ENVIRONMENTAL IMPACT ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE APPLICATION OF A PROSPECTING RIGHT WITH BULK SAMPLING SITUATED ON A PORTION OF THE FARM MORGENSTER 772, FARM VOORSPOED 401 AND FARM GELDENHUYS 1477 INTHE MAGISTERIAL DISTRICT OF KROONSTAD , KROONSTAD

FOR TIGANE DEVELOPERS AND

PROPERTY ADMINISTRATORS CC

DMR REF. NO. FS 10662 PR

COMPILED BY: ENGEDI MINERALS AND ENERGY

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mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

ENVIRONMENTAL IMPACT 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: Tigane Developers and Property Administrators CC

TEL NO: 051 430 1748

FAX NO: 086 551 8225

POSTAL ADDRESS: P.O Box 309, Hartebeesfontein, 2600

PHYSICAL ADDRESS: 71-72 Masie Street Tigane Resdential Area, Hartebeesfontein, 2600

FILE REFERENCE NUMBER: FS 30/5/1/1/2/10662 PR

TABLE OF CONTENTS

1. IMPORTANT NOTICE

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

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

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

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

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

2. OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The objective of the environmental impact assessment process is to, through a consultative process–

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

(b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;

(c) identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;

(d) determine the—-

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

  (ii) degree to which these impacts–

    (aa)can be reversed;

    (bb)may cause irreplaceable loss of resources, and

    (cc) can be avoided, managed or mitigated;

(e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;

(f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;

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

(h) identify residual risks that need to be managed and monitored.

PROJECT DETAILS

Name of Project:	A Portion of the Farm Morgenster 772, Farm Voorspoed 401 and Farm Geldenhuys 1477
Prospecting Right:	FS 10662 PR
Name of Applicant:	Tigane Developers and Property Administrators CC
Responsible person:	Mr. Martin Van Rensburg
Postal Address:	P.O Box 309, Hartebeesfontein, 2600
Physical Address:	71-72 Masie Street Tigane Resdential Area, Hartebeesfontein
Telephone:	072 911 0823
E-mail:	Martinhaildamage@gmail.com

Environmental Consultant (EAP):	Tshimangadzo Mulaudzi
Responsible Person:	Tshimangadzo Mulaudzi
Physical Address:	15 Barnes Street, Langebaan building, Bloemfontein 9301
Postal Address:	P.O. Box 22372, Extonweg, 9313
Telephone:	079 362 6046
Facsimile:	086 556 2568
E-mail:	info@engedime.com
Expertise of EAP:	Refer to Part A (3) (a) (ii) on the expertise of EAP

PART A

SCOPE OF ASSSSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

PART A

SCOPE OF ASSSSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

3. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of

i. Details of the EAP

Name of the Practitioner:	Tshimangadzo Mulaudzi
Tel No.:	079 362 6046
Fax No. :	086 556 2568
E-mail address:	mulaudzit@engedime.com

ii. Expertise of the EAP

(1) The qualifications of the EAP

(with evidence).

Tshimangadzo hold an Honours Degree in Prospecting and Environmental Geology from the University of Venda. Have since been working as an environmental geologist and environmental practitioner. He has 5 years' experience in Environmental Science, 3 years' experience in Geology, and 5 years' experience in public participation.

(2) **Summary of the EAP's past experience**.

(In carrying out the Environmental Impact Assessment Procedure)

Tshimangadzo has been carrying out Environmental Impact Assessment Procedure since 2012, managing a construction company called Tshedza Concrete Art in Limpopo Province, Makhado town.

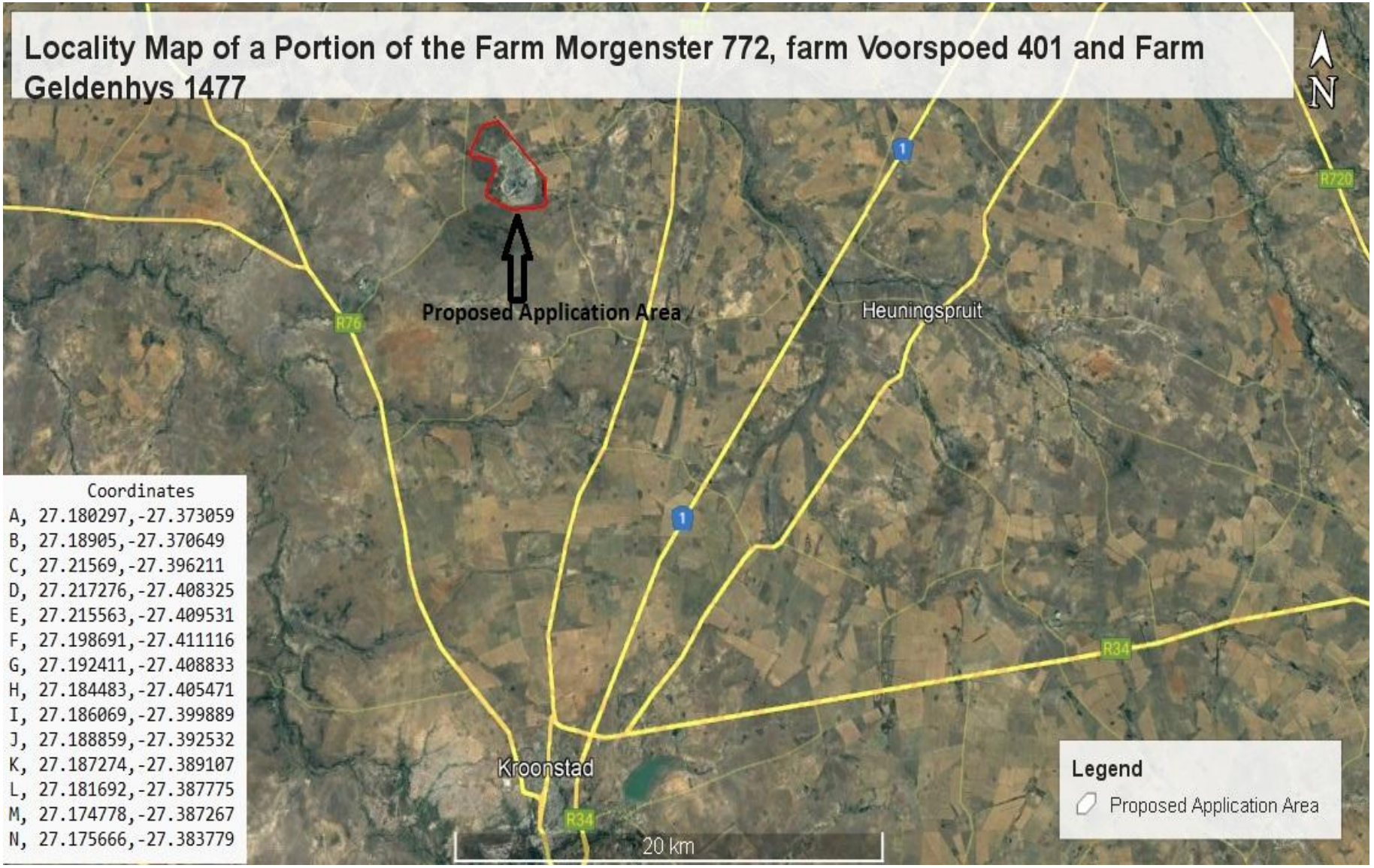
In 2014, he joined a large prospecting consulting company in Kimberly called Breeze Court Investments 47 (Pty) Ltd (Geologist and Prospecting Consulting firm). This is where Mr Mulaudzi acquired in-depth experience and know how in the prospecting consulting business by assisting the large to small scale prospecting companies to obtain prospecting right, prospecting rights, prospecting permits, technical co-operate permits, reconnaissance permits, exploration rights, production rights, integrated water use license, and environmental authorisation among other licenses.
Tshimangadzo has five years working experience in environmental management, geology and public participation process.

b) Description of the property

Farm Name:	Morgenster 772, Voorspoed 401 and Geldenhys 1477
Application area (Ha)	923, 524 Ha
Magisterial district:	Kroonstad
Distance and direction from nearest town	30 km north-east of Kroonstad, 50 km south of Vredefort.
21 digit Surveyor General Code for each farm portion	F02000000000077200000 F02000000000040100000 F02000000000147700000

c) Locality map

(shows nearest town, scale not smaller than 1:250000 attached as **Appendix 2).**



d) 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)

- **DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:**

(These activities do not disturb the land where prospecting will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc)

PHASE 1

Literature Review

In order to direct the exploration programme in an efficient manner, there will be a review of all information and data gathered during previous exploration. A site investigation of the target areas will be undertaken to identify infrastructure and determine any potential problems that may need to be addressed.

Literature review of all available data for the area will be performed in order to accumulate as much regional and historical data around the area as possible. This includes published geological reports, infrastructure mapping, satellite imagery and existing geophysical information if available, both primary (Kimberlite or Lamproite) and secondary (alluvial) diamond deposits will be targeted.

Imagery Analysis & Geological Mapping

High-resolution satellite images will be studied and used to geologically map the application area. Contacts between various lithologies will be mapped and specific attention will be given to delineate and define areas underlain by alluvial gravels and kimberlite.

Progress report

When the literature review, geological mapping survey is complete, comprehensive report will be compiled.

PHASE 2

Excavation/ Trenching
Detailed in Invasive activities

Progress Report

Progress report of the activities will be compiled.

PHASE 3 Bulk Sampling
Detailed in Invasive Activities

Progress Report

Progress report of the activities will be compiled.

PHASE 4

Analytical Report

The project geologist monitors the programme, consolidates and processes the data and amends the programme depending on the results. This is a continuous process throughout the programme and continues even when no prospecting is done on the ground.

Each physical phase of prospecting is followed by desktop studies involving interpretation and modelling of all data gathered. These studies will determine the manner in which the work programme is to proceed in terms of activity, quantity, resources, expenditure and duration.

A GIS based database will be constructed capturing all exploration data.

PHASE 5

Data synthesis and Geological Model

The data will be compiled into a geological database for the area that will be utilized to present the relevant geological data in useable GIS digital map format. These different data sets will be plotted on a base map of the project and surrounding areas in order to develop a geological model. This model will be used to further refine the exploration programme for the target area.

Trenching

About 3 trenches to be dug and mineralised horizons to be analysed and the focus is more on the tailings dam remine

The trenches will be dug using a Tractor Loader Backhoe (TLB). The excavations will be made from surface to below the bottom of the target horizon (to a maximum of 3 - 4 metres). These trenches will typically be around 5 m in length with 3 vertical sides. The width will be the size of the TLB's spade. Each trench will be mapped, sampled and surveyed prior to re-filling the hole for rehabilitation.

Bulk Sampling

Bulk sampling will be executed to determine morphology of the ore body, continuity of grade, quality of the deposit and its applicability in uranium extraction plants in order to calculate a resource

a) Description of the scope of the proposed overall activity

i) Listed and specified activities

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 and attach as **Appendix 4**

NAME OF ACTIVITY **(E.G For Prospecting- Drill Site, site camp, Ablution facility, accomodation, equipment stoarage, sample storage, site office, access route etc…etc** **E.G For Mining- Excavation, blasting, stockpiles, discard dumps or dams, loading, hauling and transport., water supply dams and boreholes, accomodation, offices, ablution facility, stores, workshops, processing plant, storm water control, berms, roads, pipelines, powerlines, conveyors etc…etc..)**	**Aerial Extent of the Activity Ha or M^2**	**LISTED ACTIVITY (Mark with an X where applicable or affected)**	**APPLICABLE LISTING NOTICE (GNR 544, GNR 545 OR GNR 546)**
Bulk Sampling prospecting for diamonds	200m^2	X	Listing Notice 2 (GNR 327) Activity no 20 (a) NEMA
Ablution Facility	20m^2	X	Listing Notice 1 (GNR 327) Activity no 20(a) NEMA
Accomodation (Camp Site)		X	Listing Notice 1 (GNR 327) Activity no 20(a) NEMA
Office Site	100m^2	X	Listing Notice 1 (GNR 327) Activity no 20(a) NEMA
Access Routes (pre existing)		X	Listing Notice 1 (GNR 327) Activity no 20(a) NEMA
Tailings dam remine	100m^2	x	Listing Notice 2 (GNR 327) Activity no 20(a) NEMA

ii) DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

(Describe Methodology or technology to be employed, and for a linear activity, a description of the route of the activity

- **DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:**

(These activities do not disturb the land where prospecting will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc.)

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e) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.)	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT (E.g. In terms of the National Water Act:-Water Use License has/has not been applied for).
Constitution of South Africa (Act 108 of 1996)	Section 24: Environmental right Section 25: Rights in Property Section 27: Water and sanitation right	To be implemented upon the approval of the EMPR.
Basic Conditions of Employment Act (Act 3 of 1997)) as amended	To regulate employment aspects	To be implemented approval of the EMPR
Community Development (Act 3 of 1966)	To promote community development	To be implemented approval of the EMPR
Mine, Health and Safety Act (Act 29 of 1996) and Regulations	Entire Act.	Control measures are to be implemented upon the approval of the EMPR.
Mineral and Petroleum Resources Development Act (Act 28 of 2002) and Regulations as amended	Section 16	A Mining Right has been applied for (FS 30/5/1/2/2/10662 PR). Rights and obligations to be adhered to
Hazardous Substances Act (Act 15 of 1973) and Regulations read together with NEMA and NEMWA	Definition, classification, use, operation, modification, disposal or dumping of hazardous substances.	Noted and Considered measures are to be implemented upon the approval of the EMPR.
National Environmental Management: Air Quality Act (Act 39 of 2004)	Section 32: Control of dust Section 34: Control of noise Section 35: Control of offensive	Control measures are to be implemented upon the approval of the EMPR. This is also legislated by Mine Health

	odors	and Safety from DMR and is to be adhered to.
National Environmental Management Act (Act 107 of 1998) and Regulations as amended	Section 2: Strategic environmental management principles, goals and objectives. Section 24: Foundation for Environmental Management frameworks. Section 24N: Section 24O: Section 28: The developer has a general duty to care for the environment and to institute such measures to demonstrate such care. Regulations GN R325 to R327, published on 4 December 2014 in terms of NEMA (Listed Activities)	Control measures are to be implemented upon the approval of the EMPR.
National Environmental Management: Waste Management Act (Act 59 of 2008)	Chapter 4: Waste management activities Regulations GN R634 published on 23 August 2013 in terms of NEM:WA (Waste Classification and Management Regulations) Regulations GN R921 published on 29 November 2013 in terms of NEM:WA (Categories A to C – Listed activities) National Norms and Standards for the Remediation of contaminated Land and Soil	To be implemented upon the approval of the EMPR

	Quality published on 2 May 2014 in terms of NEM:WA (Contaminated land regulations) Regulations GN R634 published on 23 August 2013 in terms of NEM: WA (Waste Classification and Management Regulations) Regulations GN R632 published on 24 July 2015 in terms of NEM: WA (Planning and Management of Mineral Residue Deposits and Mineral Residue Stockpiles) Regulations GN R633 published on 24 July 2015 in terms of NEM: WA (Amendments to the waste management activities list published under GN921)	
National Water Act (Act 36 of 1998) and regulations as amended	Section 4: Use of water and licensing. Section 19: Prevention and remedying the effects of pollution. Section 20: Control of emergency incidents. Section 21: Water uses In terms of Section 21, a license is required for: (a) taking water from a water resource; (b) storing water; and	A water use license application is in the process of being lodged. Control measures are to be implemented upon the approval of the EMPR.

	(g) disposing of waste in a manner which may detrimentally impact on a water resource. Regulation GN R704, published on 4 June 1999 in terms of the National Water Act (Use of water for mining and related activities) Regulation GN R139, published on 24 February 2012 in terms of the National Water Act (Safety of Dams) Regulation GN R399, published on 26 March 2004 in terms of the National Water Act (Section 21 (a) and (b)) Regulations GN R665, published on 6 September 2013 in terms of the National Water Act (Amended GN 398 and 399 – Section 21 (g)	
Occupational Health and Safety Act (Act 85 of 1993) and Regulations	- Section 8: General duties of employers to their employees. - Section 9: General duties of employers and self-employed persons to persons other than their employees.	Control measures are to be implemented upon the approval of the EMPR.

f) 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).

Project need and desirability

The majority of South Africa's mining houses of Diamonds (General, Alluvial and in Kimberlite) are currently reducing their production scales. They are now focused on large scale mining, leaving all the satellite Diamonds (General, Alluvial and in Kimberlite) for small scale or medium scale miners to profit from. The market of these commodities/deposits is consistence with the demand.

Benefits of the project

Benefits of the project may include increased employment of local residents in the area, greater economic input into the area allowing better development of the towns and surrounding area, and greater socio-economic stability.

b) Period for which the environmental authorisation is required

The required period is 5 years.

g) Motivation for the preferred development footprint within the approved site including a full description of the process followed to reach the proposed development footprint within the approved 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.

i) 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:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;

(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

d) The main activities of the proposed prospecting trenching and pitting (bulk sampling). Technology such as GPS will be used to properly locate boreholes and trenching.

e) 100 holes will be drilled 60 - 100 m deep at interval of 30 meters apart.

The bulk sampling will be carried out in the form of Trenching and pitting as per revised prospecting work programme. The parameters of trenches are 5 Trenches X 100 m X 5m deep, this parameters of trenching constitute/contribute as bulk sampling activities. The rehibilitation will take place concurrently with the prospecting work programme. All activities will happen outside 100 m away from wetlands.

f) The historic land use is one of crop farming. The prospecting activities option will result in the continuation of such land use after rehabilitation.

