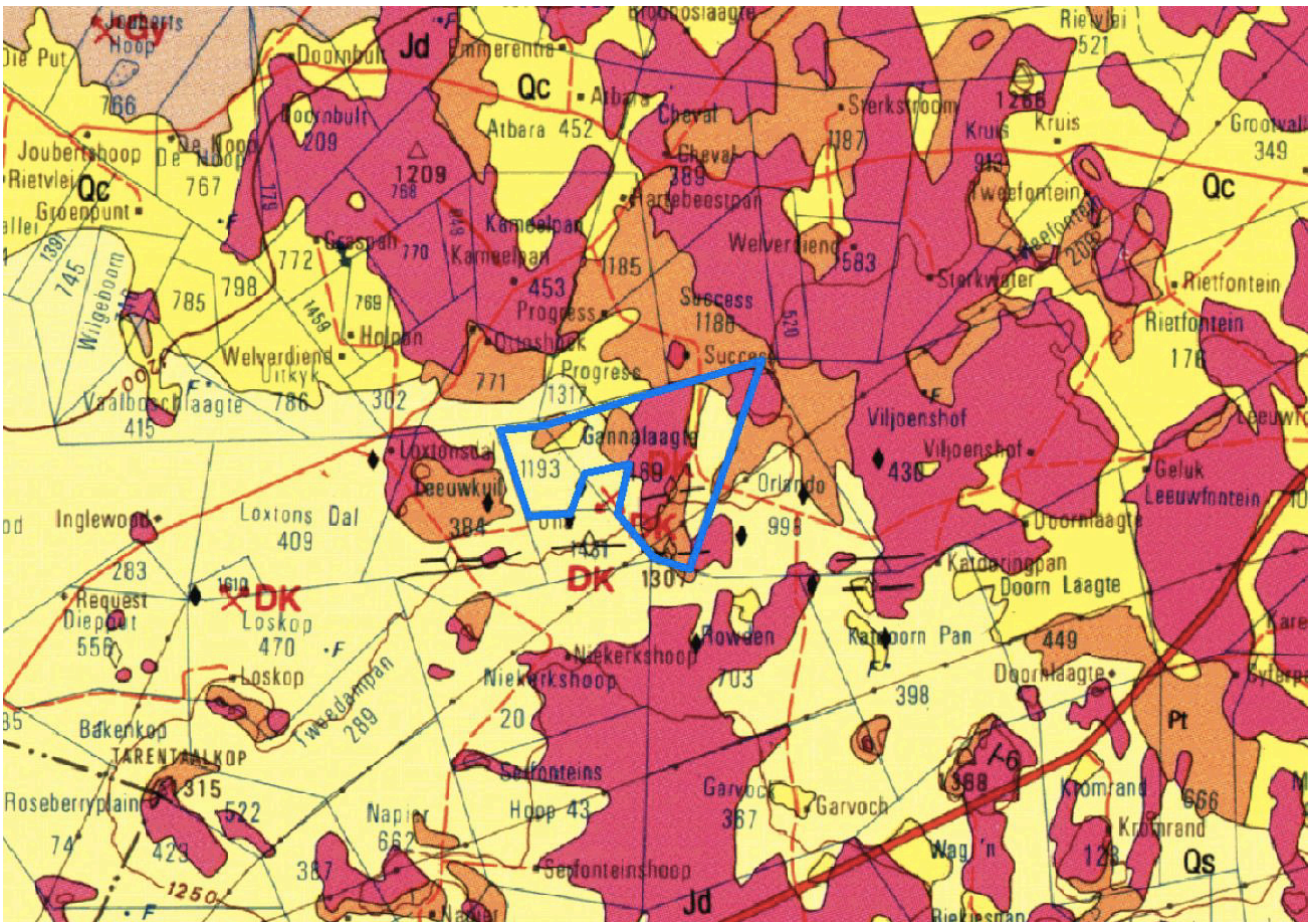


Figure 6: Geological Map of the Boshof area

## 11.7 Biodiversity

### 11.7.1 Vegetation

The proposed area falls within vegetation unit SVk 4, which is known as the Kimberley Thornveld. The Kimberley Thornveld is part of the Eastern Kalahari Bushveld Bioregion, which is a sub-bioregion for the Savanna Biome. According to Mucina and Rutherford (2006), the Kimberley Thornveld vegetation covers the North West, Free State and Northern Cape Provinces: Most of the Kimberley, Hartswater, Bloemhof and Hoopstad Districts as well as substantial parts of the Warrenton, Christiana, Taung, Boshof and to some extent the Barkley West District.

The area often has slightly irregular plains with a well-developed tree layer with *Acacia Erioloba*, *A. tortillis*, *A. karoo* and *Boscia albitrunca* and a well-developed shrub layer with occasional dense stands of *Tarchonanthus camphoratus* and *A. mellifera*. Grass layer open with much uncovered soil. Mucina and Rutherford (2006) also states that the conservation of this thornveld type, is Least Threatened with a target of 16%. Only 2% of this thornveld is statutorily conserved in Vaalbos National Park and in Sanveld, Bloemhof Dam and S.A. Lombard Nature Reserve. As much as 18% is already transformed, mostly by cultivation. Low erosion is associated with this type of thornveld. The area is mostly used for cattle farming or game ranching.

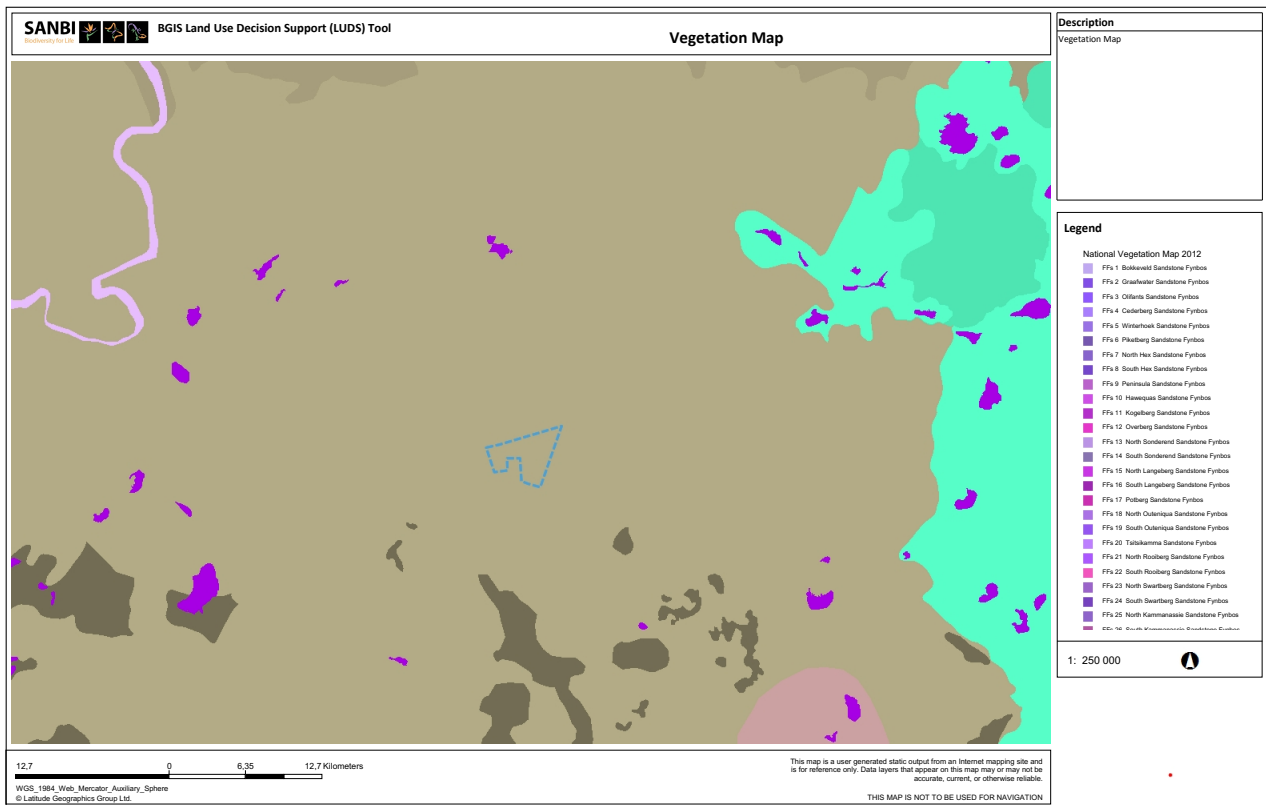


Figure 7: vegetation Map

---

### 11.7.2 Critical Biodiversity

These are areas where there is Endangered Vegetation commonly called Sensitive Biodiversity Areas. In these areas the agriculture should be practiced sensitively so as not to negatively impact on the Sensitive Biodiversity Areas.

The Vaal-vet sandy grassland originally comprised about 14% of the municipality but has been considerably reduced by ploughing for potato farming, pastures and maize.

Its remnants are found mainly in the eastern section of the Tokologo Highlands bio-region

Where this land is not under the plough or pastures it should be either:

- Encouraged to become a private conservancy or game farm of which there are already a number in the area.
- Used for extensive agriculture (grazing) under strict veld management and rotational grazing methods that will improve bio-diversity as well as carrying capacity.

Formally protecting these sensitive areas will require massive resources so it is intended that land owners be encouraged to protect them via stewardship agreements or private conservancies in return for rates rebates and the appropriate use of land for eco-tourism and other income generating ventures. Funds for alien vegetation removal which also have benefits in terms of improving water quality and quantity can also be mobilised.

#### **Agricultural Areas**

##### **Agriculture 1(a) Extensive Agriculture (71%)**

There are largely parts of the municipality, including almost of Tokologo south whose vegetation is not classified Endangered but where responsible grazing management can create a double benefit in improving stock carrying capacity as well as improving biodiversity. These areas can also be used for game farming, tourism and hunting.

##### **AGRICULTURE 2 (c.b) INTENSIVE AGRICULTURE (18%)**

Agriculture is an important contributor to municipal employment and most of this employment is supplied by Intensive agriculture.

This SPC comprises about 128 000 hectares of the municipality,(18%), comprising approximately:

- 45 000 hectares-crops
- 83 000 hectares-pastures

This land will also be an important resource in terms of food security in the long term, although Tokologo is fortunate in that unlike many other municipalities, it has an abundance of this resource relative to its population.

The proposal of the SDF and that of the future Agricultural Master Plan should be aligned. In this regard the Agriculture Master Plan should incorporate the strategic spatial vision and associated policies and principles for the municipality.

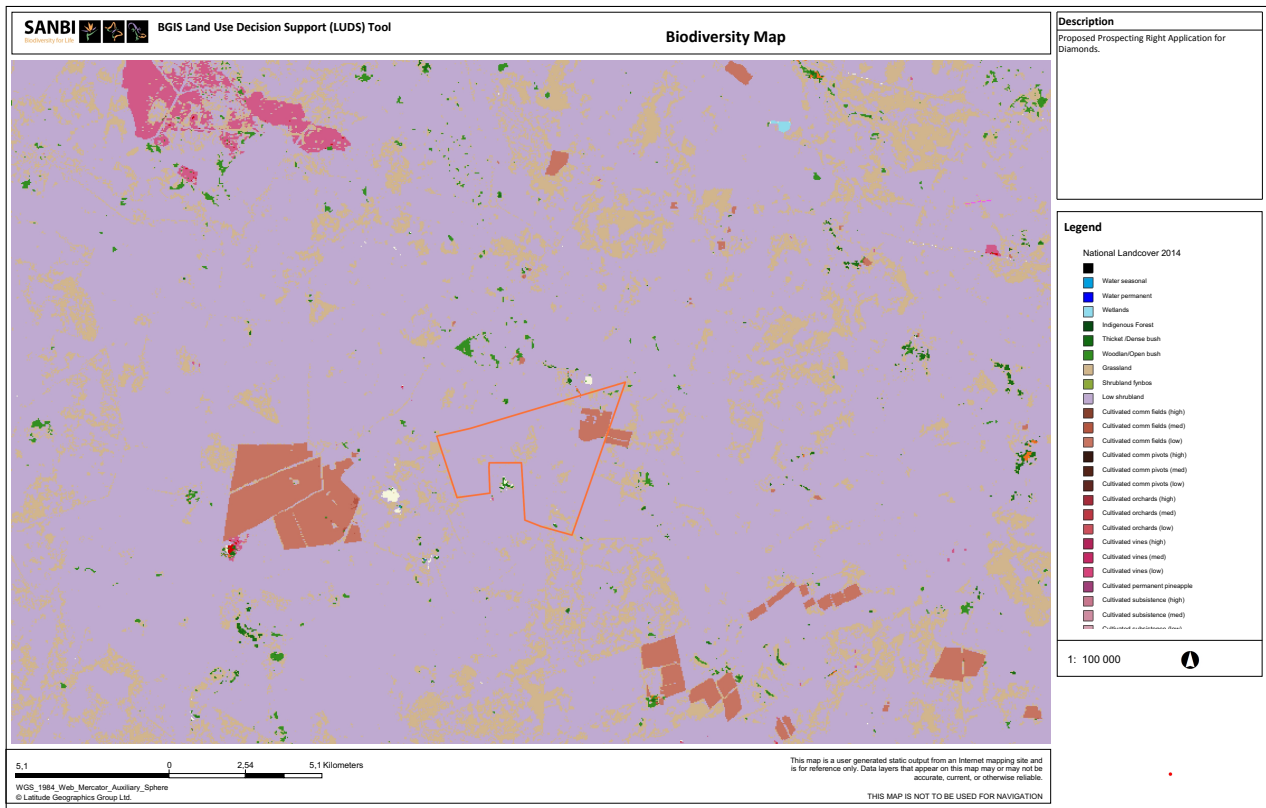


Figure 8: Sensitivity Map

### 11.7.3 Noise and Air pollution

Due to the low rainfall, the air quality of the study area is characterised as being dry, arid and dusty at times. Dust is the most important pollutant given the area's rural character predominantly affected by the nearby mining operations. The noise ambiance of the study area is classified as ambient rural or pastoral with noise levels mainly affected by traffic along the R64 and the bordering mining related operations

### 11.8 Hydrology

The Lower Orange River is found within Water Management Area (WMA) 14 of South Africa and can be defined as that stretch of the Orange River between the Orange-Vaal confluence and Alexander Bay or Oranjemund where the river meets the ocean (Figure 2). The area is hot and dry with rainfall varying from 400mm in the east to 50mm on the west coast and large parts of the catchment considered desert with annual precipitation dropping to below 25mm in some areas (ORASECOM, 2007).

Land-use is primarily irrigation and mining, with the area highly dependent on water from the Orange River. Sheep and goat farming is practised over most of the area, with large parts falling within conservation areas.

Cultivation is restricted to isolated patches where somewhat higher rainfall occurs, and extensive irrigation is practised in the fertile alluvial soils along the Orange River valley. This irrigation is supplied with releases from Vanderkloof Dam. The water quality in the Lower Orange WMA is affected by upstream activities in the Vaal and Orange River catchments. Given the arid nature of the Lower

### 11.9 Cultural Heritage

According to the Environmental Screening tool report, some parts of the site have high sensitivity of heritage environment. A Heritage Impact study will have to be undertaken to ascertain heritage features that may be on site. The area of Boshof is known for great history that is intertwined with farming.

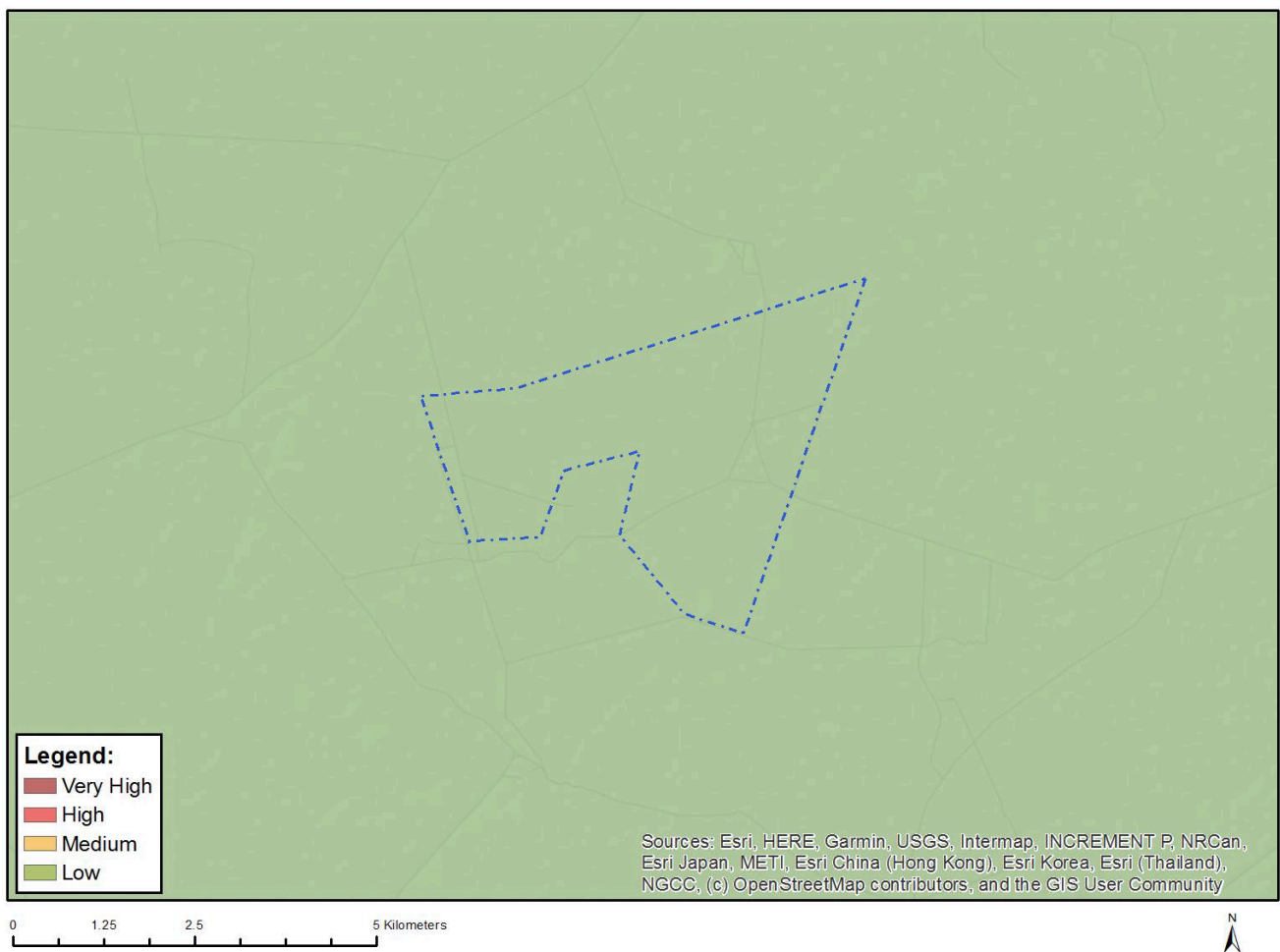


Figure 9: Cultural Heritage importance Map

The geographical area surrounding Boshof town represents archaeological sites dating from the Stone Age, Iron Age and Historical Age period.