Although it could probably remain economically viable, the continuation of agriculture will not provide the level of economic growth to the area that prospecting activities would offer. After mine closure and rehabilitation of mined area, the land capability may return to grazing, allowing the continuance of certain agricultural practices. The mine will also promote sustainable local economic development, to give communities the skills required to remain economically viable and successful after mine closure.

If the project were not to proceed, the additional economic activity, skills development and available jobs would not be created, the Diamonds (General, Alluvial and in Kimberlite) reserves would remain unutilised, the current land uses and economic activities would continue as at present, with little or no economic growth developing in the region. There are

currently no foreseeable significant environmental impacts that will outweigh the economic benefits that would be generated by the project; however this will be further assessed during the EIA.

If prospecting activities on the Farms Morgenster 772, Voorspoed 401 and Geldenhys 1477 were not to proceed with the proposed project; prospecting activities of these commodities will not necessarily be avoided, as another application in terms of the MPRDA (Act no. 28 of 2002) can be made by another company. Unless the government declares the area off limits‖ to prospecting activities, prospecting activities houses will continue to attempt to mine the Diamonds (General, Alluvial and in Kimberlite)

.

Regulation 2 Plan

In the Kroonstad Magisterial District , Free-State Province

Project Extent: 923.524 ha

APPLICATION MADE FOR PROSPECTING RIGHT FOR DIAMONDS (GENERAL), ALLUVIAL & kIMBERLITE , IN TERMS OF SECTION 27 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002)

Legend

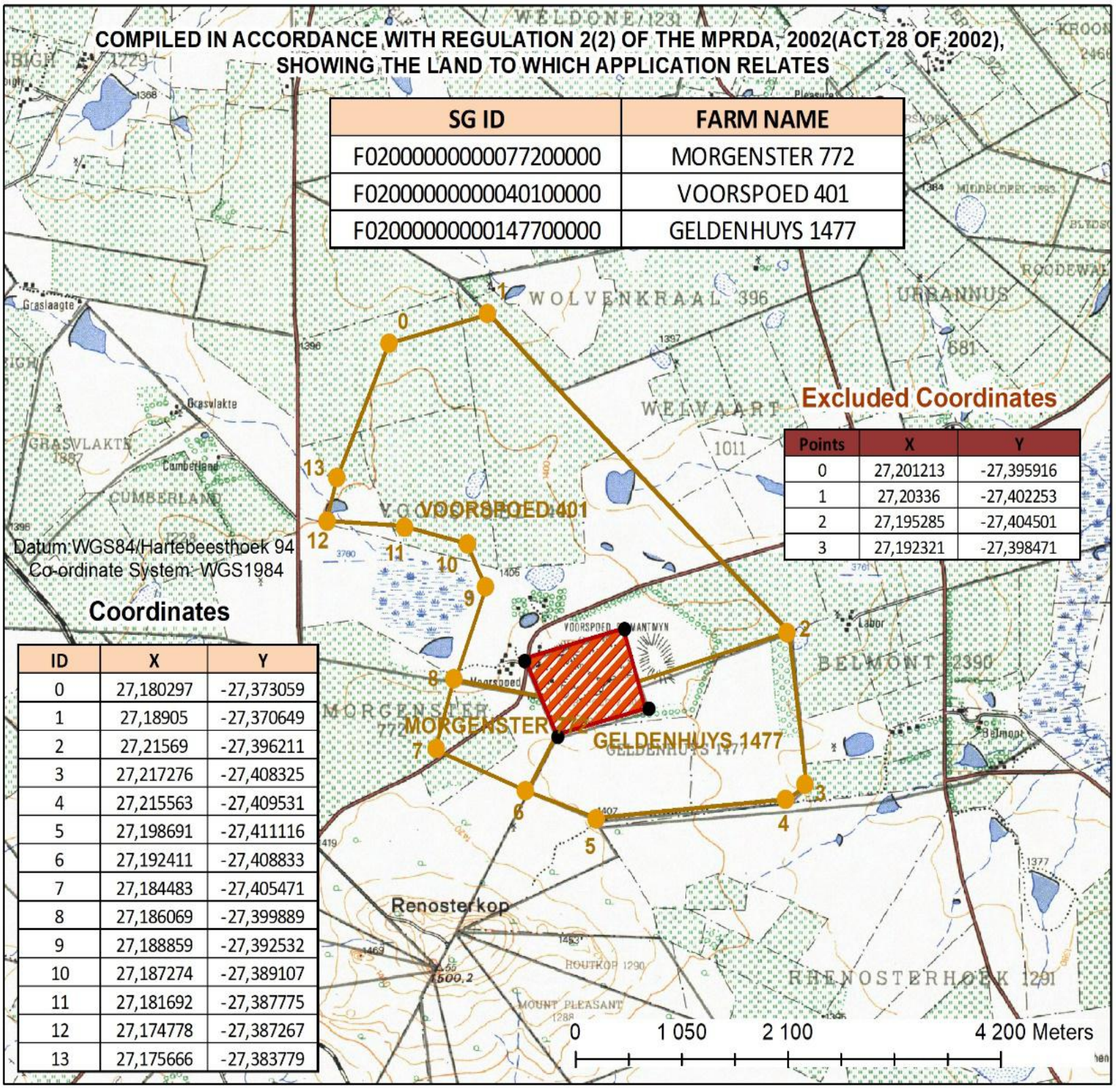
- Excluded Coordinates
- Coordinates
- Excluded Area
- Application Area

TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS

N W E S

COMPILED IN ACCORDANCE WITH REGULATION 2(2) OF THE MPRDA, 2002(ACT 28 OF 2002), SHOWING THE LAND TO WHICH APPLICATION RELATES

SG ID	FARM NAME
F02000000000077200000	MORGENSTER 772
F02000000000040100000	VOORSPOED 401
F02000000000147700000	GELDENHUYS 1477



Excluded Coordinates

Points	X	Y
0	27,201213	-27,395916
1	27,20336	-27,402253
2	27,195285	-27,404501
3	27,192321	-27,398471

Coordinates

ID	X	Y
0	27,180297	-27,373059
1	27,18905	-27,370649
2	27,21569	-27,396211
3	27,217276	-27,408325
4	27,215563	-27,409531
5	27,198691	-27,411116
6	27,192411	-27,408833
7	27,184483	-27,405471
8	27,186069	-27,399889
9	27,188859	-27,392532
10	27,187274	-27,389107
11	27,181692	-27,387775
12	27,174778	-27,387267
13	27,175666	-27,383779

The map above shows location proposed activities, type of activities and design or layout of activities.

ii) 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.

Engedi Minerals was appointed by Tigane Developers and Property Administrators CC as the independent consultant to conduct the Public Participation process as part of the EIA as stipulated in Sections 56 - 59 of the NEMA (Act no. 107 of 1998) as well as in Section 16 of the MPRDA (Act no. 28 of 2002).

As stipulated in the MPRDA (Act no. 28 of 2002) and in Regulation 49(1) (f) (MPRDA Regulation GN R527), I&APs need to be notified and consulted with, as part of an application for prospecting right.

Identification of Interested and Affected Parties

The following categories of stakeholders were identified: the landowners of the farms Morgenster 772, Voorspoed 401 and Geldenhys 1477 (the area included in the Prospecting Right Application i.e. the site). In addition other potential stakeholders were identified and invited to register themselves as I&APs. This invitation was also extended to the public by means of site notices.

Landowners & lawful occupiers of the site

The title deed owners of the application area will be listed in the table below. According to the title deed ownership records, the landowners of the application area are private landowners.

Farm name	Portion (if applicable)	Extent (ha)	Owner	Title deed number
Morgenster 772	Remaining extent			
Voorspoed 401	Remaining extent			
Geldenhys 1477	Remaining extent			

Consultation in progress..

iii) Summary of issues raised by I&APs

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

*The public participation report will be attached as appendix 5 once consultation has been finalised.

iv) The Environmental attributes associated with the sites

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.

(Its current geographical, physical, biological, socio- economic and cultural character).

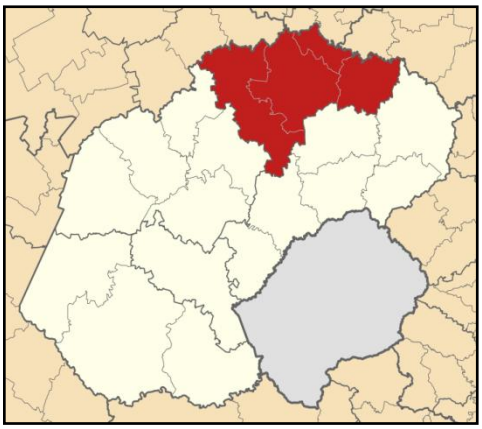
Physical environment

The environment on site relative to the environment in the surrounding area

Location

Kroonstad is part and seat of Moqhaka Local Municipality, Free State Province, on the Vals River. It is an agricultural and industrial center. Kroonstad is also an important rail junction.

The Figure 4 below indicates the location of the proposed Proposed Right.



The location of the Fezile Dabi District Municipality within the Free State Province.

The location of Kroonstad and Moqhaka Local Municipality within the Fezile Dabi District Municipality.

Climate

The climate of the area is characterised by mild to hot summer temperatures in excess of 30°C and extremely cold winter temperatures with severe frost during winter months. Summer rains occur with a mean annual precipitation of 500 millimetres between November and March.

(i) *Regional Climate:*

The Free State experiences a continental climate, characterised by warm to hot summers and cool to cold winters. Areas in the east experience frequent snowfalls, especially on the higher ranges, whilst the west can be extremely hot in summer. The sun shines approximately 80% during summer and approximately 70% during the winter.

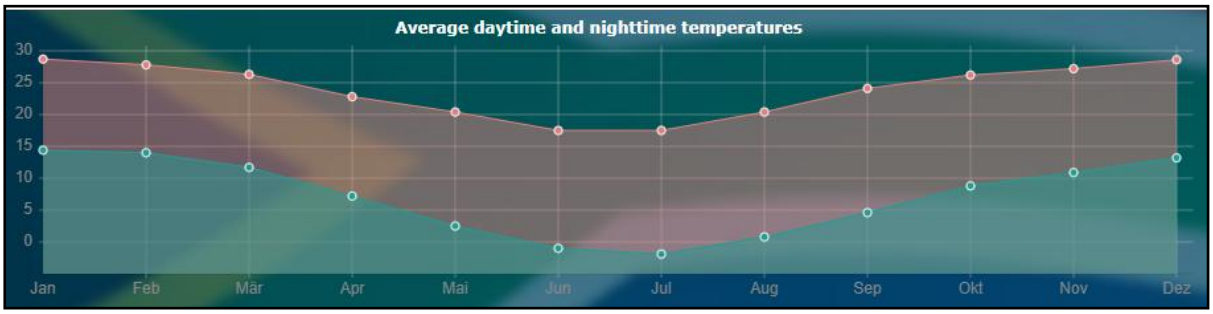


Figure 5: The average daytime and night-time temperatures of the Free State Province.

(ii) *Rainfall Intensity:-*

The driest month is August, with 7 mm of rain. The greatest amount of precipitation occurs in January, with an average of 99 m. Figure 5 shows the average daytime and night-time temperatures of the Free State Province.

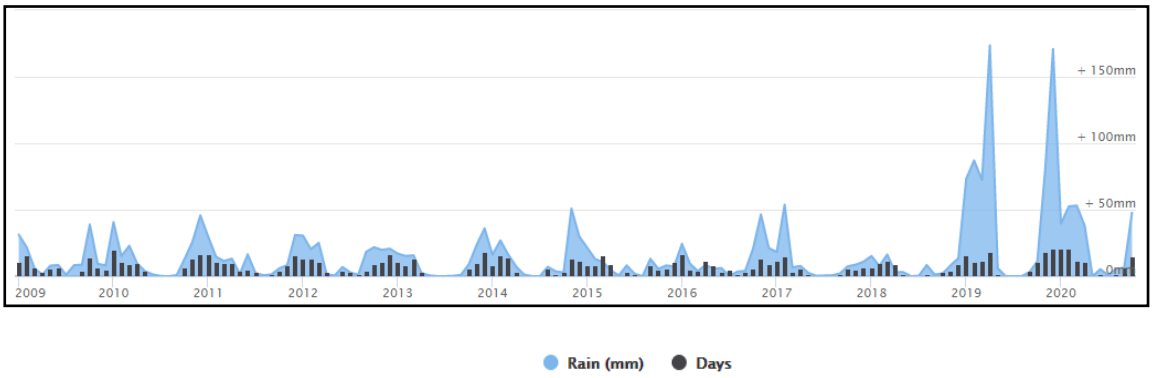


Figure 6: The average daytime and night-time temperatures of the Free State Province.

(iii) *Average Maximum and Minimum Temperatures:*

The climate of the area is characterised by mild to hot summer temperatures. January is the warmest month of the year. The temperature in January averages 22.4 °C. The lowest average temperatures in the year occur in June, when it is around 8.8 °C. Figure 6 shows the average daytime and night-time temperatures of the Free State Province.

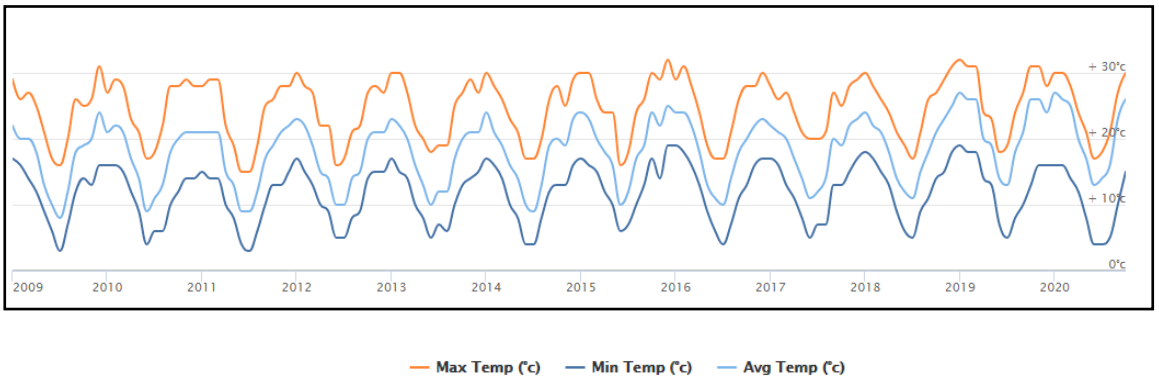


Figure 7: The average daytime and night-time temperatures of the Free State Province.

(iv) *Average Monthly Wind Speed:-*

Figure 8 shows the average daytime and night-time temperatures of the Free State Province.

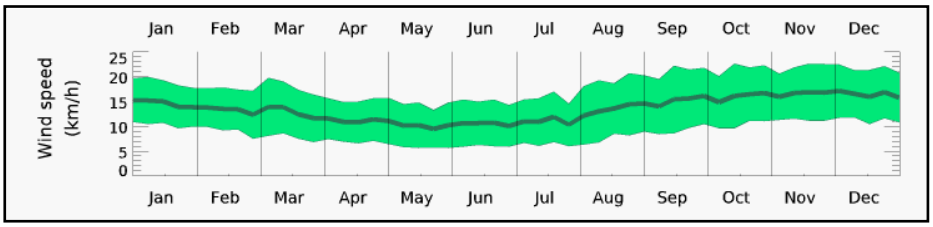


Figure 8: The average daytime and night-time temperatures of the Free State Province.

Topography and Elevation:

The topography includes hills and mountains, slightly irregular plains with sparse vegetation dominated by shrubs and dwarf shrubs. The elevation of Kroonstad is about 1417 meters.

Geology and Soils:

The proposed prospecting area lies within the south central Archean Kaapvaal Craton within a subcluster of kimberlites referred to as the Kroonstad Group II Kimberlite Cluster

The Voorspoed pipe occurs on the Kaapvaal Craton of South Africa. Skinner et al. (1992) have estimated that there are > 230 occurrences of Group II kimberlites, which form a distinct temporal trend from the northern Dokolwayo kimberlite (200 Ma) to the southern Eendekuil (110 Ma) kimberlite (Skinner, 1989).

Phillips et al. (1998) provide a date of 131.8 (± 1.7) Ma for the Voorspoed pipe using the 40Ar/39Ar method.

Biological Environment

Vegetation

According to Mucina and Rutherford (2006), the Central Free State Grassland is found in the Free State Province and marginally in the Gauteng Province at an altitude of 1 300 -1 640 m above mean sea level. It occurs in a broad zone from around Sasolburg to Dewetsdorp and other large settlements, namely Kroonstad, Ventersburg, Steynsrus, Winburg, Lindley and Edenville, are also found within this vegetation unit.

The landscape is undulating plains with short grasslands which are dominated by Themeda triandra if it is in its natural condition ad conversely Eragrostis curvuls and E. chloromelas when it is degraded. Important Taxa include:

- Graminoids: *Aristida adscensionis (d), A. congesta (d), Cynodon dactylon (d), Erasgrostis chloromelas (d), E. curvula (d), E.plana (d), Panicum coloratum (d), Setaria sphacelata (d), Themeda triandra (d), Tragus koeleriodes (d), Agrostis lachnantha, Andropogon appendiculatus, Aristida biparita, A. canescens, Cymbopogon pospischilii, Cynodon transvaalensis, Digitaria argyrograpta, Elionurus muticus, Eragrostis lehmanniana, E. micrantha, E. obtuse, E. racemosa, E. trichophora, Heteropogon contortus, Microchloa caffra, Setariaincrassata, Sporobolus discosporus*.
- Herbs: *Berkheya onopordifolia var. onopordifolia, Chamaesyce inaequilatera, Conyza pinnata, Crabbea acaulis, Geigeria aspera var. aspera, Hermannia depressa, Hibiscus pusillus, Pseudognaphalium luteo-album, Salvia stenophylla, Selago densiflora, Sonchus dregeanus*.
- Geophytic herbs: *Oxalis depressa, Raphionacme dyeri.*
- Succulent herb: *Tripteris aghillana var. integrifolia*.
- Low shrubs: *Felicia muricata (d), Anthospermum rigidum subsp. pumilum, Helichrysum dregeanum, Melolobium candicans, Pentzia globosa*.