### 11.10 Socio-economy

### 11.10.1 Spatial context

Tokologo Local Municipality is an administrative area in the Lejweleputswa District of the Free State in South Africa. It is bordered by the North West Province in the north, the Xhariep District in the south, Tswelopele and Masilonyana in the east, and the Northern Cape Province in the west. It is one of five municipalities in the district, making up almost a third of its geographical area. Boshof (the capital town) is situated in the centre, Dealesville is further east, and Hertzogville is situated in the north of the municipal area.

#### 11.10.1.1 Population

The site is located within Lejweleputswa District in the Tokologo Local Municipality. This district had a total population of 630 912 in 2014, broken down into 318 662 males and 312 249 females. The District contributed 22.6% the Free State's population in 2014, down from 23.24% in 2005. Most of the inhabitants are Africans, constituting 88.73. % of the total population, followed by Whites (8.86%) and then Coloureds (1.9%), with a very small Indian community of 0.45%. There are more males (51.0% in Lejweleputswa than females (49.0%).

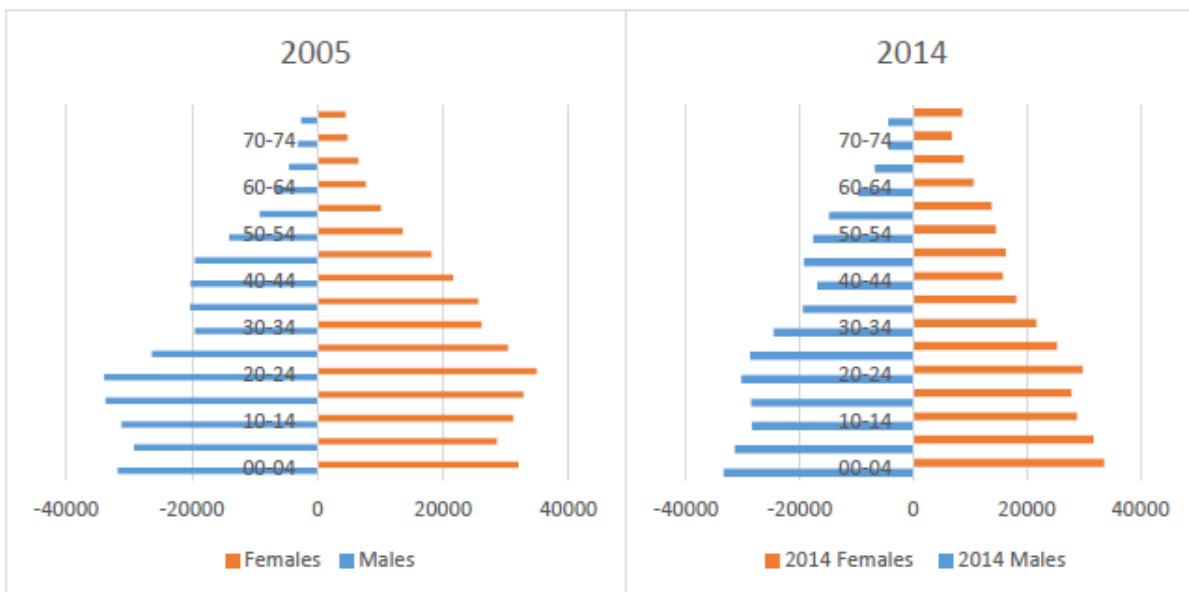


Figure 10: Lejweleputswa district population pyramid

According to figure 10 above, the population pyramid of Lejweleputswa, for the years 2005 and 2014 has a broad base, indicating a large portion of children and the youth below 25 years of age. In 2005 Lejweleputswa District had a relatively large proportion of middle-aged inhabitants, both the males and the females above 15 years of age and below 30 years of age, compared to the year 2014 which has a relatively sliding scale of both males and females in the same age cohort of 15 years and 30 years.



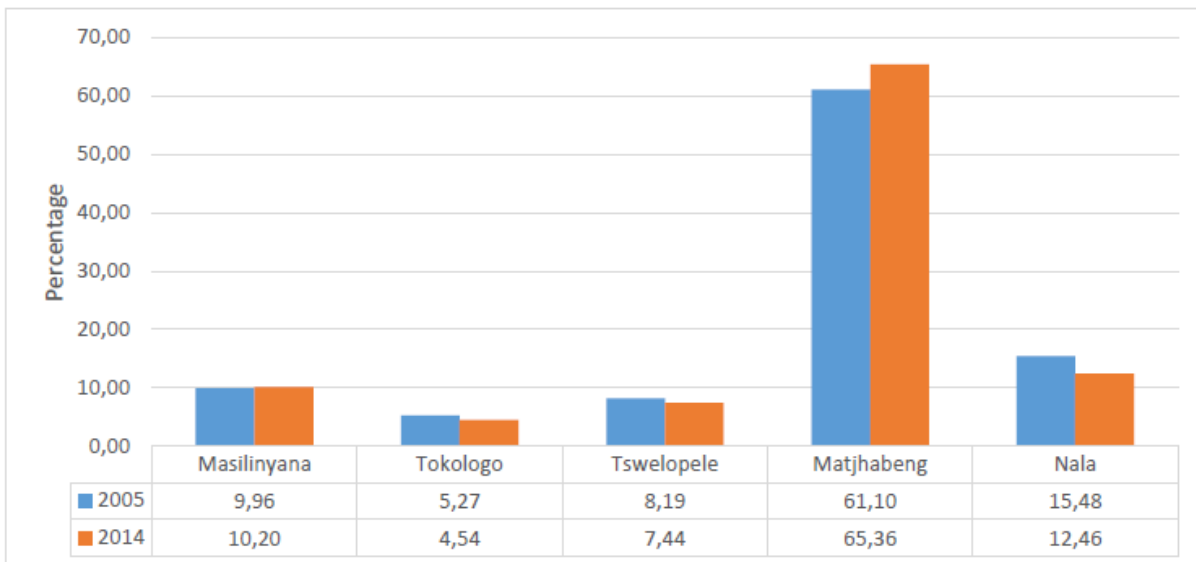


Figure 11: Population distribution with the Lejweleputswa district

Tokologo LM had the least percentage of the district’s population and has declined over the years. It had a population of 5.27% (figure 11) in 2005 and the % age declined to 4.54 in 2014. Total District ‘s share of the population in the province has declined from 23.24% in 2005 to 22.49% in 2014, which is a 0.75 %age point decline. Matjhabeng had the highest share of Lejweleputswa’s population at 65.36% in 2014 according to figure 3, which is up from 61.10 % in 2005, followed by Nala with 12.46% and Masilonyana with 10.20% all in 2014.

### 11.11 Economy Structure and Performance

The main economic activities in the Lejweleputswa District happened in the primary sector and the tertiary sector. The primary sector in Lejweleputswa is driven by agriculture and mining. Matjhabeng is the largest municipality in the District and it contains most of the mining activities, especially gold mining, followed by Masilonyana with some of the gold mining and diamond mining. Recently the mining sector has been on a downward trend as a result of closure of many of the shafts as a result of high costs of production among others and the need for deep mining. The recent decline in world commodity prices, has aggravated the situation in general with many businesses that have traditionally dependent on the mining sector either have closed down or are in the process of closing down. Other municipalities’ primary sector relies heavily on agriculture.

Table 4: Sectoral composition of Lejweleputswa's economy by local municipalities: 2014

2014	Lejweleputswa	Masilonyana	Tokologo	Tswelopele	Matjhabeng	Nala	
1 Agriculture	5.6%	6.2%	24.6%	36.9%	0.8%	17.7%	
2 Mining	46.5%	50.3%	21.6%	1.2%	56.0%	4.7%	
3 Manufacturing	2.5%	2.1%	2.9%	2.2%	2.1%	5.2%	
4 Electricity	1.5%	1.2%	2.9%	2.8%	1.3%	2.3%	
5 Construction	1.7%	2.2%	2.5%	1.8%	1.5%	2.6%	
6 Trade	11.0%	8.3%	12.3%	15.4%	10.0%	17.6%	
7 Transport	6.3%	5.2%	5.0%	7.8%	5.6%	11.8%	
8 Finance	10.8%	8.4%	7.6%	10.6%	10.8%	13.9%	
9 Community services	14.2%	16.2%	20.7%	21.4%	11.9%	24.0%	
Total Industries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

In Tokologo Local Municipality (LM), agriculture is the biggest contributor to GDP at 24.6% (as shown in table 4), with mining a close second at 21.6%, almost equaled by 'community services' at 20.7%. Electricity, despite the presence near Dealesville of the country's largest sub-station Perseus, contributes a mere 2.9% to Tokologo's economy. The dominant type of agriculture in Tokologo is 'extensive' agriculture, that is, grazing livestock and other uses of natural veld such as game hunting.

The seat of the Tokologo LM is Boshoff, a small pleasant town some 50 km west of Dealesville on the R64. While Boshof was primarily an agricultural supply town, it now also has a tourism sector due to the development of a number of hunting farms in the area. The R138 million economy of Tokologo LM was stable but not growing in 2007 (Ingle, 2007), and its per capita GVA (gross value-added) was actually declining (compared with 1996), that is, its citizens were becoming poorer. However, Tokologo at that time was doing considerably better than most other Free State local municipalities (Ingle, 2007)

#### 11.12 Description of specific environmental features and infrastructure on the site.

The current infrastructure on the site are mostly related to the agricultural operations and include farm offices, houses, storerooms, feedlots etc. other infrastructure include telephonic and electric cables (transmission towers), access rad. Only the access road will be disturbed by the proposed prospecting activities.

In terms of the environmental features, refer to Baseline Environment section above.

## 12 IMPACTS AND RISKS IDENTIFIED

Table 5: Impacts identified

Impacts	Phase	Description
Flora	Establishment	Destruction / loss of indigenous natural vegetation due to site preparation activities.
Fauna	Establishment, Operational	Disturbance of species habitats (i.e. snake holes, spiders, reptiles, etc.)
Groundwater	Establishment and Operational	Spillage of fuels, lubricants and other chemicals
Geology	Operational	Removal of rocks and debris for analysis, disturbance of local geological formation.
Soils	Establishment and operational	Disturbance of soils during site clearance and during drilling operations
Air Quality	Establishment and Operational	Dust stemming from drilling and vehicles going to site
Traffic	Establishment and decommissioning	Increase of traffic in the area as vehicles access and exit the site
Noise nuisance	Establishment and Operational	Noise caused by moving vehicles and drill rigs
Economic	Operational	Project expenditure (incl. direct capital investment)
Visual	Establishment, Operational and Decommissioning	Visual disturbances with all the vehicles, signs and drilling rigs.
Cultural/Heritage -historical	Establishment and Operational	Disturbance of artefacts of cultural and heritage importance (i.e. unidentified grave sites).
Waste	Establishment and Operational Phase	Generation of solid waste on site.

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

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

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:

- **Status:** determines whether the potential impact is positive, negative, or neutral (i.e. no perceived cost or benefit to the environment). A positive impact will have a low score value as the impact is considered favourable to the environment;

- **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;
- **Severity:** quantifies the impact in terms of the magnitude of effect on environment (receptor) and is derived by consideration of points 1, 2 and 3 above; and
- **Probability** – quantifies the impact in terms of the likelihood of the impact occurring on a percentage scale of <5% (improbable) to >95% (definite).

Table 6: Status of impact

Rating	Description	Quantitative Rating
Positive	A to the receiving environment (positive impact)	+
Neutral	No determined cost or benefit to the receiving environment	N
Negative	At cost the receiving environment (negative impact)	-

Table 7: Extent of Impacts

Rating	Description	Quantitative Rating
Very Low	<b>Site specific</b> – Impacts confined within the project site boundary	1
Low	<b>Proximal</b> – Impacts extend to within 1 km of the project site boundary	2
Medium	<b>Local</b> – Impacts extend beyond to within 5 km of the project site boundary	3
High	<b>Regional</b> – Impacts extend beyond the site boundary and have a widespread effect- i.e. >5 km from project site boundary	4
Very High	<b>Global</b> – Impacts extend beyond the site boundary and have a national or global effect	5

Table 8: Duration of impacts

Rating	Description	Quantitative Rating
Very Low	<b>Project duration</b> – impacts expected only for the duration of the project or not greater than 1 year	1
Low	<b>Short term</b> – impacts expected on a duration timescale of 1 to 2 years	2
Medium	<b>Medium term</b> – impacts expected on a duration timescale of 2-5 years	3
High	<b>Long term</b> – impacts expected on a duration timescale of 5-15 years	4
Very High	<b>Permanent</b> – impacts expected on a duration timescale exceeding 15 years	5

Table 9: Severity of Impacts

Rating	Description	Quantitative Rating
Very Low	Negligible – zero or very low impact	1
Low	Site specific and short-term impacts	2
Medium	Local scale and / or short-term impacts	3
High	Regional and / or long-term impacts	4
Very High	Global scale and / or permanent environmental change	5

Table 10: Probability of impacts

Rating	Description	Quantitative Rating
Highly Improbable	Likelihood of the impact arising is estimated to be negligible; <5%.	1
Improbable	Likelihood of the impact arising is estimated to be 5-35%.	2
Possible	Likelihood of the impact arising is estimated to be 35-65%	3
Probable	Likelihood of the impact arising is estimated to be 65-95%.	4
Very High	Likelihood of the impact arising is estimated to be > 95%.	5

These five criteria are combined to describe the overall significance rating (Table 11). Calculated significance of impact – determines the overall impact on (or risk to) a specified receptor and is calculated as: the product of the probability (P) of the impact occurring and the severity (S) of the impact if it were to occur (Impact = P × S). This is a widely accepted methodology for calculating risk and results in an overall impact rating of Low (L), Low/Medium (LM), Medium (M), Medium/High (MH) or High (H). The significance of a particular impact is depicted in and assigned a particular colour code in relation to its severity (Table 12).

Table 11: Significance of Impacts

Rating	Description	Quantitative Rating
Low	P x S=1-3 (low impact significance)	L
Low/Medium	P x S= 4-5 (low/medium impact significance)	LM
Medium	P x S=6-9 (medium impact significance)	M
Medium High	P x S=10-14 (medium/high impact significance)	M/H
High	P x S=15-25 (High impact significance)	H
Positive	P x S= (Positive impact significance)	Positive

Table 12: Perceived Significance of Impacts

Probability (P)	Severity (S)				
	1	2	3	4	5
1	L	L	L	LM	LM

2	L	LM	M	M	MH
3	L	M	M	MH	H
4	LM	M	MH	H	H
5	LM	MH	H	H	H

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed development;
- **Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed development;
- **Low/Medium:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity/development;
- **Medium:** the potential impact should influence the decision regarding the proposed activity/development;
- **Medium/High:** the potential impact will affect the decision regarding the proposed activity/development; and
- **High:** the proposed activity should only be approved under special circumstances.

Practicable mitigation and optimisation measures are recommended and impacts are rated in the prescribed way both without and with the assumed effective implementation of the recommended mitigation (and/or optimization) measures. Mitigation and optimization measures are either:

- Essential: measures that must be implemented and are non-negotiable; or
- Best Practice: recommended to comply with best practice, with adoption dependent on the proponent’s risk profile and commitment to adhere to best practice, and which must be shown to have been considered and sound reasons provided by the proponent if not implemented.

**12.2 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.**

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties).

*Table 13 Positive and Negative impacts*

Impacted Environment	Impact	Status of impact
ESTABLISHMENT PHASE		

Impacted Environment	Impact	Status of impact
Fauna and Flora	Destruction / loss of indigenous natural vegetation and plant species during site preparation	Negative
	Impact on animal species	Negative
	Establishment and spread of declared weeds and alien invader plants	Negative
Groundwater	Damage/contamination of groundwater resulting in hydrological impacts	Negative
Air Quality	Dust emissions	Negative
Surface water	Deterioration of surface water from contaminated top soil run-off	Negative
Noise generation	Nuisance to surrounding landowners	Negative
	Disturbance of animals in surrounding game lodges	Negative
Soils	Physical disturbance of soils during land clearing	Negative
Socio Economic	Direct employment and skills development	Positive
Visual aspect	Visual Disturbance (vegetation clearance and temporary infrastructures including equipment on site )	Negative
Cultural/Heritage -historical resources	Potential impact on heritage and archaeological resources	Undetermined at this stage
Waste generation	Generation of solid waste (e.g. littering)	Negative
Traffic	Increase of traffic in the area as vehicles access the sites	Negative
<b>OPERATIONAL PHASE</b>		
Soils	Physical disturbance of soils during land clearing	Negative
Social	Disturbance of surrounding landowners and local businesses	Negative
	Direct employment and skills development	Positive
Water resource	Damage to groundwater and surface water resulting in hydrological impacts	Negative
Geology	Physical removal of rock material for logging and sampling purposes during drilling phase	Negative
Noise generation	Nuisance to surrounding landowners and local businesses	Negative
	Disturbance of animals	Negative
Cultural-historical resources	Potential impact on heritage resources and archaeological resources	Undetermined at this stage
<b>DECOMMISSIONING</b>		
Air quality	Dust emissions	Negative
Soil	Soil degradation	Negative
Noise generation	Nuisance to surrounding landowners	Negative
	Disturbance of wild animals on surrounding farms	Negative
Traffic	Increase of traffic in the area as vehicles exit the site	Negative

### 12.3 The possible mitigation measures that could be applied and the level of risk.

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address

---

their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

The mitigation measures have addressed in the Section 13 under Environmental Impact Assessment

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

The proposed prospecting site, is targeted because of the historic data, current scientific data, of the alluvial diamonds, occurrence. The geological literature also indicates that certain specific environment setting should occur for the alluvial diamond to be deposited in an area, and geological desktop data support that the proposed site, had the required environmental setting for alluvial diamonds to be deposited, hence the application on this specific site only.