Fauna

Mammals

The Prospecting Right area is disturbed by land uses such as agriculture, urban development and mining. A desktop search for expected species and identified species as well as the identification of any Red Data or Species of Conservation Concern (SCC) present or potentially occurring in the area was conducted. Emphasis was placed on the probability of occurrence of species of provincial, national and international conservation importance.

The International Union for Conservation of Nature (IUCN) Red List Spatial Data (IUCN, 2017) lists 73 mammal species that could be expected to occur within and in the vicinity of the application area. Of these species, 8 are medium to large conservation dependant species, such as Ceratotherium simum (Southern White Rhinoceros) and Equus quagga (Plains Zebra) that, in South Africa, are generally restricted to protected areas such as game reserves. These species are not expected to occur in the project area and are removed from the expected SCC list. Of the remaining 65 small to medium sized mammal species, ten (10) are listed as being of conservation concern on a regional or global basis.

The list of potential species includes:

- One (1) that is listed as Endangered (EN) on a regional basis.
- Four (4) that are listed as Vulnerable (VU) on a regional basis.
- Five (5) that are listed as Near Threatened (NT) on a regional scale.

Birds

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database, 266 bird species are expected to occur in the vicinity of the application area. Of the expected bird species, twenty-two (22) species are listed as SCC either on a regional scale or international scale.

The SCC includes the following:

- Four (4) species that are listed as Endangered (EN) on a regional basis.

- Six (6) species that are listed as Vulnerable (VU) on a regional basis.
- Twelve (12) species that are listed as Near Threatened (NT) on a regional basis.

Important Bird Areas Important Bird Areas (IBAs) are the sites of international significance for the conservation of the world's birds and other conservation significant species as identified by BirdLife International. These sites are also all Key Biodiversity Areas; sites that contribute significantly to the global persistence of biodiversity (BirdLife, 2017).

According to BirdLife International (2017), the selection of Important Bird and Biodiversity Areas (IBAs) is achieved through the application of quantitative ornithological criteria, grounded in up-to-date knowledge of the sizes and trends of bird populations. The criteria ensure that the sites selected as IBAs have true significance for the international conservation of bird populations and provide a common currency that all IBAs adhere to, thus creating consistency among, and enabling comparability between, sites at national, continental and global levels. No IBAs occur within the proximity of the proposed application area. The nearest IBA to the application area is the Willem Pretorius Nature Reserve which is situated approximately 82 km southwest of the application area.

Conservation areas

According to the National Environmental Management: Protected Areas (Act No 57 of 2003) the declaration of protected areas is:

- To protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected area;
- To preserve the ecological integrity of these areas;
- To conserve biodiversity in these areas;
- To protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;
- To protect South Africa's threatened or rare species;
- To protect an area which is vulnerable or ecologically sensitive;
- To assist in ensuring the sustained supply of environmental goods and services;
- To provide for the sustainable use of natural or biological resources;
- To create or augment destinations for nature based tourism;
- To manage the inter-relationship between natural environment biodiversity, human settlement and economic development;
- Generally to contribute to human, social, cultural, spiritual and economic development; and
- To rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

The study area is not in close proximity to any conservation area.

Surface water

Catchment

The application area falls within the Vaal Water Management Area (WMA 5) which includes

major rivers such as the Vaal, Wilge, Liebenbergsvlei, Mooi, Renoster, Vals, Sand, Vet, Harts and Molopo rivers. According to the South African Mine Water Atlas (SAMWA, 2018), the catchment area of the mining site is of moderate ecological sensitivity.

The water resources of the Vaal River system support major economic activities. The Vaal River system has extensive water resource infrastructure and is linked by substantial transfer systems to other water resource systems (Thukela, Usutu, Lesotho). There are also significant transfers out of the Vaal catchment through the distribution system of Rand Water to the Crocodile West and Marico catchments. System supply reaches most of Eskom's power stations and Sasol's plants on the eastern Highveld, the North West and Free State goldfields, the North West platinum and chrome mines, iron and manganese mines in the Northern Cape, the town of Kimberley, several small towns along the main course of the river, as well as several large irrigation schemes. With particular reference to the project application area, the Vaal WMA is highly altered by catchment development with agriculture and mining being the main activities.

Catchment development has led to deterioration of the water quality of the water resources, requiring that management interventions are sought to ensure that water of acceptable quality is available to all users in the system, especially as land use activities continue to grow and intensify. Salinisation and eutrophication of the water resources in the Vaal River system appear to be the two major water quality problems being experienced. The main mining activities in the Vaal catchment are related to gold, uranium, coal and semi-precious stones.

The rivers present in the proposed application area are in a largely natural present ecological state (class B) and a moderately modified condition (class C). The moderately modified river condition that is largely present in the WMA is due to impacts from agricultural activities and urban development.

The NFEPA Rivers and Wetlands depict the area to have two artificial wetlands south-west of the farm. Figure 9 depicts the area where the wetlands are located. Prospecting activities will not be within 100 m of these water resources.

Water Management Area

Vaal Water Management Area (WMA 5).

Groundwater

The gravel operations will not affect the quality of the groundwater in any manner. There are no harmful or toxic properties in the gravels being mined. Special care must be taken with mining practises so as to avoid groundwater pollution. These should be maintained to limit the potential impact of development on the water resources.

Air Quality:

Existing sources

The current source of air pollution in the area stems from vehicles travelling on the gravel roads of the area.

New source

The source of air pollution on the farm will be nuisance dust generated by the opencast Mining process, the loading of gravels onto the transport trucks, the dumping of gravels over each sites primary screen or feeder bins as well as from the movement of trucks and vehicles on the Mining roads. Gas emissions from machinery will be within legal limits.

The dust management programme recommended should include daily dosing of access roads and stockpile areas. The dust is controlled by watering down the roadway used by these trucks. The mineral processing is a wet process, thus no dust is generated. A complain register for surrounding owners and the community will be kept on site and the management of dust would be guided by these additionally comments of public.

Noise and Vibration

Existing sources:

Noise on site will come from the large vehicles (i.e. front-end loaders). Although mining operations do generate noise the overall impact can be described as Low. The impact would be of more

importance regarding the direct worker environment that should adhere to the requirements in terms of the Mine Health and Safety Act. These noise levels will be continuous and the operators will be issued with earplugs.

Noise is normally encountered during the normal operation hours at the processing plant. Processing plant noise and mine vehicles are limited between 7am and 6pm every day during the week. Noise levels are monitored on the Mining area and where necessary, protective equipment is used in certain areas where machinery is used.

Cultural/Heritage Environment

According to research and correspondence from SAHRA, the proposed development area was never formally been earmarked as a heritage site. However, the Applicant is comfortable linking themselves to a range of conditions to ensure that through the proposed mining activities, they will:

- Not be using explosives or equipment that will make noise.
- Use mining materials that are environmentally friendly.

The Applicant is minimizing the use of machinery to create the maximum number of jobs and minimize noise and inconvenience to any party. The Applicant is further prepared if their proposals are not sufficient, to engage with the relevant Heritage Representatives as well as the owners of the land to discuss a consensus win - win agreement for all.

Socio-economic setting

Population

According to the 2011 census data, the Moqhaka Local Municipality has a population of 160 532. Approximately 87.2% of the population is African, 9.3 % is White and 3.5% Coloured, Indian, Asian or other.

The regional population is illustrated in the table below.

POPULATION GROUP	PERCENTAGE
Black African	87.2%
Coloured	1.9%
Indian or Asian	0.3%
White	9.3%

Age and Gender Composition

The following observations were made:

There were slightly more females (51.4%) than males (48.6%) among the local population during 2010. It was, however, noted that the population became slightly less female dominant since 2000, when 52.4% of the population were female.

- The working age group (15 to 64) contributed 64.4% to the local population in 2010. This age group has increased proportionately (from 58.6% to 64.4%) in relation to the other age groups.
- The working population is slightly male dominant.

The age dependency ratio declined from 0.7 in 2000 to 0.6 dependants (children & the elderly) in 2010for every working age adult.

Language

Table 7: Language statistics

FIRST LANGUAGE	PERCENTAGE
Sotho	67.3%
Afrikaans	13.8%
isiXhosa	6.0%
isiZulu	5.6%
Other	7.3%

Housing

All local municipalities are composed of various residential components varying from formal housing units to informal dwelling units. Within the District, 82,8% of households live in formal housing, 10,8% in informal housing and only 2% in traditional houses.

Education

Obtaining some form of income generating employment has become increasingly difficult in recent years. This is accentuated by the lack of education with the poorly educated being the ones that experience the highest incidence of poverty. There has been a 8,3% in the number of learners that have accessed education between 1996 and 2001. There has been a 27,1% in the number of learners that have matriculated.

Table 8: Education statistics.

EDUCATION (AGED 20 +)		
No schooling	**6.7%**	**7.3%**
Matric	**31.4%**	**27.5%**
Higher education	**7.8%**	**9.0%**

Economy

The Moqhaka unemployment rate (32.5%) is marginally smaller than the provincial rate of 33% and the district rate of 34.0%. The Moqhaka Local Municipality Integrated Development Plan (IDP) 2017/2018 states that the region is located within a significant agricultural region. Kroonstad is the centre of a large agricultural community that plays a crucial role in the economy of the region. In addition to agriculture, mining remains one of the primary economic sectors within the Moqhaka Local Municipality through the De Beers and Lace diamond mines situated approximately 15 km from Kroonstad CBD. The AngloGold Ashanti Kopanong Mine and the possible re-opening of Vierfontein Colleries in the area of Viljoenskroon also play the same

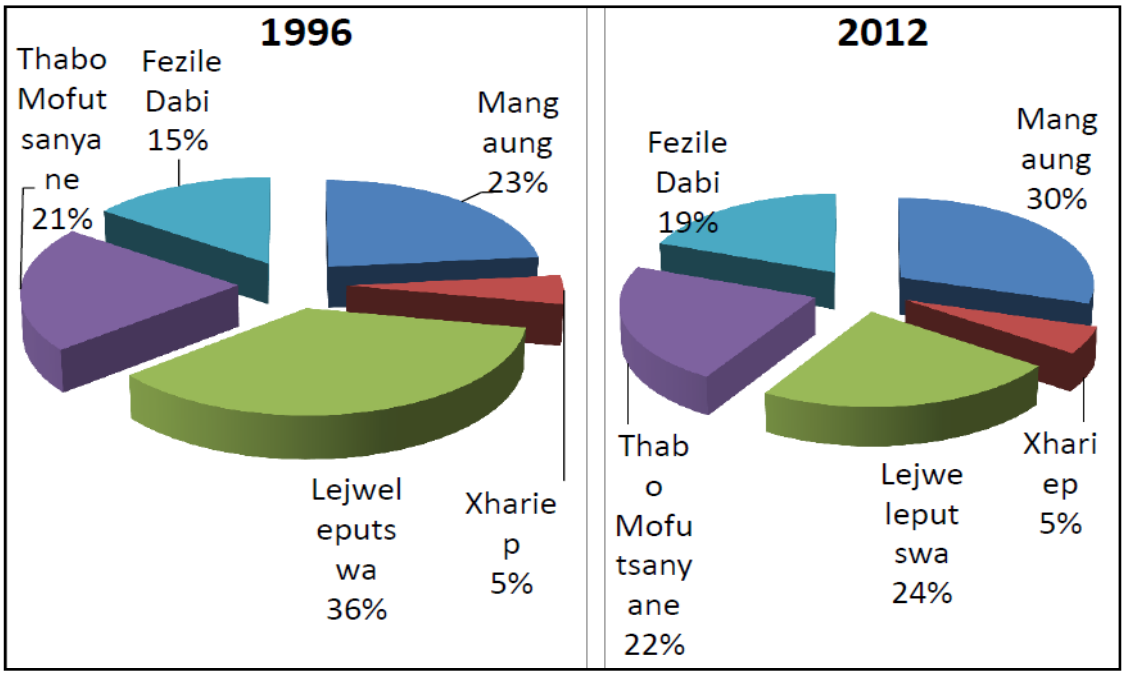
important economic role (Moqhaka Local Municipality IDP, 2017/2018).

Employment

Unemployment

The region of Mangaung is the biggest employer in the province, employing 30% of the people employed in the province; this is in line with its 31% contribution to provincial GDP. The biggest regional economy, with a GDP share of around 35% (Fezile Dabi), only employs 19% of the employed in the province, although its share has increased from only 16% in 2002. As is the case with the ranking in terms of GDP, Lejweleputswa (24%) and Thabo Mofutsanyane (22%) hold the third and fourth positions respectively in terms of employment share.

Figure 11: Employment status per Municipality in 1996 and 2012.



(b) Description of the current land uses.

Currently, major land uses in the region include activities related agriculture and, to a lesser extent, mining. The land capability for the majority of the study site is non-arable with low potential grazing land. A number of homesteads on the farm are currently occupied by land owners, tenants and workers.

(c) Description of specific environmental features and infrastructure on the site.

The following environmental features and infrastructure is present at the site:

- Access roads are available on site, as there is a main road by the site

(d) Environmental and current land use map.

Regulation 2 Plan

In the Kroonstad Magisterial District , Free-State Province

Project Extent: 923.524 ha

APPLICATION MADE FOR PROSPECTING RIGHT FOR DIAMONDS (GENERAL), ALLUVIAL & kIMBERLITE
, IN TERMS OF SECTION 27 OF
THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002
(ACT 28 OF 2002)

Legend

- Excluded Coordinates
- Coordinates
- Excluded Area
- Application Area

TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS

N
W E
S

COMPILED IN ACCORDANCE WITH REGULATION 2(2) OF THE MPRDA, 2002(ACT 28 OF 2002), SHOWING THE LAND TO WHICH APPLICATION RELATES

SG ID	FARM NAME
F02000000000077200000	MORGENSTER 772
F02000000000040100000	VOORSPOED 401
F02000000000147700000	GELDENHUYS 1477

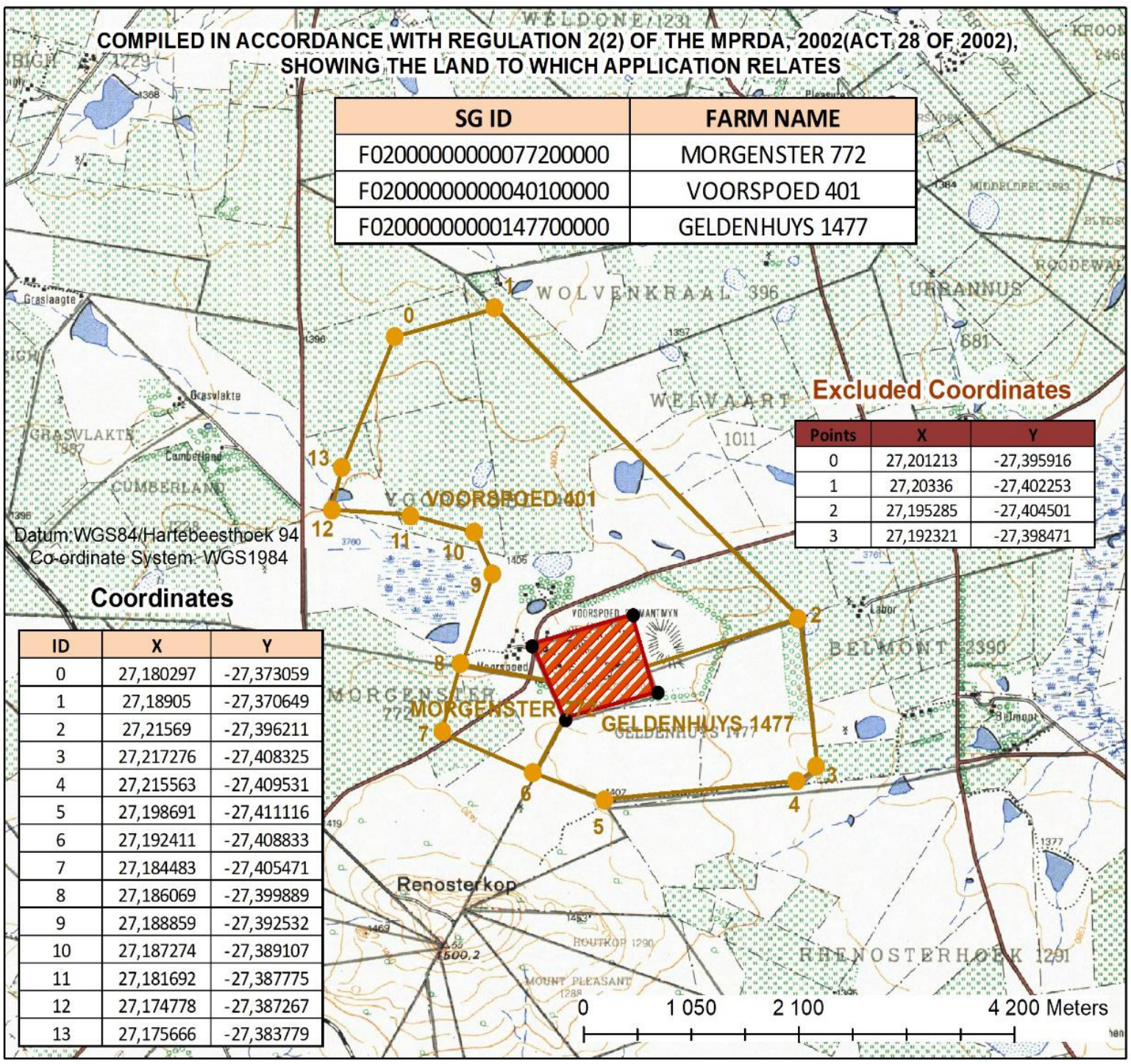
Datum:WGS84/Hartebeesthoek 94
Co-ordinate System: WGS1984