The proposed prospecting license area is therefore regarded as the preferred site and alternative site have not been considered.

#### **12.5 Statement motivating the alternative development location within the overall site.**

(Provide a statement motivating the final site layout that is proposed)

Each of the prospecting phases is dependant in the results of the preceding phase. The location and layout of drill sites will be determined based on information derived from the desktop and geophysical surveys (non-invasive activities). Proposed drill sites will be selected so as to avoid known heritage sites, water courses, dwellings and infrastructure where practicable

#### **12.6 Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site.**

(In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

In order to identify the potential impacts associated with the proposed prospecting activities the following steps were undertaken:

- The stakeholder consultation process is currently undertaken in a manner to be interactive, providing landowners and identified stakeholders with the opportunity to provide input into the project. This is a key focus, as the local residence has capabilities of providing site specific information, which may not be available in desktop research material. Stakeholders are requested to provide their views on the project and any potential concerns which they may have. All comments and concerns are captured and formulated into the impact assessment.



- 
- A detailed desktop investigation was undertaken to determine the environmental setting in which the project is located. Based on the desktop investigations various resources were used to determine the significance and sensitivity of the various environmental parameters. The desktop investigation involved the use of:
    - Detailed mapping based on existing data sources applicable to the study area
    - Geographic Information System base maps;
    - Literature and existing data/reports for the study area
  - A site visit was conducted on the 11 of August 2020. The site visit was to ensure that the information gathered as part of the Desktop investigation reflects the current status of the land.
  - The ratings of the identified impacts were undertaken in a quantitative manner as provided in Impact Assessment Section. The ratings were undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses the outcomes of the calculation to determine whether the outcome reflects the perceived and the actual views.
  - The identification of management measures are done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options.

### 13 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 known interested and affected parties).

Table 14: Impact Assessment

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFICANCE If not mitigated	MITIGATION TYPE
Site Establishment and drilling.	Disruption/alteration of ecological life cycles) due to noise, dust and lighting	Flora and fauna	Medium (-)	<ul style="list-style-type: none"> <li>Equipment with low noise emissions must be used.</li> <li>A dust monitoring system should be implemented.</li> <li>Reduce exterior lighting to that necessary for safe operation, and strategies to reduce spill light.</li> <li>Keep noise levels down as per the local municipality or national standards.</li> </ul>
Drill site	Loss of natural habitat/sensitivity	Flora and fauna	High (-)	<ul style="list-style-type: none"> <li>Clearings associated with core drilling should occur in as small a footprint as possible.</li> <li>The surrounding natural area that is not part of the layout design should be protected and not damaged.</li> <li>The site camps and laydown areas should be located in low sensitivity areas and clearly demarcated.</li> <li>Core drilling should occur within disturbed areas or areas indicated as suitable for drilling.</li> <li>Drilling should not take place within 30m of a watercourse/wetland.</li> <li>Re-vegetation where required after clearance should commence immediately.</li> <li>An environmental induction for all staff members must be mandatory.</li> </ul>
Prospecting activity	Conflict amongst community members and landowners. (the proposed project is located in an area that some local work in the mines and some are in the tourism sector) so a difference in lifestyle maybe a challenge. Especially considering project location.	Community friction	Medium/high	<ul style="list-style-type: none"> <li>Community members in the tourism and nature conservation must be consulted (preferably virtually), to address their concerns about prospecting and its importance.</li> <li>Social measures to mitigate conflict around the project must be explored and all comments made by the community.</li> </ul>
Prospecting operational activities	Staff and drilling contractors poaching and hunting fauna	Fauna and flora	Medium (-)	<ul style="list-style-type: none"> <li>An environmental induction for all staff members must be mandatory.</li> <li>No animals may be harmed or killed during the operation of this project.</li> <li>Several staff members should complete a snake handling course in order to handle snakes from designated areas. Snakes should only be handled after induction and with the risks of envenomation.</li> </ul>

Access roads, site establishment	Fauna mortality due to collisions with vehicles	Flora and fauna	Medium (-)	<ul style="list-style-type: none"> <li>An environmental induction for all staff members must be mandatory</li> <li>All vehicle speeds associated with the project should be monitored and recorded in km/h (maximum).</li> <li>The ECO should monitor live animal observations in order to monitor population and thus implement proactive adaptable mitigation of vehicle mortality</li> <li>The ECO should ensure that often used access roads are watered in order to reduce dust</li> </ul>
Drilling	Fauna mortality due to vegetation and ground clearing	Fauna and flora	Medium (-)	<ul style="list-style-type: none"> <li>An environmental induction for all staff members must be mandatory</li> <li>Should holes or burrows be located at the drilling sites, it is suggested that a zoological specialist be contacted to investigate the species located within them.</li> <li>Layout design should exclude natural areas, especially breeding habitats</li> </ul>
Drilling	Disruption/alteration of ecological life cycles) due to noise, dust and lighting	Flora and fauna	Medium (-)	<ul style="list-style-type: none"> <li>Equipment with low noise emissions must be used.</li> <li>A dust monitoring system should be implemented.</li> <li>Reduce exterior lighting to that necessary for safe operation, and implement strategies to reduce spill light.</li> <li>Keep noise levels down as per the local municipality or national standards</li> </ul>
Drilling	Alien Invasive species management	Fauna and Flora	Medium (-)	<ul style="list-style-type: none"> <li>An environmental induction for all staff members must be mandatory</li> <li>Alien vegetation control should take place during all phases of the project</li> <li>Disturbance of natural areas should be avoided and the spread of alien species should be controlled.</li> <li>Continuous monitoring of the growth and spread of alien and invasive species should be implemented using an adaptive management approach to identify suitable control mechanisms (e.g. biological control). Mechanical control is preferred for this project.</li> <li>Cleaning of vehicles and equipment before entering natural areas to prevent the spread of foreign soils and plant material sourced from elsewhere</li> </ul>
Drilling	Loss of wetland habitat	Aquatic and wetlands	High (-)	<ul style="list-style-type: none"> <li>Prospecting activities undertaken within a watercourse or buffer zone should be avoided. A wetland specialist will result in application of a water use licence.</li> <li>Driving through wetland areas must be avoided when navigating towards drilling sites</li> <li>All wetlands and associated 30 m buffer zone should be avoided</li> <li>If not possible, the soil disturbance and clearance of vegetation at drilling sites should be limited to the absolute minimum required.</li> </ul>
	Hydrocarbon spillage	Aquatic and wetlands	High (-)	<ul style="list-style-type: none"> <li>Vehicles and equipment must be regularly serviced and maintained.</li> </ul>

				<ul style="list-style-type: none"> <li>Refuelling of vehicles and equipment must be done with care to avoid spillages.</li> <li>A spill kit must be available on each site where prospecting activities are conducted.</li> <li>Any spillages must be cleaned up immediately to prevent further contamination.</li> </ul>
	Destruction of graveyards/graves	Heritage	Medium (-)	Avoid destroying or damaging any graves/graveyards during prospecting activities. Any graves/graveyards must be protected <i>in situ</i> .
Socio-economic	Creation of temporary jobs	Economic	Positive	
	Determining viability of economic resources	Socio-economic	Positive	
	Investment and growth in the local economy	Socio-economic	Positive	Drilling contractors must use local companies to cater for their needs during operations (e.g. accommodation and food).
Drilling and decommissioning	Disturbance of landowner's daily operations.	Socio-economic	Medium (-)	<ul style="list-style-type: none"> <li>Personnel are not permitted on other properties without permission.</li> <li>No interference with daily farm operations.</li> <li>Compensate the landowner where necessary</li> </ul>
Drilling	Surrounding neighbours	Socio-economic	Medium (-)	<ul style="list-style-type: none"> <li>Personnel are not permitted on other properties without permission.</li> <li>Avoid conflict with surrounding landowners</li> </ul>
Drilling	Spillage of hydrocarbons and other chemicals	Groundwater	Medium/High	<ul style="list-style-type: none"> <li>Regular service of vehicles and machinery.</li> <li>No storage or service of vehicles/machinery close to wetlands/water bodies.</li> <li>Monitoring of groundwater during drilling</li> </ul>
Drilling	Spillage of hydrocarbons and other chemicals. No clear scraping (dozing) be carried out unless absolutely necessary to establish a level drill pad.	Soil	Medium/High	<ul style="list-style-type: none"> <li>Contaminated soil must be rehabilitated immediately</li> <li>The contractor must have spill kits, for soil remediation.</li> <li>Instead of dozing, rather that surface vegetation be cleared to make way for drilling, leaving the roots intact so that vegetation can coppice and regrow.</li> <li>Prior to any work commence all vehicles should be checked for leaks. If a leak is found, it should be fixed it should be done so, with drip trays underneath, to contain oil.</li> </ul>
Drilling	Spillage and runoff of fuel and hydrocarbons	Surface Water		<ul style="list-style-type: none"> <li>Extra care must be taken when re-fueling to ensure that fuel doesn't spill into surface water bodies.</li> <li>The contractor must have spill kits, to contain spillages.</li> <li>All spillages must be cleaned - up immediately</li> </ul>
Drilling	Generated from vehicles movements and drilling activities	Dust Pollution	Medium (-)	<ul style="list-style-type: none"> <li>The removal of vegetation will be minimized during stripping to reduce dust pollution.</li> <li>Dust monitoring must be undertaken should dust emitted exceed the limits.</li> </ul>
Drilling	Permanent removal of potential ore material and geological formations	Geology	High (-)	<ul style="list-style-type: none"> <li>Return cores that was drilled as material for drill whole rehabilitation</li> </ul>
Decommissioning	Loss of Temporary job	Socio-economic	High (-)	<ul style="list-style-type: none"> <li>Train temporary personnel above management skills that can be transferred to other jobs</li> </ul>
	Rehabilitation of drill sites	Flora and fauna	Medium/High	<ul style="list-style-type: none"> <li>Site must be rehabilitated as close as possible to its pre-drilling condition.</li> </ul>

**a) Summary of specialist reports.**

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

### **13.1 Environmental impact statement**

#### **13.1.1 Summary of the key findings of the environmental impact assessment**

In prospecting of this nature, majority of the activities are non-invasive, hence both environmental and socio economic impacts are low in terms of their significance. The invasive activities are limited to the boreholes that would be drilled, camp site and access roads which are very small when viewed in the context of the size of the farm.

The proposed prospecting have potential impact on soil, groundwater, archeological resources, flora, fauna, community, local business and watercourse. When mitigation measures are applied appropriately and as described on table 13, the potential impacts are low in significance, although the potential impacts are low, monitoring is still highly recommended to ensure compliance with the granted prospecting right conditions and to ensure mitigation measures are implemented appropriately.

All the impacts identified will occur for a limited period and the impacts will be localized to an area where drilling occurred. After drilling activities have been completed and the drill pads rehabilitated to predrilling status, the impacts will cease to exist.

#### **13.1.2 Final Site Map**

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers .Attach as Appendix 4

The exact location of drilling points have not been identified. The sensitive areas will be identified during the planning phase of the project and no activities will be undertaken at any sensitive area. A detailed map can be produced after the geophysical surveys has been undertaken, although the map will be subjected to changes depending on the results of the preliminary drilling and assaying. Preliminary drilling points have been identified by the geologist, however, the points are subject to changes depending on the desktop and geophysical studies planned.

#### **13.1.3 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:

- Destruction / loss of indigenous natural vegetation during site preparation;
- Impacts on plant species of concern during site preparation;
- Impacts on fauna;

- 
- Establishment and spread of declared weeds and alien invader plants;
  - Physical disturbance of soils during land clearing;
  - Dust nuisance;
  - Disturbance of the geological formation due to removal of rock material;
  - Direct employment and skills development;
  - Impact on groundwater system during invasive phase of the proposed development;
  - Impact on surface water;
  - Visual Disturbance ;
  - Physical disturbance of soils during land clearing;
  - Disturbance of surrounding landowners activities and/or livelihoods;
  - Direct employment and skills development; and
  - Potential impacts on heritage resources and archaeological resources

The proposed activities have low significance since these are short term activities, however socio-economic impacts such as employment has a medium significance. 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.

#### **14 PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR**

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPR as well as for inclusion as conditions of authorization.

Impact management objectives are described in terms of the Mitigation Hierarchy of the Davhana Geotech Impact Assessment Standard. The mitigation hierarchy is as follows:

- **Avoid at Source:** Reduce at Source: avoiding or reducing at source through the design of the Project (e.g., avoiding by placing or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).
- **Abate on Site:** add something to the design to abate the impact (e.g., pollution control equipment, installation of noise silencers, operate in daylight hours).
- **Abate at Receptor:** if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site).
- **Repair or Remedy:** some impacts involve unavoidable damage to a resource (e.g. agricultural land due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures.

- 
- **Compensate in Kind; Compensate Through Other Means:** where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of resources, recreation and amenity space)

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, Operational, 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 is to construct 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 soil for rehabilitation;
- Development planning must restrict the area of impact to minimum and 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; and
- Limit dust and other emissions to within allowable limits.

## **15 ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.**

Any aspects which must be made conditions of the Environmental Authorisation

Bay Tower Properties 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 DMR 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;
  - A buffer of 32m from wetlands and 100m from streams should be established during the site establishment and operational phase;
  - Measures and recommendations suggested by specialist should be followed;
  - An Environmental Control Officer should be appointed to do regular monitoring as suggested in the EMPr;
  - All graves/graveyards should be protected in situ and a 30m buffer area should be applied where no prospecting activities may take place;
  - All wetlands and watercourses should be protected in situ and a 30m buffer area should be applied where no prospecting activities may take place;
- The combined sensitivity map should be followed where no activity may take place within high sensitive areas; and
- Rehabilitation of drill holes should take place immediately after work has ceased and should be done in a responsible manner.

## **16 DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.**

(Which relate to the assessment and mitigation measures proposed)

- 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;
- The public participation process has sought to involve key stakeholders and individual landowners. It is assumed that where participation has been sought from the organizational representative/s, that these parties have the authority to comment on behalf of their organisations;
- Third party information provided by the applicant is correct at the time of writing this report;
- Prospecting activities will take place in Phases and each phase is determined and dependent on the previous phase. Accordingly, the final drilling locations will only be determined later.

---

## **17 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED**

### **17.1 Reasons why the activity should be authorized or not.**

- Without implementation of prospecting activities the knowledge concerning the potential mineral resource within the prospecting right area will not be confirmed.
- With implementing the appropriate rehabilitation activities, the impacts associated with the drilling activities can be reversed
- With appropriate care and consideration the impacts resulting from drilling can be suitably avoided, minimized or mitigated ;

It is opinion of the EAP that the proposed activity be authorized, on the assumption that the environmental and social management commitments included in this BA/EMPr are adhered to, the project description remains as per the description provided in this document and considering the positive social impacts associated with the project. It should also be ensured that proper rehabilitation is provided for and that risks are controlled by having emergency plans in place.

### **17.2 Conditions that must be included in the authorization**

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, Annual monitoring audits are to take place by an appointed independent Environmental Assessment Practitioner (EAP) to compile the required annual environmental compliance report required by the DMR;
- 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 availability of alluvial diamonds;
- The option of not approving the activities will result in a significant loss to valuable information regarding the status of the alluvial diamonds present on these properties;
- In addition to this, should economically viable diamonds 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;
- 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; and

## 18 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.

## 19 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 EAP undertakes that the information provided is correct, and that the comments and inputs from stakeholders and Interested and Affected parties have been correctly recorded in the report.

## 20 FINANCIAL PROVISION

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

Operational rehabilitation has been catered for in budget lodged with the application in the PWP. In terms of the decommissioning rehabilitation (Rehabilitation quantum) the amount to be provided by bank guarantee or cash deposit is R83 261,01.

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

CALCULATION OF THE QUANTUM							
Applicant:	Bay Tower Properties (PTY) LTD				Ref No.:	FS 30/5/1/1/3/2/1/10649 EM	
EAPs:	Davhana Geotech Solutions Pty Ltd				Date:	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	14,45	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	201,35	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	296,72	1	1	0
3	Rehabilitation of access roads	m2	150	36,03	1	1	5404,5
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	349,71	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	190,75	0,52	2	0
5	Demolition of housing and/or administration facilities	m2	0	402,7	1	1	0

6	Opencast rehabilitation including final voids and ramps	ha	0	204951,85	1	1	0
7	Sealing of shafts adits and inclines	m3	0	108,09	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	140732,19	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	175279,4	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	509094,45	1	1	0
9	Rehabilitation of subsided areas	ha	0	117842,01	1	1	0
10	General surface rehabilitation	ha	0,3	111483,63	1	1	33445,089
11	River diversions	ha	0	111483,63	1	1	0
12	Fencing	m	0	127,17	1	1	0
13	Water management	ha	0	42389,21	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	14836,22	1	1	0
15 (A)	Specialist study	Sum	0	65000	1	1	0
15 (B)	Specialist study	Sum	0	0	1	1	0
					Sub Total 1		38849,589
1	Preliminary and General		4661,95068		weighting factor 2		4661,95068
					1		
2	Contingencies			3884,9589			3884,9589
					Subtotal 2		47396,50
					VAT (15%)		7109,47
					Grand Total		54506

Figure 12: Bay Tower Properties quantum calculations.

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

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

The Applicant has direct access to sufficient financial resources required as per the budget to enable it to conduct the proposed prospecting operation optimally in accordance with the Prospecting Work Program. The applicant has provided proof of financial ability during the application phase on the DMR SAMRAD system.

## 21 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

### 21.1 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:-

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

Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an Appendix.

---

The farm owners will be affected during drilling as there will be restricted to the drilling site, potentially they might have to adjust their work on the farm that might affect the income negatively. Directly opposite the farmers may require to be compensated for the time at which drilling is happening on their farms, and this may be a positive impact, economically.

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

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

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 and FSHRA contacted immediately. Work at the discovery site may only be recommenced on instruction from SAHRA.

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

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

This Final 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 DMR 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.

## 1 DETAILS OF THE EAP

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

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

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

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

## 3 COMPOSITE MAP

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

There is no composite map given the phased activities required to determine the location of the drilling holes. Once the drilling holes have been determined and the temporary infrastructure location has been determined can a composite map be created. The location of the drill sites as well as the infrastructure may not be located in sensitive areas or within their respective boundaries. Refer to Appendix 2 and Appendix 3 for maps created.