Coordinates

ID	X	Y
0	27,180297	-27,373059
1	27,18905	-27,370649
2	27,21569	-27,396211
3	27,217276	-27,408325
4	27,215563	-27,409531
5	27,198691	-27,411116
6	27,192411	-27,408833
7	27,184483	-27,405471
8	27,186069	-27,399889
9	27,188859	-27,392532
10	27,187274	-27,389107
11	27,181692	-27,387775
12	27,174778	-27,387267
13	27,175666	-27,383779

Excluded Coordinates

Points	X	Y
0	27,201213	-27,395916
1	27,20336	-27,402253
2	27,195285	-27,404501
3	27,192321	-27,398471



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

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

ASPECT	POTENTIAL IMPACT
Soil	• Compaction – from movement of heavy machinery • Contamination – from diesel, oil, grease, etc. used for the trenching machinery and from maintenance of machinery conducted on site • Contamination – from domestic waste. • Loss of topsoil – when the trenching site is cleared of vegetation, topsoil may be lost • Erosion – from the clearing of trenching sites and movement along access tracks
Land use	• The land use will temporarily change to prospecting • Prospecting may interfere with any land uses currently taking place on the site
Biodiversity (fauna and flora)	• The fauna and flora could be negatively affected by the establishment of the trenching sites and access tracks • Alien and invasive species could be introduced through the disturbance
Surface- and groundwater	• Contamination – from diesel, oil, grease, etc. used for the drilling machinery and from maintenance of machinery conducted on site • Contamination – from domestic waste, sewerage, drilling core and contaminated soil • Prospecting requires a large amount of water which may be sourced on site,

	which may result in the reduction of water available to other users
Heritage sites	• Heritage sites may be present on the site, which may be disturbed and/or damaged during prospecting
Dust	• Dust from prospecting activities may coat vegetation making it unsafe for livestock grazing
Noise	• Noise from the trenching activities could disturb residents within the site

vi) Methodology used in determining the significance of Environmental impacts

(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 significance of the impacts will be determined through the consideration of the following criteria:

Probability:	Provides a description of the likelihood/probability of the impact occurring
Extent:	Describes the spatial scale over which the impact will be experienced
Duration:	The period over which the impact will be experienced
Intensity:	The degree/order of magnitude/severity to which the impact affects the health and welfare of humans and the environment
Significance:	Overall significance of the impact on components of the affected environment and whether it is a negative or positive impact

The impacts will be individually described and assessed using the criteria drawn from the EIA Regulations, published by the DEA in terms of the NEMA (Act 107 of 1998).

The significance of each impact is assessed using the following formula (before and after mitigation):

Significance Point (SP) = (Probability + Extent + Duration) x Intensity

The maximum value is 150 SP. The impact significance will then be rated as follows:

SP > 75	Indicates **high** environmental significance	An impact that could influence the decision about whether or not to proceed with the project regardless of any possible mitigation.
SP 30 – 75	Indicates **moderate** environmental significance	An impact or benefit which is sufficiently important to require management and which could have an influence on the decision unless it is mitigated.
SP < 30	Indicates **low** environmental significance	Impacts with little real effect and which should not have an influence on or require modification of the project design.
+	Positive impact	An impact that is likely to result in positive consequences/effects.

Probability (P)		
None (N)	1	The possibility of the impact occurring in none, due either to the circumstances, design or experience (0%).
Possible (P)	2	The possibility of the impact occurring is very low, due either to the circumstances, design or experience (25%).
Likely (L)	3	There is a possibility that the impact will occur to the extent that provisions must therefore be made (50%).
Highly likely (H)	4	It is most likely that the impacts will occur at some stage of the development and plans must be drawn up before carrying out the activity (75%).
Definite (D)	5	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on (100%).

Extent (E)		
Footprint (F)	1	The impact area extends only as far as the activity which occurs within the total site area.
Site (S)	2	The impact could affect the whole site or a significant portion of the site.
Regional (R)	3	The impact could affect the area including the neighbouring farms, the transport route and/or the adjoining towns.
National (N)	4	The impact could have an effect that expands throughout the country.
International (I)	5	Where the impact has international ramifications that extend beyond the boundaries of the country.
Duration (D)		
The period over which the impact will be experienced		
Temporary (T)	1	0 – 18 months (or confined to the construction period).
Short term (S)	2	18 – 36 months (or confined to the construction and part of the operational period).
Medium term (M)	3	36 – 48 months (or confined to the construction and whole operational period).
Long term (L)	5	For the whole life of mine (including closure and rehabilitation period).
Permanent (P)	5+	Beyond the anticipated lifetime of the project.
Intensity (I)		
Insignificant (I)	2	Will have a no or very little impact on the health and welfare of humans and environment

Low (L)	4	Will have a slight impact on the health and welfare of humans and environment
Moderate (M)	6	Will have a moderate impact on the health and welfare of humans and environment
High (H)	8	Will have a significant impact on the health and welfare of humans and the environment
Very high/ don't know (V)	10	Will have a severe impact on the health and welfare of humans and the environment

vii) 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)

Description	Occurring phase
Creation of new employment opportunities	
Employment creation during the life of prospecting activities may be greatly beneficial to a number of households within the surrounding area. It is however anticipated that a contractor operation is the preference and therefore job opportunities might be very limited.	Construction and Operational phases
Transfer of skills to local people	
In order to promote preferential recruitment for local people, it would be necessary to assess the skills available locally and to ensure that these skills match the local positions at the operation. From the data collected to date, it is apparent that there is significant potential for skills transfer given education levels in the area.	Construction and Operational phases
Support of local suppliers and contractors	

During both the construction and operational phases of the operations, it is expected that a wide variety and generally substantial quantities of goods and services will be required by the mine and their contractors. It is recommended that whenever possible, local contractors should be utilized to provide goods and services to the mine.	Construction and Operational phases

viii) 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).

No adverse environmental or social impacts associated with the prospecting activity have been through Scoping process. Mitigation measures as set out in the Environmental Management Programme (EMPr) attached in part B must be implemented in order to minimise any potential impacts.

All the comments received during the review period of the Scoping report and EIR as well as responses provided will be captured and recorded within the comments and response report and will be attached in the final EIR.

ix) Motivation where no alternative sites were considered

This alternative asks the question, if there is not, from an environmental perspective, a more suitable location for the proposed activity. No other property have at this stage been secured by TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS CC from a local perspective, on the farms Morgenster 772, Voorspoed 401 and Geldenhys 1477, is preferred due to the sites underlying Diamonds (General, Alluvial and in Kimberlite)

x) Statement motivating the alternative development location

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

Design alternatives were considered throughout the planning and design phase (i.e. where is the rock bed located?). In this regard discussions on the design were

held between the EAP and the developer. The layout follows the limitations of the site and aspects such as, roads, site offices and workshop area as well as fencing.

xi) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site

(In respect of the final site layout plan) through the life of the activity (Including

(i) a description of all environmental issues and risks that are identified during the environmental impact assessment process and

(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

An assessment of each identified potentially significant impact and risk, including-

The following sections present the outcome of the significance rating exercise. The results suggest that almost none of the key issues identified as part of the EIR process had a high negative environmental significance. Instead the overall score indicate a low environmental significance score.

INITIAL CLEARANCE AND SITE PREPARATION PHASE

Direct impacts: During this phase minor negative impacts are foreseen over the short term. The latter refers to a period of weeks. The site preparation may result in the loss or fragmentation of indigenous natural fauna and flora, loss or fragmentation of habitats, soil erosion, hydrology, and temporary noise disturbance, generation of waste, visual intrusions, increase in heavy vehicle traffic, and risk to safety of livestock and farm infrastructure, and increased risk of veld fires. The above mentioned impacts are discussed in more detail below:

Loss or fragmentation of indigenous natural fauna and flora – Grassland

The Southern parts of the province are mainly grassland. Sometimes farmers burn the grass in winter so that it will grow better in summer. Some trees also grow in the grassland, especially near rivers. The grassland are good for cattle farming. Large areas of grassland have been ploughed up and used for planting such as mealies

and sunflowers. Trees and grass shall not be removed or damaged without prior approval and permits.

Loss or fragmentation of indigenous natural fauna and flora	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Definite (4)	Definite (4)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Negligible cumulative impacts (1),	
Significance	Negative low (26)	Negative low (12)
Can impacts be mitigated?	If the development is approved, contractors must ensure that no mammalian species are disturbed, trapped, hunted or killed. If the development is approved, every effort should be made to confine the footprint to the blocks allocated for the development and have the least possible edge effects on the surrounding area. The EMPr also provides numerous mitigation measures – refer to section (f) of the EMPr. The potential impacts associated with damage to and loss of farmland should be effectively mitigated. The aspects that should be covered include: • The site should be fenced off prior to commencement of construction activities; • The footprint associated with the construction related activities (access roads, construction	

	platforms, workshop etc.) should be confined to the fenced off area and minimised where possible; • An Environmental Control Officer (ECO) should be appointed to monitor the establishment phase of the construction phase; • All areas disturbed by construction related activities, such as access roads on the site, construction platforms, workshop area etc., should be rehabilitated at the end of the construction phase; • The implementation of a rehabilitation programme should be included in the terms of reference for the contractor/s appointed. Specifications for the rehabilitation are provided throughout the EMPr – section (f) of the EMPr. • The implementation of the Rehabilitation Programme should be monitored by the ECO. • Thorn trees shall not be removed or damaged without prior approval and permits.

• Loss or fragmentation of habitats – Given the low probability of resident threatened species occurring at the footprint site, the low probability of any significant conservation corridor or buffer zone at the footprint site. A small non-perennial pan is found on site, a Water Use License will be applied for where applicable to prospect in or near this area.

Loss or fragmentation of habitats	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Definite (4)	Definite (4)
Duration	Medium term (2)	Medium term (2)

Magnitude	Low (1)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Negligible cumulative impacts (1)	
Significance	Negative low (12)	Negative low (12)
Can impacts be mitigated?	Exotic and invasive plant species should not be allowed to establish, if the development is approved. Where exotic and invasive plant species are found at the site continuous eradication should take place. If the development is approved, every effort should be made to confine the footprint to the blocks allocated for development – section (f) of the EMPr also provides numerous mitigation measures related to fauna and flora.	

• Loss of topsoil – Topsoil may be lost due to poor topsoil management (burial, erosion, etc.) during construction related soil profile disturbance (levelling, excavations, disposal of spoils from excavations etc.) The effect will be the loss of soil fertility on disturbed areas after rehabilitation.

Loss of topsoil	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Geographical extent	Site (1)	Site (1)
Probability	Possible (2)	Unlikely (1)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal (2)	Marginal (2)
Cumulative impact	Negligible cumulative impact (1).	

Significance	Negative low (20)	Negative low (18)
Can impacts be mitigated?	The following mitigation or management measures are provided: • If an activity will mechanically disturb below surface in any way, then any available topsoil should first be stripped from the entire surface and stockpiled for re-spreading during rehabilitation. • Topsoil stockpiles must be conserved against losses through erosion by establishing vegetation cover on them. • Dispose of all subsurface spoils from excavations where they will not impact on undisturbed land. • During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface. • Erosion must be controlled where necessary on top soiled areas. Establish an effective record keeping system for each area where soil is disturbed for constructional purposes. These records should be included in environmental performance reports, and should include all the records below. • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation of constructional (or operational) activities at the particular site. • Photograph the area on cessation of constructional activities.	

	• Record date and depth of re-spreading of topsoil.
	□ Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. Section (f) of the EMPr also provide mitigation measures related to topsoil management.

• Soil erosion – Soil erosion due to alteration of the land surface run-off characteristics. Alteration of run-off characteristics may be caused by construction related land surface disturbance, vegetation removal and the establishment of roads. Erosion will cause loss and deterioration of soil resources. The erosion risk is low due to the low slope gradients and low to moderate erosion levels of the soils.

Soil erosion	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Geographical extent	Site (1)	Site (1)
Probability	Possible (2)	Unlikely (1)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal (2)	Marginal (2)
Cumulative impact	Negligible cumulative impact (1).	
Significance	Negative low (20)	Negative low (18)
Can impacts be mitigated?	The following mitigation or management measures are provided: Implement an effective system of run-off control, where it is required, that collects and safely disseminates run-off water	

	from all hardened surfaces and prevents potential down slope erosion. Include periodical site inspection in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence any erosion on site or downstream – refer to section (f) of the EMPr..

• Temporary noise disturbance - Preparation activities will result in the generation of noise over a period of months. Sources of noise are likely to include vehicles, the use of machinery such as back actors and people working on the site. The noise impact is unlikely to be significant; but activities should be limited to normal working days and hours (6:00 – 18:00).

Temporary noise disturbance	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Definite (4)	Probable (3)
Duration	Short term (1)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	The impact would result in negligible to no cumulative effects (1).	
Significance	Negative low (20)	Negative low (9)
Can impacts be mitigated?	Yes, management actions related to noise pollution are included in section (f) of the EMPr.	

• Generation of waste - general waste, construction waste, sewage and greywater - The workers on site are likely to generate general waste such as food wastes, packaging, bottles, etc. Construction waste is likely to consist of

packaging, scrap metals, waste cement, etc., If any). The applicant will need to ensure that general and construction waste is appropriately disposed of i.e. taken to the nearest licensed landfill. Sufficient ablution facilities will have to be provided, in the form of portable/VIP toilets. No pit latrines, French drain systems or soak away systems shall be allowed.

Generation of waste	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local/district (2)	Local/district (2)
Probability	Definite (4)	Definite (4)
Duration	Short term (1)	Short term (1)
Magnitude	Low (1)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Medium cumulative impact (3) - An additional demand for landfill space could result in significant cumulative impacts if services become unstable or unavailable, which in turn would negatively impact on the local community.	
Significance	Negative medium (13)	Negative low (13)
Can impacts be mitigated?	Yes, it is therefore important that all management actions and mitigation measures included in section (f) of the EMPr. are implemented.	

• Impacts on heritage objects – No sites, features or objects of cultural significance were found in the study area, and that there would be no impact as a result of the proposed development. It is however noted that, in terms of the National Heritage Resource Act no 25 of 1999. Heritage resources including archaeological and paleontological sites over 100 years old, graves older than 60 years, structure older than 60 years are protected. They will not be disturbed without a permit from the relevant heritage resource Authority, which means that before such sites are disturbed by development it is incumbent on the developer to

ensure that a heritage impact assessment is done and the Provincial Heritage Resources Authority and SAHRA will be contacted immediately and work will stop.

Impacts on heritage objects	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Short term (1)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Low cumulative impact (2). Should these impacts occur, there may be a cumulative impact on the preservation of heritage objects in the area.	
Significance	Negative low (24)	Negative low (12)
Can impacts be mitigated?	If archaeological sites or graves are exposed during construction work, it should immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. Also refer to section (f) of the EMPr.	

Indirect impacts: The nuisance aspects generally associated with the installation of infrastructure or ground preparation will also be applicable to this development, which relates primarily to the increase in vehicle traffic associated with prospecting practices, the influx of job seekers to the area, risk to safety, livestock and farm infrastructure, and increased risk of veld fires.

• Increase in vehicle traffic – The movement of heavy vehicles during the clearance of vegetation and topsoil has the potential to damage local farm roads and create dust and safety impacts for other road users in the area. Access will be obtained from an existing secondary gravel road. While the volume of traffic along

this road is low, the movement of heavy vehicles along this road is likely to damage the road surface and impact on other road users. The contractor should be required to ensure that damage to the road is repaired periodically. The movement of additional heavy vehicle traffic is unlikely to increase significantly to the current traffic load on the road. The impact on the road is therefore likely to be low.

Increase in vehicle traffic	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Probable (3)
Duration	Short term (1)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Medium cumulative impact (3). If damage to roads is	
	not repaired then this will affect the farming activities in the area and result in higher maintenance costs for vehicles of local farmers and other road users. The costs will be borne by road users who were no responsible for the damage.	
Significance	Negative low (22)	Negative low (11)

Can impacts be mitigated?	The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation measures include: • The contractor must ensure that damage caused by construction related traffic to the gravel access road is repaired and maintained. The costs associated with the repair must be borne by the contractor; • Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport commodities arefitted with tarpaulins or covers; • All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits of 40 km/h. Also refer section (f) of the EMPr. For mitigation measures related to traffic.

• Risk to safety, livestock and farm infrastructure - The presence on and movement of workers on and off the site poses a potential safety threat to local famer's and farm workers in the vicinity of the site threat. In addition, farm infrastructure, such as fences and gates, may be damaged and stock losses may also result from gates being left open and/or fences being damaged or stock theft linked either directly or indirectly to the presence of farm workers on the site.

Risk to safety, livestock and farm infrastructure	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Probable (3)
Duration	Short term (1)	Short term (1)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Negligible cumulative effects (1), provided losses are compensated for.	
Significance	Negative low (22)	Negative low (11)
Can impacts be mitigated?	Key mitigation measures include: □ TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS CCshould enter into an agreement	
	with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences; • The construction area should be fenced off prior to the commencement of the construction phase. The movement of construction workers on the site should be confined to the fenced off area; • Contractors appointed by TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS CC should provide daily transport for low and semi- skilled workers to and from the site. This would reduce the potential risk of trespassingon the remainder of the farm and adjacent properties;	

	• Tigane Developers should hold contractors liable for compensating farmers in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent,the contractors and neighbouring landowners.The agreement should also cover loses and costs associated with fires caused by construction workers or construction related activities (see below); • The Environmental Management Programme (EMPr) should outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested; • Contractors appointed by Tigane Developers must ensurethat all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms. • Contractors appointed by Tigane Developers must ensure that construction workers who are found guiltyof trespassing, stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordancewith South African labour legislation; • The housing of construction workers on the site should be strictly limited to security

• Increased risk of veld fires - The presence of construction workers and construction-related activities on the site poses an increased risk of grass fires that could in turn pose a threat to livestock, crops, wildlife and farmsteads in the area. In the process, farm infrastructure may also be damaged or destroyed and human lives threatened. The potential risk of veld fires was heightened by the windy conditions in the area, especially during the dry, windy winter months from May to October. In terms of potential mitigation measures, a fire-break should be constructed around the perimeter of the site prior to the commencement of the construction phase. In addition, fire-fighting equipment should be provided on site during the construction phase.

Increased risk of veld fires	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Region (3)	Local (2)
Probability	Probable (3)	Probable (3)
Duration	Medium term (2)	Short term (1)
Magnitude	High (3)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Negligible cumulative effects (1), provided losses are compensated for.	
Significance	Negative medium (33)	Negative low (9)

Can impacts be mitigated?	The mitigation measures include: • A fire-break should be constructed around the perimeter of the site prior to the commencement of the construction phase; • Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas; • Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy winter months; • Contractor to provide adequate fire fighting equipment on-site, including a fire fighting vehicle; • Contractor to provide fire-fighting training to selected construction staff; • No construction staff, with the exception of security staff, to be accommodated on site over night; • As per the conditions of the Code of Conduct, in the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the firefighting costs borne by farmers and local authorities.

OPERATIONAL PHASE

Direct impacts: During the operational phase the study area will serve as an prospecting area and the impacts are generally associated with soil erosion, change in land use, impacts associated with the, increase in storm water runoff, increased consumption of water, visual intrusion, the generation of general waste, leakage of hazardous materials, and the change in the sense of place. The operational phase will also have a direct positive impact through the provision of permanent employment opportunities and facilitating a positive economic growth. The abovementioned impacts are discussed in more detail below:

- Soil erosion – The largest risk factor for soil erosion will be during the operational phase when the prospecting activity ensues and soil is left bare until rehabilitation is initiated. Erosion will be localised within the site. This will ultimately lead to the irretrievable commitment of this resource. The measurable effect of reducing erosion by utilizing mitigation measures may reduce possible erosion significantly.

Soil erosion	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local/Regional (2)	Local/Regional (2)
Probability	Definite (4)	Unlikely (1)
Duration	Long term (3)	Long term (3)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Medium cumulative impact (3). Should these impacts occur, there will be a cumulative impact on the air and water resources in the study area in terms of pollution.	

Can impacts be mitigated?	Yes, to avoid soil erosion it will be a good practice to not remove all the vegetation at once but to only clear the area as it becomes necessary and to implement concurrent rehabilitation. Also refer to section (f) of the EMPr.

- Change in land-use – The use of the area for the operation of the prospecting activity will result in the area not being used for cultivation anymore. The impact on farm income due to the loss of agriculture will be more than offset by the income from Tigane Developers and Property Administrators CC

Change in land use	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Definite (4)	Definite (4)
Duration	medium term (2)	medium term (2)
Magnitude	Low (1)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Negligible cumulative impacts (1). Only 0.20Ha per year will be excavated. The rest of the farm will stay intact and undergo concurrent rehabilitation.	
Significance	Negative low (10)	Negative low (10)

Can impacts be mitigated?	The proponent should establish a Rehabilitation Fund to be used to rehabilitate the area once the proposed facility has been decommissioned. The fund should be funded by revenue generated during the operational phase of the project. The motivation for the establishment of a Rehabilitation Fund is based on the experience in the mining sector where many mines on closure have not set aside sufficient funds for closure and decommissioning. Also refer to section (f) of the EMPr.

- Gyeneration of alternative land use income – Income generated through the Diamonds (General, Alluvial and in Kimberlite) mine will provide the farming enterprise with increased cash flow and rural livelihood, and thereby improve the financial sustainability of farming on site.

Generation of alternative land use income	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Positive	Positive
Geographical extent	Site (1)	Site (1)
Probability	Definite (4)	Definite (4)
Duration	Long term (3)	Long term (3)
Magnitude	Medium (2)	Medium (2)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resources (1)	No loss of resources (1)
Cumulative impact	Low cumulative impact (2).	
Significance	Positive Low (24)	Positive Low (24)

Can impacts be mitigated?	No mitigation required.

- Increase in storm water runoff – The development will potentially result in an increase in storm water run-off that needs to be managed to prevent soil erosion, especially where vegetation will be cleared. Not all the vegetation should be removed at once. Only the specific trench being excavated at the specific time should be cleared.

Increase in storm water runoff	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Unlikely (1)
Duration	Long term (3)	Long term (3)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Medium cumulative impact (3) - Should these impacts occur, there will be a cumulative impacts on the wider area.	
Significance	Negative medium (30)	Negative low (13)
Can impacts be mitigated?	Yes. It is therefore important that all management actions and mitigation measures included in section (f) of the EMPr. are implemented to ensure that these impacts do not occur	

- Increased consumption of water - Approximately 10 000 – 16 000 of water per hour will be required for the washing of the gravel in the rotary 16 feet pan. The water will be sourced from groundwater sources.

Increased consumption of	Pre-mitigation	Post mitigation

water	impact rating	impact rating
Status (positive or negative)	Negative	Negative
Extent	Region (3)	Region (3)
Probability	Definite (4)	Definite (4)
Duration	Long term (3)	Long term (3)
Magnitude	Medium (2)	Medium (2)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	Marginal loss of resources (2)	Marginal loss of resources (2)
Cumulative impact	High cumulative impacts (4) - An additional demand on water sources could result in a significant cumulative impact with regards to the availability of water.	
Significance	Negative medium (40)	Negative medium (40)
Can impacts be mitigated?	Yes, management actions and mitigation measures related to the use of water are included in section (f) of the EMPr.	

- Generation of waste – Approximately 15 Workers will be present on site from 6:00 – 18:00, Monday to Saturday. Sources of general waste will be waste food, packaging, paper, etc. General waste will be stored on the site and removed on a weekly basis by a contractor.

Generation of waste	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Definite (4)	Definite (4)
Duration	Long term (3)	Long term (3)
Magnitude	Low (1)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	No loss of resource	No loss of resource (1)

	(1)	
Cumulative impact	Medium cumulative impact (3) - An additional demand for landfill space could result in significant cumulative impacts with regards to the availability of landfill space.	
Significance	Negative low (15)	Negative low (15)
Can impacts be mitigated?	Yes, management actions related to waste management are included in section (f) of the EMPr.	

- Leakage of hazardous materials - The proposed prospecting activity will make use of machinery that use fuel and oil. Leakage of these oils and fuel can contaminate water supplies and must be prevented by constructing oil and diesel permeable bunds to ensure that any spills are suitably attenuated and not released into the environment.

Leakage of hazardous materials	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Possible (2)	Unlikely (1)
Duration	Long term (3)	Long term (3)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	The impact would result in negligible to no cumulative effects (1)	
Significance	Negative medium (36)	Negative low (22)
Can impacts be mitigated?	Yes. It is therefore important that all management actions and mitigation measures included in the section (f) of EMPr are implemented to ensure that these impacts do not occur.	

- Noise disturbance - Prospecting activities will result in the generation of noise over a period of 3-5 years. Sources of noise are likely to include vehicles, the use of machinery such as back actors, rotary pans and people working on the site, as well as occasional blasting. The noise impact is unlikely to be significant as the closest homestead is more than 1km from the site; but prospecting activities should be limited to normal working days and hours (6:00 – 18:00).

Temporary noise disturbance	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Definite (4)	Probable (3)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	The impact would result in negligible to no cumulative effects (1).	
Significance	Negative low (22)	Negative low (10)
Can impacts be mitigated?	Yes, management actions related to noise pollution are included in section (f) of the EMPr.	

Indirect impacts: The operational phase will have an indirect negative impact through the change in the sense of place and an indirect positive impact through the provision of additional electrical infrastructure.

Potential impact on tourism – The tourism sector is regarded as an important economic sector in the Free State Province and Kroonstad. The tourism potential of the area is linked to the areas natural resources, including the relatively undisturbed scenery and landscape. The impact of the proposed prospecting of Diamonds (General, Alluvial and in Kimberlite) on the areas sense of

place with mitigation is likely to be low. The impact of the proposed mine on the tourism potential of the area and Kroonstad is therefore likely to be low.

Potential impacts on tourism	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	Low (1)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	N/a	N/a
Cumulative impact	N/a	
Significance	Negative low (6)	Negative low (6)
Can impacts be mitigated?	No mitigation required	

DECOMMISIONING PHASE (MINE CLOSURE AND REHABILITATION)

Direct impacts: Typically, the major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income. This has implications for the households who are directly affected, the communities within which they live. If infrastructures are removed after a 3/5 year period, the site will be returned to its natural state.

- Rehabilitation of the physical environment – The physical environment will benefit from the closure of the prospecting since the site will be restored to its natural state as far as possible

Rehabilitation of the physical environment	Pre-mitigation impact rating	Post mitigation impact rating

Status (positive or negative)	Positive	Positive
Extent	Site (1)	Site (1)
Probability	Possible (2)	Probable (3)
Duration	Long term (3)	Long term (3)
Magnitude	Low (1)	Medium (2)
Reversibility	N/A	N/A
Irreplaceable loss of resources	N/A	N/A
Cumulative impact	The impact would result in negligible to no cumulative effects (1)	
Significance	Negative low (7)	Negative low (16)
Can impacts be mitigated?	No mitigation measures required.	

- Loss of employment - Given the relatively large number of people employed during the operational phase, the decommissioning of the facility has the potential to have a negative social impact on the local community.

Loss of employment	**Pre-mitigation impact rating**	**Post mitigation impact rating**
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Possible (2)	Possible (2)
Duration	Medium term (2)	Short term (1)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	The impact would result in negligible to no cumulative effects (1)	
Significance	Negative medium (30)	Negative low (18)

Can impacts be mitigated?	The following mitigation measures are recommended: • All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning; • TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS CC should establish an Environmental Rehabilitation Trust Fundto cover the costs of decommissioning and rehabilitation of disturbed areas.

Indirect impacts: No indirect impacts are anticipated from the decommissioning phase of the proposed development.

Process for the identification of key issues

The methodology for the identification of key issues aims, as far as possible, to provide a user-friendly analysis of information to allow for easy interpretation.

- Checklist: The checklist consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts.
- Matrix: The matrix analysis provides a holistic indication of the relationship and interaction between the various activities, development phases and the impact thereof on the environment. The method aims at providing a first order cause and effect relationship between the environment and the proposed activity. The matrix is designed to indicate the relationship between the different stressors and receptors which leads to specific impacts. The matrix also indicates the specialist studies, which will be submitted as part of the Environmental Impact Report in order to address the potentially most significant impacts.

Checklist analysis

The site visit was conducted to ensure a proper analysis of the site specific characteristics of the study area. The table below provides a checklist, which is designed to stimulate thought regarding possible consequences of specific actions and so assist scoping of key issues. It consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts. The table highlights certain issues, which are further analysed in matrix format.

Table: Environmental checklist

QUESTION	YES	NO	Un- sure	Description
1. Are any of the following located on the site earmarked for the development?				
I. A river, stream, dam or wetland	☒			River running NE from the site
II. A conservation or open space area		☒		None.
III. An area that is of cultural importance		☒		The initial site investigation concluded that there are no obvious heritage resources located on the site earmarked for development.
IV. Site of geological significance		☒		None.
V. Areas of outstanding natural beauty		☒		None.
VI. Highly productive agricultural land		☒		None.
VII. Floodplain		☒		None.

VIII. Indigenous forest		□		None.
IX. Grass land		□		None.
X. Bird nesting sites		□		None.
XI. Red data species		□		None.
XII. Tourist resort		□		None.
2. Will the project potentially result in potential?				
I. Removal of people		□		None.
II. Visual Impacts	□			The visual impact will be managed
III. Noise pollution		□		The noise impact is unlikely to be significant.
IV. Construction of an access road		□		None. Access will be obtained from the main road
V. Risk to human or valuable ecosystems due to explosion/fire/ discharge of waste into water or air.		□		None.
VI. Accumulation of large workforce (>50 manual workers) into the site.		□		Approximately 15 employment opportunities will be created during the construction and operational phase of the project.

VII. Utilisation of significant volumes of local raw materials such as water, wood etc.	□			10 - 18ft washing pans which utilise approximately 10 000 – 16 000 L per pan/per hour each from which 40% is re-used.
VIII. Job creation		□		Approximately 15 employment opportunities will be created during the construction and operational phase of the project.
IX. Traffic generation		□		None.
X. Soil erosion		□		Only areas earmarked for prospecting will be cleared. The prospecting will be phased and the topsoil stockpiled separately. Concurrent rehabilitation will take place. The soil also has a low erosion potential.
XI. Installation of additional bulk telecommunication transmission lines or facilities		□		None.
3. Is the proposed project located near the follwing				
I. A river, stream, dam or wetland	□			
II. A conservation or open space area		□		None.
III. An area that is of cultural importance		□		None.
IV. A site of geological significance		□		None.
V. An area of outstanding natural beauty		□		None.

VI. Highly productive agricultural land		□		None.
VII. A tourist resort		□		None.
VIII. A formal or informal settlement		□		None.

Matrix Analysis

The matrix describes the relevant listed activities, the aspects of the development that will apply to the specific listed activity, a description of the environmental issues and potential impacts, and the significance and magnitude of the potential impacts. The matrix also highlights areas of particular concern for more in depth assessment during the EIR process. Each cell is evaluated individually in terms of the nature of the impact, duration and its significance – should no mitigation measures be applied. This is important since many impacts would not be considered insignificant if proper mitigation measures were implemented. The matrix also provides an indication if mitigation measures are available.

In order to conceptualise the different impacts the matrix specify the following:

Stressor: Indicates the aspect of the proposed activity, which initiates and cause impacts on elements of the environment.

Receptor: Highlights the recipient and most important components of the environment affected by the stressor.

Impacts: Indicates the net result of the cause-effect between the stressor and receptor.

Mitigation: Impacts need to be mitigated to minimise the effect on the environment

Matrix Analysis

LISTED ACTIVITY (The Stressor)	ASPECTS OF THE DEVELOPMENT /ACTIVITY	POTENTIAL IMPACTS			SIGNIFICANCE AND MAGNITUDE OF POTENTIAL IMPACTS			MITIGATION OF POTENTIAL IMPACTS	SPECIALIST STUDIES / INFORMATION
			Receptors	Impact description	Minor	Major	Duration	Possible Mitigation	
CONSTRUCTION PHASE									
Listing Notice GNR 984, Activity15:"The clearance of an area of 20 hectares or more, of indigenous vegetation."	Site clearing and preparation Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately.	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	• Loss or fragmentation of indigenous natural vegetation. • Loss of sensitive species. • Loss or fragmentation of habitats.		-	S	Yes	-
			Air	□ Air pollution due to the increase of traffic of construction vehicles.	-		S	Yes	-
			Soil	• Soil degradation, including erosion. • Loss of topsoil. • Disturbance of soils and existing land use (soil compaction).		-	S	Yes	-
			Geology	□ It is not foreseen that the removal of indigenous vegetation will impact on the geology or vice versa.		-	S	Yes	-
			Existing services infrastructure	• Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the local sewage plant.		-	S	Yes	-
			Ground water	□Pollution due to construction vehicles.	-		S	Yes	-

	Surface water	• Increase in storm water run-off. • Pollution of water sources due to soil erosion. • Destruction of watercourses (pans/dams/streams).		-	S	Yes	-
SOCIAL/ ECONOMIC ENVIRONMENT	Local unemployment rate	• Job creation. • Business opportunities. • Skills development.		+	S	Yes	-
	Visual landscape	□ Potential visual impact on residents of farmsteads and motorists in close proximity to proposed facility.	-		S	Yes	-
	Traffic volumes	□Increase in construction vehicles.	-		S	Yes	-

			Health & Safety	• Air/dust pollution. • Road safety. • Increased risk of veld fires.		-	S	Yes	-
			Noise levels	The generation of noise as a result of construction vehicles, the use of machinery such as drills and people working on the site.	-		S	Yes	-
			Tourism industry	Since there are no tourism facilities in close proximity to the site, the proposed activities will not have an impact on tourism in the area.	N/A	N/A	N/A	N/A	-
			Heritage resources	Removal or destruction of archaeological and/or paleontological sites. Removal or destruction of buildings, structures, places and equipment of cultural significance. Removal or destruction of graves, cemeteries and burial grounds.		-	S	Yes	-
Listing Notice GNR 984, Activity 15:"The clearance of an area of 20 hectares or more, of indigenous vegetation."	Site clearing and preparation Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately. This will inevitably result in the removal of indigenous vegetation located on the site.	NMENT BIOPHYSICALEN	(Avi) Fauna & Flora	• Loss or fragmentation of indigenous natural vegetation. • Loss of sensitive species. • Loss or fragmentation of habitats.		-	S	Yes	-
			Air quality	□Air pollution due to the increase of traffic.	-		S	Yes	-
			Soil	• Soil degradation, including erosion. • Disturbance of soils and existing land use (soil compaction). • Loss of agricultural potential (low significance relative to agricultural potential of the site).	-		S	Yes	-