## 4 DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

### 4.1 Determination of closure objectives.

(Ensure that the closure objectives are informed by the type of environment described)

- 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.

---

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

Volumes of water cannot be determined at this point.

**4.3 Has a water use license has been applied for?**

Water Use Licence has not been applied for at this stage of the project.

## 5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

Table 15: Impacts to be mitigated

POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD OF IMPLEMENTATION
<b>SITE ESTABLISHMENT PHASE</b>				
Site Establishment- access roads, to prospecting sites, establishment of the campsite, physical surveying of the site and pegging of drilling boreholes				
Loss of top soils and soil erosion	Soils, Land Use and Land Capability	Topsoil must be stored separately from subsoil and all soils must be stored in a way that there will be no erosion, also be less susceptible to being washed away.	Rehabilitation in terms of MPRDA and NEMA principles. Applicable guidelines from NEM:BA and Department of Agriculture, Forestry and Fisheries (DAFF) and Conservation of Agricultural Resources Act (CARA) regarding removal of species General implementation of activities taking Mining and Biodiversity Guidelines into account	During Establishment Phase
Loss of natural vegetation in the affected areas.	Flora.	Site clearance will be limited to only areas where invasive prospecting activities will be undertaken Ensure minimal disturbance of vegetation when conducting geophysical surveys and geological mapping. No vegetation clearance or tree removal should take place prior to a suitable qualified specialist have identified the species and the necessary permits and licenses have been obtained for removal of protected or endangered species.	Rehabilitation in terms of MPRDA and NEMA principles. Permits to (DAFF) and CARA for removal of species in terms of NEM:BA General implementation of activities taking Mining and Biodiversity Guidelines into account	During Establishment phase
Migration of animal life due to disturbance caused proposed project	Fauna	Use sites with most degraded environment for the site development. Trapping and killing of fauna is prohibited at the prospecting site. Prospecting activities must be done within working hours to ensure birds that nest in around the farm are less impacted by noise and dust.	General implementation of activities taking Biodiversity Act and its guidelines into account.	During Establishment phase
Deterioration of water quality in the nearby Water courses and within the groundwater regime.	Surface and Ground Water.	Only well maintained equipment may be used on site, to ensure less contamination of water bodies by hydrocarbons and oils as a result of spillages. The drilled boreholes must be appropriately capped.	Water management measures in compliance with NWA, 1998 and DWS guidelines	During Establishment Phase
Air pollution through emissions from the vehicles and equipment used on the drilling site.	Air quality.	Dust suppression will be conducted in areas with excessive dust emissions. Traffic will be restricted to demarcated areas. Traffic volumes and speeds within the drilling site will be controlled.	National Environmental Management Air Quality Act.	Throughout establishment Phase
Increased noise levels.	Noise aspects	Limit the maximum speed to 30 km/h or less, subject to risk assessment. Less noisy equipment will be used, the equipment will be kept in good working order and the equipment will be fitted with correct and appropriate noise abatement measures.	National Noise Control Regulations, SANS10103:2008 guidelines.	Throughout Establishment phase
Visual impacts on the surrounding communities, from the site establishment.	Visual aspects. Neighboring occupants	Lighting will be conducted in a way that will decrease the impacts on visual aspects at night times.	Measures will be undertaken to ensure that the visual aspects from the site comply with the relevant visual standards and objectives including Municipal By Laws.	Throughout duration of establishment phase



Impact from the influx of job seekers and employment of farm laborers.	Socio-Economic Aspect	Recruitment will not be undertaken on site. Farm laborers will not be employed unless agreed to with the farm owners. Ensure that all laborers are trained and adhere to all health and safety standards	Measures taken will be in line with the company's recruitment policies. Occupational Health and Safety Act	Through established Phase
Excessive Waste generation	Soil and Visual impacts	Minimize littering on site and ensure that all laborers are trained in environmental awareness. Bins (sufficient number and capacity) to store general and hazardous produced on a daily basis shall be provided at each drilling site. The waste bins must be sealed to avoid, leakage of leachate material and must be waterproof so that rain water cannot enter into them. Bins shall be emptied on a weekly basis or if there is a nauseous smell coming from them or vectors are breeding within them, at a registered landfill site An integrated waste management approach shall be used, based on the principles of waste minimization, reduction, re-use and recycling of materials.	Waste Management Act	Through established phase
POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<b>OPERATIONAL PHASE</b>				
Exploration: Diamond Core drilling of the exploration boreholes, stockpiling, Drilling, use of campsite and rehabilitation of the drilling sites				
Soils contamination, disruption of the Soil profile Disturbance of ecological systems through destruction of natural vegetation. Disturbance to current land use	Soils, Land Use, Land Capability and natural vegetation	Ensure that the land owners' borehole yield is observed during the drilling operation. Should it be proven that the operation is indeed affecting the quantity and quality of groundwater available to users and surrounding water resources, the affected parties must be compensated	Rehabilitation in terms of MPRDA and NEMA principles. Operational control procedures (e.g. spill / leak handling). Incident Reporting System; Environmental Inspections; Planned Maintenance System; water quantity (abstraction) monitoring; continued communication with surrounding landowners.	Through operational phase
Establishment of campsite and drilling operation may result in contamination of surface water run-off by hydrocarbon fluids and sedimentation	Surface and water	All the machinery on site must be inspected on twice a day (before and after use). All vehicles that need to be fixed, it must be done off site. A designated person within the team must be tasked to ensure health and safety, also responsible for refueling of vehicles, he/she must ensure there are no spillages on site.	Water management measures in compliance with NWA (National Water Act) 1998 and GN 704, 1999.	Through operational phase
Air pollution caused by vehicle emissions and dust	Air Quality	Dust suppression should be practiced during the operational phase Drilling vehicles should be regularly maintained in order to minimize greenhouse gas emission	National Environmental Management Air Quality Act	Through operational phase
Water courses -- destruction and loss of aquatic habitat	Aquatic and terrestrial components	A buffer of 32m from wetlands and 100m from watercourses should be maintained during the all prospecting activities. Remove or eradicate all alien invasive vegetation growing on stockpiles or in any area of the drilling site footprint.	National Environmental Management Act National Environmental Management Waste t Act National Water Act (NWA) National Environmental Management: Biodiversity Act (NEMBA)	Through operational phase
Noise impacts	Fauna and	Provide employees with ear plugs	National Noise Control Regulations SANS 10103:2008	Through operational phase

	Adjacent landowners/ occupants	Use equipment that produces minimal noise as far as possible Avoid working outside normal working hours (i.e. 08:00 to 17:00) and during weekends All machinery and equipment must be maintained in good working order, and fitted with approved and specified muffler systems. Compliance with local by-laws and regulations regarding the noise and hours of operation		
Visual impacts	Neighbouring occupants	Visual screening methods could be used on site to reduce visual impacts. Lighting will be conducted in a manner that will reduce the visual impact at night times.	National Road Traffic Act	Through operati
Impacts on heritage features	Heritage features on-site	If item(s) of historical importance/archeological resource is intercepted during drilling, all drilling activities must stop immediately, and SAHRIS must be contacted and an archeologist must be brought on site to make assessment on such item(s), and seek recommendations from SAHRIS on the process of its removal and the removal must be monitored by an archeologist and he/she can give a directive if prospecting can continue or not.	South African Heritage Resources Agency and Northern Cape Heritage Resources Authority.	Through operati
Health and safety impacts	Socio economic aspects Employees and land occupants	Neighboring occupants should be warned about any disruptions prior the commencement of the activity Ensure that health and safety measures are put in place to protect employees and Neighboring occupants Provide employees with personal protective Equipment (PPE)	Occupational Health and Safety Act	Through operati
Traffic impacts	Traffic movement	Prospecting vehicles must be restricted to the site and must adhere to designated speed limit at all times.	National Traffic Act	Through operati
Introduction of weeds and alien invasive plants	Flora	All sites disturbed by prospecting activities must be monitored for exotic or invasive plant species and weeds. Site clearance will encourage the introduction of alien invasive plant species; Bay Tower Properties should train the laborers on the removal and disposal of alien vegetation (mechanical and chemical). Chemical (herbicides) or mechanical removal may be used. If chemical methods are used the method of use is to be undertaken in accordance with manufacturer's specification for the weeds and this method and management is to be approved by the ECO Any eradicated exotic/invasive plant or weed vegetation must be removed from site and disposed of at an approved waste disposal facility or an alternative eradication method approved by the competent authority	NEM:BA CARA	Through operati
Soil erosion	Soil	Erosion protection measures are to be undertaken. Daily erosion protection monitoring is to take place at each drilling site prior to commencement of the daily works. If any erosion is identified it is to be remediated prior to the commencement of works. Daily erosion checks are to be undertaken on the sump area. If cracks or erosion is identified the side walls are to be battered back to ensure a safe environment for all. Drainage channels must be kept free draining at all times.	Rehabilitation in terms of MPRDA and NEMA principles. General implementation of activities taking National Environmental Management Biodiversity Act and its guidelines into account	Through operati