	Geology	□ It is not foreseen that the removal of indigenous vegetation will impact on the geology or vice versa.	N/A	N/A	N/A	N/A	-
	Existing services infrastructure	• Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the local sewage plant.	-		S	Yes	-
	Ground water	□Pollution due to construction vehicles.	-		S	Yes	-
	Surface water	• Increase in storm water run-off. • Pollution of water sources due to soil erosion. • Destruction of watercourses (pans/dams/streams).	-		S	Yes	-
ENVIRONMENTAL/ECONOMIC/SOCIAL	Local unemployment rate	• Job creation. • Skills development.		+	S	N/A	-
	Visual landscape	□ Potential visual impact on residents of farmsteads and motorists in close proximity to proposed facility due to dust.	-		S	Yes	-

			Traffic volumes	□Increase in construction vehicles.	-		S	Yes	-

			Health & Safety	□ Air/dust pollution. □ Road safety.		-	S	Yes	-
			Noise levels	□ The generation of noise as a result of construction vehicles, and people working on the site.	-		S	Yes	-
			Tourism industry	□ Since there are no tourism facilities in close proximity to the site, the proposed activity will not have an impact on tourism in the area.	N/A	N/A	N/A	N/A	-
			Heritage resources	• Removal or destruction of archaeological and/or paleontological sites. • Removal or destruction of buildings, structures, places and equipment of cultural significance. • Removal or destruction of graves, cemeteries and burial grounds.	N/A	N/A	N/A	N/A	-
OPERATIONAL PHASE									
Listing Notice GNR 984, Activity19: ¯The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resource4s	The key components of the proposed project are described below: • Supporting Infrastructure - A control facility with basic services such as water and	BIOPHYSICALENVIRONMT	(Avi) Fauna & Flora	• Fragmentation of habitats. • Establishment and spread of declared weeds and alien invader plants (operations).	-		L	Yes	-
			Air quality	□ Air pollution due to the prospecting activity, crusher plant and transport of the gravel to the designated areas.	N/A	N/A	N/A	N/A	-

N

T

	electricity will be constructed on the site and will have an approximate footprint 50m² or less. Other supporting infrastructure includes a site office and workshop area. • Roads – Access will be obtained from a local gravel road off the main road. • Fencing - For health, safety and security reasons, the facility will be required to be fenced off from the surrounding farm.					
Development Act (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)‖						
Soil	• Soil degradation, including erosion. • Disturbance of soils and existing land use (soil compaction). • Loss of agricultural potential (low significance relative to agricultural potential of the site).		-	L	Yes	-
Geology	• Collapsible soil. • Seepage (shallow water table). • Active soil (high soil heave). • Erodible soil. • The presence of undermined ground. • Instability due to soluble rock. • Steep slopes or areas of unstable natural slopes. • Areas subject to seismic activity. • Areas subject to flooding.		-	S	Yes	-
Existing services infrastructure	• Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. • Increased consumption of water. Approximately 10 000 – 22 500 per pan per hour		-	L	Yes	-
Ground water	□ Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can	-		L	Yes	-

				contaminate water supplies.					
			Surface water	• Increase in storm water runoff. The development will potentially result in an increase in storm water run-off that needs to be managed to prevent soil erosion. • Destruction of watercourses (pans/dams/streams).		-	L	Yes	-
				□ Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can contaminate water supplies.					
		SOCIAL/ ECONOMIC ENVIRONMENT	Local unemployment rate	□ Job creation. Security guards will be required for 24 hours every day of the week and general Labourers will also be required Skills development.		+	L	Yes	-
			Visual landscape	□ Change in land-use/sense of place. The site is characterized by open veldt with a rural agricultural sense of place. The use of the area for the prospecting activity will result in the area not being used for livestock grazing anymore until rehabilitated.		-	L	Yes	-
			Traffic volumes	□ Increase in vehicles collecting gravel for distribution.	-		S	Yes	-
			Health & Safety	□ Air/dust pollution. Road safety.	N/A	N/A	N/A	N/A	-

			Noise levels	□ The proposed development will result in noise pollution during the operational phase.	-	-	S	Yes	-
			Tourism industry	□ Since there are no tourism facilities in close proximity to the site, the decommissioning activities will not have an impact on tourism in the area.	N/A	N/A	N/A	N/A	-
			Heritage resources	□ It is not foreseen that the proposed activity will impact on heritage resources or vice versa.	N/A	N/A	N/A	N/A	-
DECOMMISSIONING PHASE									
-	<u>Mine closure</u> During the mine closure the Mine and its associated infrastructure will be dismantled. <u>Rehabilitation of biophysical environment</u> The biophysical environment will be rehabilitated.	BIOPHYSICAL ENVIRONMENT	(Avi) Fauna & Flora	□ Re-vegetation of exposed soil surfaces to ensure no erosion in these areas.	+		L	Yes	-
			Air quality	□ Air pollution due to the increase of traffic of construction vehicles.	-		S	Yes	-
			Soil	• Backfilling of all voids • Placing of topsoil on backfill	+		L	Yes	-
			Geology	□ It is not foreseen that the decommissioning phase will impact on the geology of the site or vice versa.	N/A	N/A	N/A	N/A	-
			Existing services infrastructure	• Generation of waste that need to be accommodated at the local landfill site. • Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. • Increase in construction vehicles.	-		S	Yes	-
			Ground water	□Pollution due to construction vehicles.	-		S	Yes	-

	SOCIAL/EC			Surface water	• Increase in storm water run-off. • Pollution of water sources due to soil erosion. • Destruction of watercourses (pans/dams/streams).	-		S	Yes	-
			ENVIRONMIC	Local unemployment rate	□Loss of employment.		-	L	Yes	-
				Visual landscape	□ Potential visual impact on visual receptors in close proximity to proposed facility.	-		S	Yes	-
				Traffic volumes	□Increase in construction vehicles.	-		S	Yes	-
				Health & Safety	• Air/dust pollution. • Road safety. • Increased crime levels. The presence of mine workers on the site may increase security risks associated with an increase in crime levels as a result of	-			Yes	-

				influx of people in the rural area.					
			Noise levels	□ The generation of noise as a result of construction vehicles, the use of machinery and people working on the site.	-		S	Yes	-
			Tourism industry	□ Since there are no tourism facilities in close proximity to the site, the decommissioning activities will not have an impact on tourism in the area.	N/A	N/A	N/A	N/A	-
			Heritage resources	□ It is not foreseen that the decommissioning phase will impact on any heritage resources.	N/A	N/A	N/A	N/A	-

(N/A) No impact (+) Positive Impact (-) Negative Impact (S) Short Term (M) Medium Term (L) Long Term

a) Summary of specialist reports

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process)

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Heritage Impact Assessment		X	

ix) Environmental impact statement

(iii) Summary of the key findings of the environmental impact assessment;

This section provides a summary of the assessment and conclusion drawn from the proposed prospecting area. in doing so, it draws on the information gathered as part of the environmental impact assessment process and the knowledge gained by the environmental consultant during the course of the process and presents an informed opinion on the environmental impacts associated with the proposed project. The following conclusions can be drawn for the proposed prospecting activity:

Potential impacts on biodiversity: There are biodiversity features (aquatic ecosystems) in the form of small non-perennial pan is found on site, which can be adequately mitigated by means of a Water Use License Application if they plan to prospect in on near the pans, otherwise no impacts to the pans are expected.

Potential impacts on land use: The farm is currently utilised as low potential cattle grazing and crop production. The activity which will be subject to concurrent rehabilitation will not have any significant impact on the land use nor will it change the sense of place of the area.

Potential social impacts: The presence of construction workers poses a potential risk to family structures and social networks. While the presence of construction workers does not in itself constitute a social impact, the manner in which construction workers conduct themselves can impact on local communities. The most significant negative impact is associated with the disruption of existing family structures and social networks.

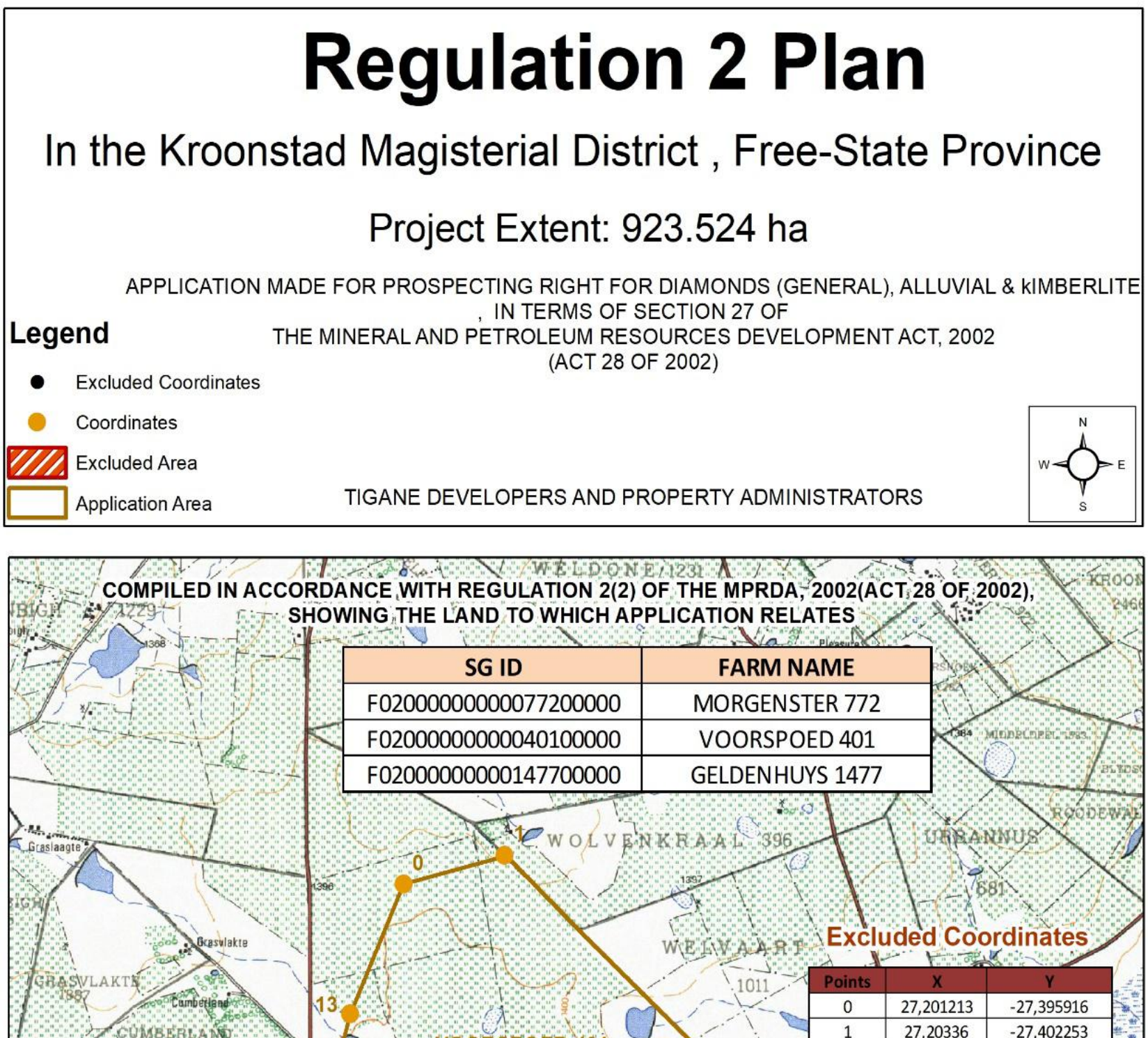
Potential negative impacts: (noise, dust, soil degradation, storm water, traffic, health and safety) associated with the operation of the facility are expected to be low-medium impact, of medium terms and site specific. These can be mitigated or negated through the implementation of practical and appropriate mitigation measures.

Positive impacts: The prospecting of Diamonds (General, Alluvial and in Kimberlite) will have socio-economic benefit to the area.

All possible negative impacts and risks that have been identified in this report can be effectively mitigated and managed by implementing the migratory measures as set out in the Environmental Management Programme (EMPr) attached in Part B. It is therefore recommended that the environmental authorisation for the prospecting right be granted

(iv) 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.



(v) Summary of the positive and negative implications and risks of the proposed activity and identified alternatives;

There are regional socio economic benefits due to the Diamonds (General, Alluvial and in Kimberlite) being prospected in the Free State Province and greater knowledge is gained on the mineralogy of South Africa. All possible negative impacts and risks that have been identified in this report can be effectively mitigated and managed by implementing the mitigation measures as set in the Environmental Management Programme (EMPr.) attached in Part B. No significantly social or environmental impacts are anticipated.

b) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr.

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

Management objectives include:

- Ensure that prospecting activity does not cause pollution to the environment or harm to persons.
- Minimise production of waste.
- All prospecting activities must be conducted in a manner that minimises noise impact, litter, environmental degradation and health hazards i.e. injuries.
- The mine must be kept neat and tidy during waste handling to prevent unsightliness and accidents.

Expected outcomes include:

- Minimum impacts on the environment as a result of alluvial diamond prospecting.

- Compliance with legislative requirements
- Mine is neat and tidy and well managed

c) Final proposed alternatives

(Provide an explanation for the final layout of the infrastructure and activities on the overall site as shown on the final site map together with the reasons why they are the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment)

None were proposed since prospecting/mining of particular minerals occur at specific areas.

d) Aspects for inclusion as conditions of Authorisation

Any aspects which have not formed part of the EMPr that must be made conditions of the Environmental Authorisation

The operational activities and relevant rehabilitation of disturbed areas should be monitored against the improved EMPr and all other relevant environmental legislation.

A copy of the EMP should be made available onsite at all times. Implementation of the proposed mitigation measures set out in the EMPr.

e) Description of any assumptions, uncertainties and gaps in knowledge

(Which relate to the assessment and mitigation measures proposed)

The uncertainties in results are mostly related to the availability of information, time available to gather the relevant information as well as the sometimes subjective nature of the assessment methodology. In terms of addressing the key issues the EAP is satisfied that there are no major gaps in knowledge and that the specialist reports provide sufficient information to conduct the significant rating and provide the environmental authority with sufficient information to make an informed decision.

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

ii) Reasons why the activity should be authorized or not.

It is the opinion of the EAP that the activity may be authorised.

Based on the outcomes of other mines in the area, the possibility to encounter further Diamonds (General, Alluvial and in Kimberlite) Reserves were identified.

The proposed prospecting area is targeted as, historically, several Diamonds (General, Alluvial and in Kimberlite) occurrences are known in the area, and a number of these have been exploited in the past. There are also various mines operations within the vicinity of exploration area.

No other properties have been secured by the applicant and the site is therefore regarded as the preferred site, and alternatives are not considered.
The option of not approving the activities will result in significant loss to valuable diamond deposits being exploited. And all economic benefits will be lost.

iii) Conditions that must be included in the authorisation

(1) Specific conditions to be included into the compilation and approval of EMPr

(2)

The operational activities and relevant rehabilitation of disturbed areas should be monitored against the improved EMPr and all other relevant environmental legislation.

A copy of EMP should be made available onsite at all times. Implementation of the proposed mitigation measures set out in the EMPr.

The EMPr should binding on all managers and contractors operating/utilizing the site.

(3) Rehabilitation requirements

All the excavated areas and where the prospecting equipment must rehabilitated to finality and to the satisfaction of the DMR. No area should be left rehabilitated unless it's agreed with the land owner such agreement is submitted to the DMR.

g) Period for which the Environmental Authorisation is required

The environmental authorization is required for 5 years.

h) 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.

TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS CC is committed to make available financial provision as will be determined and required by an EAP and DMR.

i) Financial Provision

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

- The financial provision will amount to the total of R 100 408.21 to manage the disturbed environment in respect to rehabilitation.

Applicant:	Tigane Developers and Property Administrators - FS 10662 PR				Location:	Kroonstad
Evaluator(s)	Engedi Minerals and Energy (Pty) Ltd				Date:	Jun-23

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	21	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	287	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	424	1	1	0
3	Rehabilitation of access roads	m2	0,00	51	1	1	0
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	499	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	272	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	575	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,12	301350	1	1	36162
7	Sealing of shafts adits and inclines	m3	0	154	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,013	200900	1	1	2611,7
8 (B)	Rehabilitation of processing waste deposits and evaporatic ponds (non-polluting potential)	ha	0	250217	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporatic ponds (polluting potential)	ha	0	726749	1	1	0
9	Rehabilitation of subsided areas	ha	0	168223	1	1	0
10	General surface rehabilitation	ha	0,21	159147	1	1	33420,87
11	River diversions	ha	0	159147	1	1	0
12	Fencing	m	0	182	1	1	0
13	Water management	ha	0	60512	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	21179	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		72194,57

1	Preliminary and General	8663,3484	weighting factor 2 1	8663,3484
2	Contingencies	7219,457		7219,457
			Subtotal 2	88077,38
			VAT (15%)	12330,83
			Grand Total	**R 100 408,21**

iv) Explain how the aforesaid amount was derived.

The closure cost estimate provided above is aligned with the Financial Provisioning Regulations, 2015. The amount was calculated by Engedi (Pty) Ltd.

v) 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 financial provision will be provided for in the form of a bank guarantee.

j) Deviations from the approved scoping report and plan of study

vi) Deviations from the methodology used in determining the significance of potential environmental impacts and risks.

(Provide a list of activities in respect of which the approved scoping report was deviated from, the reference in this report identifying where the deviation was made, and a brief description of the extent of the deviation).

No deviation from scoping in this report.

vii) Motivation for the deviation.