		No pooling of water will be allowed, drainage diversions must be provided to prevent scour of the site, and this is also to direct water away from the impacted area to prevent erosion.		
Waste generation	Soil and Visual impacts	Minimize littering on site and ensure that all laborers are trained in environmental awareness. Bins (sufficient number and capacity) to store general and hazardous produced on a daily basis shall be provided at each drilling site. The bins are to be vandal proof; sealed bins that cannot leak leachate material and waterproof that rain water cannot enter into them. Bins shall be emptied on a weekly basis or if there is a nauseous smell coming from them or vectors are breeding within them. An integrated waste management approach shall be used, based on the principles of waste minimization, reduction, re-use and recycling of materials.	National Environmental Management: Waste Management Act	Through operatio
POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PE IMPLEM
<b>DECOMMISSIONING PHASE</b>				
<b>Removal of temporary infrastructure and final rehabilitation of disturbed areas</b>				
Compaction and contamination of soils within the rehabilitation site.	Soil	All vehicles and machinery used at the rehabilitation site must be kept in good working order. No repairs of vehicles or machinery will be conducted at the rehabilitation site unless it is emergency repairs, which will be conducted on protected ground. Movement of vehicles and machinery should be limited to demarcated routes, which will be rehabilitated when no longer in use	Rehabilitation in terms of MPRDA and NEMA principles. General implementation of activities taking Biodiversity Act and its guidelines into account.	Through Decomr Phase
Re-instatement of soil productivity, land capability, land use and topographical patterns.	Soil	Ensure that the soil in the vicinity of the rehabilitation site is not detrimentally impacted. All the waste from demolition must collected from site for disposal. Once the area is shaped correctly the compacted areas are to be ripped at 300mm and topsoil is to be replaced. 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 a Highveld indigenous grass	Rehabilitation in terms of MPRDA and NEMA principles General implementation of activities taking Biodiversity Act and its guidelines into account.	Through Decomr Phase
Pollution of surface water environment	Surface water	Ensure that the rehabilitation of the site does not have detrimental impacts on the surface water environment.	The surface water leaving the rehabilitation site will comply with the Department of Water and Sanitation target of water quality parameters.	Through Decomr Phase
Potential injuries to fauna and residents due to Geological instability.	Geology and social	Ensure that all drill holes have been refilled with rocks and or cement to avoid potential injuries to fauna and residents.	Rehabilitation in terms of MPRDA and NEMA principles Occupational Health and safety Act	Decomr Phase

Air pollution from rehabilitation site.	Air Quality	Where necessary, wet suppression will be conducted at areas with excessive dust emissions. Vehicles and machinery will be well maintained. The traffic volumes and speed within the rehabilitation site will be controlled	National Environmental Management Air Quality Act	Through Decommissioning Phase
Migration of animal life due to disturbance caused proposed project	Fauna	Use sites with most degraded environment for the site development. Trapping and killing of fauna will be prohibited at the prospecting site.	General implementation of activities taking Biodiversity Act and its guidelines into account.	During Implementation phase
Generated noise from the rehabilitation site	Noise	Smaller or less disruptive equipment should, where possible, be used when working near receptors. Equipment will be well maintained and fitted with the correct and appropriate noise abatement measures.	National Noise Control Regulations, SANS10103:2008 guidelines.	Through Decommissioning Phase

## **6 FINANCIAL PROVISION**

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

A total of R **54506,00** is required to both manage and rehabilitated the environment in respect of rehabilitation. Bay Tower Properties must update and review the quantum of the financial provision annually.

### **6.2 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; and
- To record and communicate the results of the monitoring programme during decommissioning to the participating stakeholders.

The closure objectives for mining internationally and in South Africa focuses on the restoration of previous land use capabilities, the zero-net loss of biodiversity, and the satisfaction of community requirements.

Rehabilitation measures have been designed to meet closure objectives:

The objectives of rehabilitation and closure are:

- To ensure closure complies with the Mineral and Petroleum Resources Development Act 28 of 2002;
- To ensure that the mining footprints are rehabilitated to an acceptable standard, where there is ecosystem functioning and that all environmental and social risks have been reduced and do not pose any threat to the environment post mine-closure;
- To ensure that the goals which were specified in the rehabilitation plan have been met and that the land may have a sustainable use;
- To implement management strategies that will ensure that the negative impacts (risks) associated with the Borrow pit is eliminated or minimized to acceptable standards;
- To leave the area in a manner that is environmentally safe and does not pose any health risks to the Neighbouring communities.

**7 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.

**8 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 16: Rehabilitation Plan*

Aspect/ Impact	Rehabilitation Measure	Monitoring Frequency & Responsibility
Removal of drilling infrastructure structures	<ul style="list-style-type: none"> <li>• Clear and completely remove from site all storage containers, signage, temporary services, fixtures and any other temporary works; and</li> <li>• Ensure that all access roads utilized during site establishment (which are not earmarked for closure and rehabilitation) are returned (as far as possible) to their state prior to site establishment.</li> </ul>	Once-off; Bay Tower Properties
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 minimize the spread of alien and invasive vegetation.</li> </ul>	When re-vegetation is done and in blooming season; Bay Tower Properties or sub-contractor appointed
Topsoil replacement	<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.</li> <li>• Prohibiting the use of topsoil suspected to be contaminated with the seed of alien</li> </ul>	Once-off; Bay Tower Properties.

Aspect/ Impact	Rehabilitation Measure	Monitoring Frequency & Responsibility
	<p>vegetation. Alternatively, the soil is to be sprayed with specified herbicides.</p> <ul style="list-style-type: none"> <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>	
Waste and Rubble Removal	<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>	Once-Off; Bay Tower Properties
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> <li>Dispose of all visible remains of excess cement and concrete after the completion of tasks. Dispose of in the approved manner (drilling cores).</li> </ul>	Once-off; Bay Tower Properties
Erosion protection	<ul style="list-style-type: none"> <li>Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the drilling site.</li> <li>Retain shrubbery and grass species wherever possible.</li> <li>Perform regular monitoring and maintenance of erosion control measures.</li> </ul>	After rainfall events; Bay Tower Properties. or sub-contractor appointed

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

Bay Tower Properties 19 is required to make the prescribed financial provision for the rehabilitation or management of negative environmental impacts. If the Bay Tower Properties 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. Bay Tower Properties 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

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

Operational rehabilitation has been catered for in the Budget lodged with the application in the Prospecting Work Programme. In terms of decommissioning rehabilitation (or the so-called Rehabilitation Quantum

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

The Budget has been prepared by the applicant as part of the Prospecting Work Programme and that includes a provision for Rehabilitation in the prospecting budget. The applicant confirms herewith that the amount can be (and will be) provided from operating expenditure. The quantum must be approved by the DMR after which the applicant will provide for the quantum by way of bank guarantee.



**9 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
- e) Mechanism for monitoring compliance

Table 17: Mechanisms 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 /construction.	<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> <li>• change in topography</li> </ul>	<ul style="list-style-type: none"> <li>• Daily dust suppression</li> <li>• Monthly dust bucket monitoring</li> </ul>	Geologist and Project Manager	Daily and monthly

Traffic management	<ul style="list-style-type: none"> <li>• Dust</li> <li>• noise</li> <li>• animal life disruption</li> <li>• Traffic Congestion</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor dust fallout levels monthly and</li> <li>• Noise level</li> <li>• Monitor the time frames in which heavy vehicles travel on main roads and national roads.</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	<ul style="list-style-type: none"> <li>• dust</li> <li>• animal life disruption</li> <li>• Monitor dust.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor dust fall out levels</li> <li>• Monitor speed on the road</li> </ul>	Geologist and Project Manager	Monthly and when necessary

**10 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 Bay Tower Properties 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 an annual basis.

**11 ENVIRONMENTAL AWARENESS PLAN**

**11.1 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 that will be implemented by Bay Tower Properties 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 18

*Table 18: Environmental Awareness Plan*

Air Quality	<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>
Surface and groundwater	<ul style="list-style-type: none"> <li>• Risks to surface and 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> <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>
Fauna	<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</li> </ul>

	should be reported if further actions are required (e.g. to catch and release).
Flora	<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 operational plans.</li> </ul>
Waste management	<ul style="list-style-type: none"> <li>• Measures to avoid waste generation and to participate in waste minimization/reduction.</li> </ul>
Traffic strategies.	<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>
Emergency Preparedness and Response	<ul style="list-style-type: none"> <li>• How to report any emergency or incident.</li> <li>• Incident and emergency reporting requirements</li> </ul>
General rules and conduct	<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>

**11.2 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.

**12 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY**

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

All potential risks have been identified within this document and are to be communicated to all contractors and all contractors and is indicated in the EMPr which will be available to all staff. Environmental training needs for each section should 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. 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.

An environmental audit report will be submitted annually as per DMR requirements.

### 13 UNDERTAKING

The EAP herewith confirms

- f) the correctness of the information provided in the reports
- g) the inclusion of comments and inputs from stakeholders and I&APs ;
- h) the inclusion of inputs and recommendations from the specialist reports where relevant;  and
- i) That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. Parties are correctly reflected herein.

---

Signature of the environmental assessment practitioner:

Davhana Geotech Solutions (Pty) Ltd  
Name of company:

October 2022  
Date:

-END-

### 14 APPENDICES

*Appendix 1: Qualifications of EAP*

*Appendix 2: C.V of EAP*

---

*Appendix 3: Locality Map*

*Appendix 4: Final Site Map*

*Appendix 5: Public Participation*