N/A

k) Other Information required by the competent Authority

viii) 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:-

(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 **Appendix 2.19.1** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

The Diamonds (General, Alluvial and in Kimberlite) mine will not impact directly on any socio-economic aspects. Indirect socio-economic benefits are expected to be associated with the creation of employment.

(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).

The Diamonds (General, Alluvial and in Kimberlite) mine will not impact on any heritage estate referred to in section 3(2) of the National Heritage Resources Act. It is noted that, in terms of the National Heritage Resource Act no 25 of 199. Heritage resources including archaeological and palaeontological sites over 100 years old, graves older than 60 years, structure older than 60 years are protected. They will not be disturbed without a permit from the relevant heritage resource Authority, which means that before such sites are disturbed by development it is incumbent on the developer to ensure that heritage impact assessment is done and the Provincial Heritage Resources Authority and SAHRA will be contacted immediately and work will stop.

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

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

No any other area can be chosen than this one since it is situated where there are Diamonds (General, Alluvial and in Kimberlite).

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME.

a) **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).

Confirmed

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

Confirmed

c) 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)

Regulation 2 Plan

In the Kroonstad Magisterial District , Free-State Province

Project Extent: 923.524 ha

APPLICATION MADE FOR PROSPECTING RIGHT FOR DIAMONDS (GENERAL), ALLUVIAL & kIMBERLITE , IN TERMS OF SECTION 27 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002)

Legend

- Excluded Coordinates
- Coordinates
- Excluded Area
- Application Area

TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS

N W E S

COMPILED IN ACCORDANCE WITH REGULATION 2(2) OF THE MPRDA, 2002(ACT 28 OF 2002), SHOWING THE LAND TO WHICH APPLICATION RELATES

SG ID	FARM NAME
F02000000000077200000	MORGENSTER 772
F02000000000040100000	VOORSPOED 401
F02000000000147700000	GELDENHUYS 1477

Excluded Coordinates

Points	X	Y
0	27,201213	-27,395916
1	27,20336	-27,402253
2	27,195285	-27,404501
3	27,192321	-27,398471

Datum:WGS84/Hartebeesthoek 94
Co-ordinate System: WGS1984

Coordinates

ID	X	Y
0	27,180297	-27,373059
1	27,18905	-27,370649
2	27,21569	-27,396211
3	27,217276	-27,408325
4	27,215563	-27,409531
5	27,198691	-27,411116
6	27,192411	-27,408833
7	27,184483	-27,405471
8	27,186069	-27,399889
9	27,188859	-27,392532
10	27,187274	-27,389107
11	27,181692	-27,387775
12	27,174778	-27,387267
13	27,175666	-27,383779

0 1 050 2 100 4 200 Meters

d) Description of Impact management objectives including management statements

i) **Determination of closure objectives.**(ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

The closure objectives for Diamonds prospecting will aim at ensuring that the residual post-closure negating environmental impacts be minimized and kept at an acceptable level to relevant parties. In order to achieve such closure objectives the following measures must be implemented;

All prospecting related infrastructure, foundations and concrete areas will be decommissioned, removed from the site and appropriately disposed off to a relevant registered facility. Reclaimable structures such as metal, electrical installations or equipment will be sold for re-use or as scrap.

all disturbed areas within the site not already vegetated will be re-vegetated with appropriate indigenous vegetation type, ecologically adopted species appropriate to the area and the final land-use as soon as possible after operation ceases. Progress of vegetation re-establishment, stability and erosion will be monitored and in the event of adverse trends of erosion been identified, corrective measures will be implemented. In the case where the vegetation natural grows after rehabilitation no indigenous re-vegetation will be necessary.

Vegetation monitoring will consider, inter lia, the establishment of perennial ground cover and infestation by alien invasive species. The encroachment of indigenous vegetation into the area will be used as an indication of a stable, self-sustaining vegetation cover with little risk of retrogressing to a situation where land and water pollution may occur.

ii) The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking a listed

activity.

iii)

Any water that will be used in the process of prospecting activities and get polluted will be re-used in the process or cleaned before its pumped back to the source. No polluted water will be disposed of to the water stream prior to cleaning or recycling.

All the polluted soil by hydrocarbon spills will be rehabilitated by a chemical in the soil rehabilitation farm or be disposed of through a registered facility by a contractor (i.e Oilkol or inter-waste).

iv) **Potential risk of Acid Mine Drainage**. (Indicate whether or not the mining can result in acid mine drainage).

The prospecting activity at hand is highly unlikely to result in Acid Mine Drainage since diamond prospecting uses minimal or no chemicals during the processing of diamonds and other related activities.

v) Steps taken to investigate, assess, and evaluate the impact of acid mine drainage.

The prospecting activity at hand is highly unlikely to result in Acid Mine Drainage since diamond prospecting uses minimal or no chemicals during the processing of diamonds and other related activities

vi) Engineering or mine design solutions to be implemented to avoid or remedy acid mine drainage.

Not applicable

vii) **Measures that will be put in place to remedy any residual or cumulative impact that may result from acid mine drainage.**

Not applicable

viii) **Volumes and rate of water use required for the mining, trenching or bulk sampling operation.**

10 000 to 16 000 L day for the rotary pans

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

Not yet.

x) Impacts to be mitigated in their respective phases

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

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
(E.g. For prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. For prospecting –** excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, **etc…etc…etc)**	of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure.	(volumes, tonnages and hectares or m²)	(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Clearance of vegetation	Pitting and trenching phase(construction and operation phase)	368.5 Hectares – 3m x 2m x 3m pit every 2.5 hectares (150 pits), 20m x 20m x 2m trench every 9 hectares (40 trenches). Only the areas where prospecting takes place, will be cleared. Concurrent backfilling will take place in order to rehabilitate.	1. Site clearing must take place in a phased manner, as and when required. 2. Areas which are not to be prospected on within two months must not be cleared to reduce erosion risks. 3. The area to be cleared must be clearly demarcated and this footprint strictly maintained. 4. Spoil that is removed from the site must be removed to an approved spoil site or a licensed landfill site. 5.The necessary silt fences and erosion control measures must be implemented in areas where these risks are more prevalent 6. Thorn trees shall not be removed or damaged without prior approval and permits.	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting activities.
Construction of roads	Pitting and trenching phase(construction and operation phase)	+- 500m	Planning of access routes to the site for construction/prospecting purposes shall be done in conjunction with the Contractor and the Landowner. All agreements reached should be documented and no verbal	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting activities.

			agreements should be made. The Contractor shall clearly mark all access roads. Roads not to be used shall be marked with a ¯NO ENTRY for prospecting vehicles" sign. Construction routes and required access roads must be clearly defined. Damping down of the un-surfaced roads must be implemented to reduce dust and nuisance. Soils compacted by construction/prospecting activities shall be deep ripped to loosen compacted layers and re-graded to even running levels. The contractor must ensure that damage caused by related traffic to the gravel access road off the main road repaired continuously. The costs associated with the repair must be borne by the contractor; Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport the gravel are fitted with tarpaulins or covers; All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.		
Prospecting of (general), diamond (kimberlite), diamond (alluvial),–Soils and geology	Pitting and trenching phase(construction and operation phase)	368.5 Hectares – 3m x 2m x 3m pit every 2.5 hectares (150 pits), 20m x 20m x 2m trench every 9 hectares (40 trenches). Only the areas where prospecting takes place, will be cleared. Concurrent backfilling will take place in order to rehabilitate.	The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil (If topsoil exists), and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. Care must be taken not to mix topsoil and subsoil during stripping. The topsoil must be conserved on site in and around the pit/trench	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the mine

			area. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager. The impact on the geology will be permanent. There is no mitigation measure.		
Prospecting (general), diamond (kimberlite), diamond (alluvial),– excavations and blasting	Pitting and trenching phase(construction and operation phase)	150 Hectares – 3m x 2m x 3m pit every 2.5 hectares (150 pits), 20m x 20m x 2m trench every 9 hectares (40 trenches). Only the areas where prospecting takes place, will be cleared. Concurrent backfilling will take place in order to rehabilitate.	1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development. 2. Mine, pans, workshops and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed in to the system. 3. Truck traffic should be routed away from noise sensitive areas, where possible. 4. Noise levels must be kept within acceptable limits. 5. Noisy operations should be combined so that they occur where	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting area

			possible at the same time. 6. Mine workers to wear necessary ear protection gear. 7. Noisy activities to take place during allocated hours. 8. Noise from labourers must be controlled. 9. Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site. 10. The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport. 11. Implementation of enclosure and cladding of processing plants. 12. Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine.		

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required)

ACTIVITY whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.).	**POTENTIAL IMPACT** (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation..	**STANDARD TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Clearance of vegetation	Loss or fragmentation of habitats	(Avi) Fauna & flora	Pitting and trenching phase(construction and operation phase)	Existing vegetation 1. Vegetation removal must be limited to the prospecting area. 2. Vegetation to be removed as it becomes necessary rather than removal of all vegetation throughout the site in one step. 3. No vegetation to be used for firewood. 4. Exotic and invasive plant species should not be allowed to establish, if the development is approved. 5. Thorn trees shall not be removed or damaged without prior approval and permits. Rehabilitation 6. All damaged areas shall be rehabilitated upon completion of the contract. 7. Re-vegetation of the	Minimisation of impacts to acceptable limits

				disturbed site is aimed at approximating as near as possible the natural vegetative conditions prevailing prior to construction. 8. All natural areas impacted during construction/prospecting must be rehabilitated with locally indigenous grasses typical of the representative botanical unit. 9. Rehabilitation must take place in a phased approach as soon as possible. 10. Rehabilitation process must make use of species indigenous to the area. Seeds from surrounding seed banks can be used for re-seeding. 11. Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas. 12. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged. Demarcation of prospecting area 13. All plants not interfering with prospecting operations shall be left undisturbed clearly marked and indicated on thesite plan. 14. The prospecting area must be well demarcated and no construction/prospecting activities must be allowed outside of this demarcated footprint. 15. Vegetation removal must be phased in order to reduce impact of	

				construction/prospecting. 16. Site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas. 17. Strict and regular auditing of the prospecting process to ensure containment of the prospecting and laydownareas. 18. Soils must be kept free of petrochemical solutions that may be kept on site during construction/prospecting. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora. Utilisation of resources 19. Gathering of firewood, fruit, muti plants, or any other natural material onsite or in areas adjacent to the site is prohibited unless with prior approval of the ECO. Exotic vegetation 20. Alien vegetation on the site will need to be controlled. 21. The Contractor should be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion. 22. The spread of exotic species occurring throughout the site should be controlled. Herbicides	

				23. Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used. 24. The use of pesticides and herbicides on the site must be discouraged as these impact on important pollinator species of indigenous vegetation. (Avi) Fauna 25. Rehabilitation to be undertaken as soon as possible after the prospecting activities have been completed. 26. No trapping or snaring to fauna on the construction/prospecting site should be allowed. 27. No faunal species must be disturbed, trapped, hunted or killed by maintenance staff during any routine maintenance at the development. 28. No impacts on bats are expected since prospecting will be taking place during the day and not at night, also no cave like structures are found on site.	
Prospecting of (general), diamond (kimberlite), diamond (alluvial),	Loss of topsoil	Soil	Pitting and trenching phase(construction and operation phase)	The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil, and agree on this with the	Minimisation of impacts to acceptable limits

- excavationsand trenching				ECO. The full depth of topsoilshould be stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2. Care must be taken not to mix topsoil and subsoil during stripping. 3. The topsoil must be conserved on site in and around the pit/trench area. 4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases. 6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7. Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage	

				occurs should be attained and given to the project manager. Establish an effective record keeping system for each area where soil is disturbed for prospecting purposes. These records should be included in environmental performance reports, and should include all the records below. •Record the GPS coordinates of each area. •Record the date of topsoil stripping. •Record the GPS coordinates of where the topsoil is stockpiled. •Record the date of cessation prospecting activities at the particular site. •Photograph the area on cessation of prospecting activities. •Record date and depth of re-spreading of topsoil. •Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time.	
	Erosion	Air Soil Water	Pitting and trenching phase(construction and operation phase)	1. An effective system of run-off control should be implemented, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. 2. Periodical site inspection should be included in	Minimisation of impacts to acceptable limits

				environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence of any erosion on site or downstream. 3. Wind screening and storm water control should be undertaken to prevent soil loss from the site. 4. The use of silt fences and sand bags must be implemented in areas that are susceptible to erosion. 5. Other erosion control measures that can be implemented are as follows: o Brush packing with cleared vegetation o Mulch or chip packing o Planting of vegetation o Hydroseeding/hand sowing 6. Sensitive areas need to be identified prior to construction/prospecting so that the necessary precautions can be implemented. 7. All erosion control mechanisms need to be regularly maintained. 8. Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces. 9. Retention of vegetation where possible to avoid soil erosion. 10. Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time. 11. Re-vegetation of disturbed surfaces should	

				occur immediately after construction/prospecting activities are completed. This should be done through seeding with indigenous grasses. 12. No impediment to the natural water flow other than approved erosion control works is permitted. 13. To prevent storm water damage, the increase in stormwater run-off resulting from construction/prospecting activities must be estimated and the drainage system assessed accordingly. 14. Stockpiles not used in three (3) months after stripping must be seeded or backfilled to prevent dust and erosion.	
	Air Pollution	Air	Pitting and trenching phase(construction and operation phase)	Dust control 1. Wheel washing and damping down of un-surfaced and un-vegetated areas. 2. Retention of vegetation where possible will reduce dust travel. 3. Clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. 4. Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust. 5. The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the neighbouring communities. 6. A speed limit of 30km/h	Minimisation of impacts to acceptable limits

				must not be exceeded on site. 7. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor. 8. Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled. Odour control 9. Regular servicing of vehicles in order to limit gaseous emissions. 10. Regular servicing of onsite toilets to avoid potential odours. Rehabilitation 11. The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks. Fire prevention 12. No open fires shall be allowed on site under any circumstance. All cooking shall be done in demarcated areas that are safe and cannot cause runaway fires. 13. The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process.	

g) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes)

ACTIVITY (whether listed or not listed) (E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and pitting and trenching, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc)	POTENTIAL IMPACT (e.g. dust, noise, drainagesurface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc…etc…etc…)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc…etc…etc…)	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard Rehabilitation, therefore state either – • Upon cessation of the individual activity Or Upon cessation of prospecting, bulk sampling or alluvial diamond prospecting as the case may be.	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities).
Site Establishment activities (fencing, signage, access formation, etc.)	Loss of vegetation	Remedy through rehabilitation	Start-up	Issues of compliance with standa rds will be incorporated into the da y to day business activities at the proposed prospecting. The work methods used the monitoring and measures done and the re iew processes will be aimed at ensu ring that legal thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Prospecting and Petroleum Resources Develop ment Act regulations, Mine Health and Safety Act regulations, Nati nal Water Act
	Habitat Destruction	Limit footprint	Start-up	
	Visual scarring	Remedy through rehabilitation	Start up and operational	
	Soil erosion	Limit footprint	Start up and operational	
Drilling	Drainage disruption	Control with Storm water controls	Operational Phase	Management of legal compliance will be incorporated into normal business activities. This means that particular responsibilities need to be clearly defined for the identification of relevant issues and delivery of compliance.
	Slope instability	Control with slope management controls	Operational Phase	
	Noise	Control with Noise control measures	Operational Phase	

				This will help to ensure that adequate resources are available to support these activities. Environmental standards as set out in COLTO 1998, Prospecting and Petroleum Resources Development Act regulations, Mine Health and Safety Ac
	Visual Scarring	Rehabilitation	Operational Phase	
	Soil erosion	Rehabilitation, use slope management control	Operational Phase	
	Destruction of heritage resource	Avoidance	Operational Phase	
	Noise and vibrations	Control with blast control measures	Operational Phase	
Waste Disposal and Material storage	Dust	Control with dust control measures Control with blast control measures	Operational Phase	This will be achieved by clearly outlining the environmental standards to be achieved and the thresholds which are not to be exceeded in the management system used at the site. This will include compliance with standards as per COLTO 1998, Explosive Act regulations, Mine Health and Safety Act Regulations and the Hazardous Substances Act
	Fly rock	Control with blast control measures	Operational Phase	
	Soil contamination	Avoidance, Operational control measures	Operational Phase	
Material handling, hauling and transportation	Water pollution	Avoidance, Operational control measures	Operational Phase	The waste management hierarchy and the proximity principle will be used in ensuring that the environmental standards as set out in COLTO 1998 and the National Environmental Management Waste Act regulation and National Water Act regulation, are complied with.
	Increased risk of fire	Avoidance, Operational control measures	Operational Phase	
	Dust	Control with dust Control measures	Operational Phase	
Removal of infrastructure & equipment and re-shaping of proposed prospecting	Increased risk of accidents	Site management protocols	Operational Phase	Issues of compliance with standards will be incorporated into the day to day business activities at the proposed prospecting to ensure that legal thresholds as set out in the environmental standards are complied with. This will include compliance with standards as per COLTO 1998, the standards as per Prospecting and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations, National
	Noise	Control with noise control measures	Operational Phase	
	Soil contamination from oil/fuel leaks	Control with operational control measures	Operational Phase	
	Noise	Control with noise control measures	Decommissioning and closure	

				Water Act regulations, Mine Health and Safety Act regulations
Community and labour relations management	Dust	Control with dust control measures	Decommissioning and closure	The recommendations will incorporate factors that include the elimination or the minimization of negative impacts in the work methodologies used during decommissioning so as to comply with the standards as per COLTO 1998, Prospecting and Petroleum Resources Development Act regulations, Mine Health and Safety Act regulations and the National Environmental Management Act.
	Soil contamination from oil/fuel	Control with operational control measures	Decommissioning and closure	
	Disruption of surface drainage	Control with storm water controls	Decommissioning and closure	
	Community conflicts and tensions	Control using site management protocols	Operational	
Site Establishment activities (fencing, signage, access formation, etc.)	Increased risk of fire	Control using site management protocols	Operational	The future impacts from the proposed prospecting and the long term stability of the area, any concerns in relation to the long term liability for the facility and its aesthetics will be taken into account to ensure compliance with the environmental standards as set out in COLTO 1998, the National Environmental Management Act, Conservation of Agricultural resources Act and National Environmental Management Biodiversity Act regulations
	Reduced security on area	Control site management protocols	Operational	
	Improved employment	Control site management protocols	Operational	
	Improved skills	Controls site management protocols	Operational	
	Loss of vegetation	Remedy through rehabilitation	Start-up	

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**

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Clearance of vegetation	Loss or fragmentation of habitats	•Conduct regular internal audits •Conduct regular external audits	•Environmental Manager •Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required
Prospecting of Alluvial and – excavations	Loss of topsoil Erosion Air Pollution Noise Impact on potential cultural and heritage artefacts	•Conduct regular internal audits •Conduct regular external audits	•Environmental Manager •Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required
Waste management	Pollution	•Conduct regular internal audits •Conduct regular external audits	•Environmental Manager •Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required
Water use and quality	Water pollution	•Conduct regular internal audits •Conduct regular external audits	•Environmental Manager •Suitable qualified environmental auditor	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken

				by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required

f) **Indicate the frequency of the submission of the performance assessment report.**

The performance assessment report will be compiled by a relevant specialist and be submitted bi-annually to the DMR.

g) **Environmental Awareness Plan**

(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 plan will be implemented during prospecting on site;

Employees (full-time and contractors) will be given induction courses which include environmental aspects such hydrocarbon spills handling, veld fires, water pollution, handling of fauna and flora species especially the protected ones and procedures to be followed during an environmental accident occurrence.

All the trainings will be held on the daily basis during the toolbox talks of employees at the beginning of each shift.

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

TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS CCwill implement the necessary incident report and reporting procedure in order to identify risks timeously and implement actions to avoid or minimize environmental risks on site.

h) **Specific information required by the Competent Authority**
(Among others, confirm that the financial provision will be reviewed annually).

No specific information has been detailed and required by the competent authority

CLOSURE OBJECTIVES

i) **Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under Regulation 22 (2) (d) as described in 2.4 herein.**

□ Final landforms must be resilient to perturbation and also be self-sustaining to obviate/limit further/ongoing interventions and maintenance by Tigane Developers and Property Administrators CC

□ The remaining impacts be of an acceptable nature with minimal deterioration over time.

□ The final outcome of the mine site rehabilitation would be productive systems, where required sustaining either cattle or wildlife.

□ Environmental and human quality of life, including health and safety requirements in general, would not be compromised; and

□ Closure is achieved in an efficient and cost-effective manner as possible and with minimum socioeconomic changes.

The above goal is underpinned by more specific objectives listed below.

1. Upfront planning/development

To provide overall guidance and direction to closure planning and/or the implementation of progressive closure measures over the remaining over the prospecting life.

2. Physical stability

To ensure that surface infrastructure and prospecting residue and/or disturbances that are present at processing plant decommissioning will be removed and/or stabilised in a manner that these will not compromise post-closure land use and be sustainable long-term landforms.

□ Closure, removal and disposal of all surface infrastructure that has no beneficial post-closure use

□ Shaping and vegetating the remaining earth embankments, trenches, etc. to stabilise slopes and integrate with surrounding topography

3. Environmental quality

To ensure that local environmental quality is not adversely affected by possible physical effects arising from prospecting operations and the prospecting site after closure. This will be achieved by:

□ Avoiding and/or limiting the following during prospecting operations which could result in adverse effects that could not be readily addressed and/or mitigated at mine closure - Dust fall-out areas surrounding the prospecting site.

- Wash-off and/or mobilisation of chemically contaminated soils and sediments from the prospecting site that could have long term adverse effects on local aquatic health and/or other water uses.
- Possible shallow groundwater contamination adversely affecting the quality of the local water resource and its beneficial use.

□ limiting the potential for dust generation on the rehabilitated prospecting site that could cause nuisance and/or health effects to surrounding landowners;

□ Limiting the possible adverse water quality and quantity effects arising from the rehabilitated prospecting site to ensure that long term beneficial use of local resources is not compromised;

□ Conducting soil clean-up/remediation to ensure that the planned land use could be implemented and maintained;

4. Health and safety

To limit the possible health and safety treats due to terrain hazards to humans and animals utilizing the rehabilitated prospecting site after closure by:

□ demonstrating through upfront soil testing that any resultant inorganic and organic pollution present on the site is acceptable;

□ Removal of potential contaminants such as hydrocarbons and chemicals off site;

□ shaping of embankments and trenches to safe slopes and reintegrating of these into surrounding topography

□ ensuring that the environmental quality as reflected above is achieved

5. Land capability / land use

To ensure that the required land capability to achieve and support the planned land use can be achieved over the prospecting site by:

□ Clean-up and reclamation of contaminated soil areas in order not to compromise the above land use planning earmarked for implementation;

□ To ensure that the overall rehabilitated prospecting site is free draining

□ Transferring prospecting related surface infrastructure to third parties for beneficial use after closure.

6. Aesthetic quality

To ensure that the rehabilitated prospecting site will display, at a minimum, an acceptable aesthetic appearance that would not compromise the planned land use by leaving behind:

□ A prospecting area that is properly cleared-up with no fugitive/scattered waste piles

□ Rehabilitated prospecting area that is free draining and disturbed areas that are suitably vegetated.

□ Rehabilitated prospecting residues that are suitably landscaped, blending with the surrounding environment as far as possible.

□ Shaped and rehabilitated terrace and hard stand areas, roughly emulating the local natural surface topography.

7. Landscape viability

To create a landscape that is self-sustaining and over time will evolve/converge to the desired ecosystem structure, function and composition by:

□ Conducing surface profiling, with associated material movement optimisation, to obtain a landscape resembling the natural landscapes to support the succession trajectory towards a climax ecological system

□ Establishing woody patches and create ¯rough and loose‖ areas for pioneer specie establishment around the respective patches.

□ Establishing pioneer species as follows:

□ Collected and prepared seeds for broad casting;

□ Seedlings grown on on-site nursery;

□ Cuttings collected from surrounding veld areas;

□ Conducting rehabilitation monitoring and corrective action as required.

8. Biodiversity

To encourage, where appropriate, the re-establishment of native vegetation on the rehabilitated mine site such the terrestrial biodiversity is largely re-instated over time, by:

□ Stabilising disturbed areas to prevent erosion in the short- to medium term until a suitable vegetation cover has established; and

□ establishing viable self-sustaining vegetation communities of local fauna, as far as possible

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

The closure objectives within the EMPr have been presented to the public as part of the public participation process and on-going closure planning for prospecting activities.

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

Map drawn.

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

The rehabilitation plan is compatible with the closure plan in that in focuses on rehabilitating all the disturbed environment to archive a closure that will be satisfactory to the DMR, stakeholders, interested and affected parties. And at the end the area will be able to support grazing for cattle as it is currently prior to prospecting.

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

Applicant:	Tigane Developers and Property Administrators - FS 10662 PR				Location:	Kroonstad
Evaluator(s)	Engedi Minerals and Energy (Pty) Ltd				Date:	Jun-23

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	21	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	287	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	424	1	1	0
3	Rehabilitation of access roads	m2	0,00	51	1	1	0
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	499	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	272	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	575	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,12	301350	1	1	36162
7	Sealing of shafts adits and inclines	m3	0	154	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,013	200900	1	1	2611,7
8 (B)	Rehabilitation of processing waste deposits and evaporatic ponds (non-polluting potential)	ha	0	250217	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporatic ponds (polluting potential)	ha	0	726749	1	1	0
9	Rehabilitation of subsided areas	ha	0	168223	1	1	0
10	General surface rehabilitation	ha	0,21	159147	1	1	33420,87
11	River diversions	ha	0	159147	1	1	0
12	Fencing	m	0	182	1	1	0
13	Water management	ha	0	60512	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	21179	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		72194,57

1	Preliminary and General	8663,3484	weighting factor 2 1	8663,3484
2	Contingencies	7219,457		7219,457
			Subtotal 2	88077,38
			VAT (15%)	12330,83
			Grand Total	**R 100 408,21**

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

TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS CC is determined to make available financial provision as determined bythe DMR and agreed upon with the EAP. Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon.

PART C

APPENDIX

APPENDIX 1:

CURRICULUM VITAE AND DECLARATION OF OATH OF THE EAP

CURRICULUM VITAE

OF

Tshimangadzo Mulaudzi

P.O Box 29567

Danhof

93120

Contacts: 0793626046 / 072 901 0990

E-mail: mulaudzit@engedime.com

Date of Birth	: 26 March 1988	Nationality	: South African
Languages	: Speak and write (English and Tshivenda).	ID	: 8803265731082
		Gender	: Male
Driver's license: Code 10 (C1)		Health status	: Excellent

EDUCACTIONAL QUALIFICATION

Institution	:	Litshovhu High School
Qualification	:	Grade 12 (Senior Certificate)
Major subject passed	:	Mathematics, Physical Science, Biology, Agric, English and Tshivenda all in Higher Grade.
Year	:	2006
Institution	:	University of Venda
Qualification	:	BSc (Honours). Mining and Environmental Geology
Subject passed	:	See attached Academic Record
Year	:	2011

SUMMARY

I am a Candidate in a possession of a BSc (Hons.) in Mining and Geology with vast variety of experience in Geological, Geochemical, Geophysical Exploration, and Managing of a Manufacturing

team. Currently I am working as a Consultant Geologist at Breeze Court Investments 47 (Pty) Ltd and i have gained experience in Map Production (Using ArcGis), Identification of Minerals, and Applications for (Prospecting Right, Mining Right, and Mining Permit on DMR Samradonline portal), Petroleum applications (Compilation of EMP, EIA, Progress report, Environmental Performance Assessment, Closure application, and Mineral Laws Administration (knowledge of MPRDA, 2002, NWA, 1998, NEMA, 1998, NHRA, 1999, MHSA, 1996, Mining Charter, 2010 and Freedom Charter, 1955.).

I have also worked with the small scale miners in the region of Northern Cape, Limpopo and North West helping them with the application for Mining permit, prospecting right and also attend the site inspection with the officials from Department Mineral Resources to help the small scale miners to comply with the legislation of the department.

I served at the Makhado Municipality for two (2) years under Local Economic Development as an Intern (**In Mining, Environmental and Geology Sectors)** and was attending seminars on Local Economic Development issues, interacting with the stake holders and helping the Small Micro Medium Enterprises (SMME's) to get funds from the sponsors.

EMPLOYMEMT HISTORY

Job title	:	Trainee Mine Geologist
Name of organization	:	Agnes gold mine
Period	:	June 2010 – June 2011 (1 year)
Experiences and skills	:	Face mapping, stope observing, continuous sampling, Geological data capturing, Report writing and Geological mapping.
Job title	:	Chief production, quality, and safety officer
Name of Organization	:	Tshedza concrete art
Period	:	January 2012 – January 2013 (1 year, 1 month)
Experiences and skills	:	Managing high quality production and enforcing safe working Environment for workers

Job title	:	LED Intern (in Mining, Environmental and Geology)
Name of Organization	:	Makhado Local Municipality (Limpopo)
Period	:	February 2013 – December 2014 (11 Months)
Experiences and skills	:	To formulate and implement measures and procedures to Facilitate for the development of SMME's. Implement Measures, processes, and procedures to attract the Investors, Facilitate and implement job creation projects and initiatives. Formulate, review and update LED plans in alignment with the Province and District Municipality. Facilitate and create Partnership with regard to service provider, trade exhibitions, Corporate and SMME's.
Job title	:	Consultant Environmental Geologist and GIS specialist
Name of organization	:	Breeze court investment (Pty) Ltd Geol & Min Consultants
Period	:	January 2014 – January 2015
Experiences and skills	:	Map Production (Using ArcGis), Identification of Minerals, and Applications for (Prospecting Right, Mining Right, and Mining Permit on DMR Samrad online portal), Technical Cooperation Permit, Reconnaissance Permit, Exploration Right, Production right (Petroleum applications) Compilation of EMP, EIA, Environmental Authorisation, Progress report, Environmental Performance Assessment, Closure application, and Mineral Laws Administration (Broad knowledge of MPRDA, 2002), Assisting small scale miners in the region of Northern Cape, North West, and Limpopo with application for Mining permit and Prospecting right, help them with compliance in terms of the MPRDA, 2002. Also do the site inspection with the officials from Department of Mineral Resources, and help the miners and management to comply with the statutory while operating and always work in a safe working conditions and enforce also that the act of one employee must be safer towards another employee to achieve zero harm.

Job title	:	Consultant Environmental Geologist and GIS specialist
Name of organization	:	Engedi Minerals and Energy (Pty) Ltd
Period	:	February 2015 – Present
Experiences and skills	:	Map Production (Using ArcGis), Identification of Minerals, and Applications for (Prospecting Right, Mining Right, and Mining Permit on DMR Samrad online portal), Technical Cooperation Permit, Reconnaissance Permit, Exploration Right, Production right (Petroleum applications) Compilation of EMP, EIA, Environmental Authorisation, Progress report, Environmental Performance Assessment, Closure application, and Mineral Laws Administration (Broad knowledge of MPRDA, 2002), Assisting small scale miners in the region of Northern Cape, North West, and Limpopo with application for Mining permit and Prospecting right, help them with compliance in terms of the MPRDA, 2002. Also do the site inspection with the officials from Department of Mineral Resources, and help the miners and management to comply with the statutory while operating and always work in a safe working conditions and enforce also that the act of one employee must be safer towards another employee to achieve zero harm.

Knowledge of Legislations and Acts

Constitution of the Republic of South Africa No.108 of 1996

Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)

Mineral and Petroleum Resources Development Act Amendments bill 15 of 2013

Mineral and Petroleum Resources Development Act Regulations

National Water Act, 1998 (Act 36 of 1998)

Mine Health and Safety Act, 1996 (Act 29 of 1996)

National Heritage Resources Act, 1999 (Act 25 of 1999)

National and Environmental Management Act, 1998 (Act 107 of 1998)

Public Finance Management Act, 1999 (Act 1 of 1999) and Act 29 of 1999 as Amended

2014 Environmental Impact Assessment Regulations

Mining Charter, 2010

Freedom Charter, 1955

Municipal System Act, 2000 (Act 32 of 2000)

Municipal Structure Act, 1998 (Act 117 of 1998) and as amended in Act 20 of 2002.

COMPETENCIES

Ability to relate with people,

Ability to work independently and as a team,

Determination to succeed,

Strong leadership skills,

Proactive, resourceful, well organized and able to meet deadlines, and

Ability to communicate effectively

EXTRAMURAL ACTIVITIES AND INTERESTS

I love reading newspapers, business literatures, watching discovery channels, News, writing and Public speaking, these help me share my ideas and opinion and to get my message across, and I love learning new things everyday and I am eager to learn.

REFERENCES

Name	:	Mr P. Makoela
Name of organization	:	Agnes gold mine (Pty) Ltd
Position	:	Head of department of geology section
Contacts	:	087 351 8304 (W), 076 311 7791 (C)
Name	:	Mr R.P. Mamphaga
Name of organization	:	Tshedza concrete art (Pty) Ltd
Position	:	Managing director
Contacts	:	011 024 1167 (W), 082 857 3204 (C)
Name	:	Mr P. Netshivhuyu
Name of organization	:	Makhado Local Municipality

Position	:	Supervisor
Contacts	:	072 718 3220(C)
Name	:	Mr A.J. Davids
Name of organization	:	Breeze Court Investments (Pty) Ltd
Position	:	Consultant Environmental Geologist
Contacts	:	082 707 3239 (C)

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Tshimangadzo Mulaudzi

Registration Number: 114576

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following fields(s) of practice (Schedule 1 of the Act)

Geological Science (Professional Natural Scientist)

Effective **20 March 2018** Expires **31 March 2021**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

Environmental Assessment Practitioners Association of South Africa

Registration No. 2019/1798

Herewith certifies that

Tshimangadzo Mulaudzi

is registered as an

Environmental Assessment Practitioner

Registered in accordance with the prescribed criteria of Regulation 15. (1) of the Section 24H Registration Authority Regulations (Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).

Effective: 01 March 2022

Expires: 28 February 2023

Chairperson

Registrar

SAQA

15 Barnes Street, Westdene,
Langebaan Building
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9301

P.O.Box 29567
Danhof
9310

Cell: 079 362 6046 (+27)

Tel: 051 430 1748 (+27)
Fax: 086 556 2568 (+27)

email: info@engedime.com
mulaudzit@engedime.com
www.engedime.com

pride, determination, and resilience
Reg. No. 2015/153624/07

14th of June 2023

UNDERTAKING AND DECLARATION UNDER OATH AS ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

As refer to the subject of the matter above;

I am hereby confirming that all the information contained in this report is true and correct
And hereby declared that I, **Mr Tshimangadzo Mulaudzi,** of Identity number: **8803265731082,** I am an Environmental Geologist Consultants at Engedi Minerals and Energy (Pty) Ltd (Reg. No, 2015/153624/07), I am an Environmental Assessment Practitioner (EAP) registered with the SACNASP as Professional Natural Scientist (Pr.Nat.Sci -114578) and I am capable to compile Environmental reports in support of permits and rights application with Department of Mineral Resource (DMR) and Environmental authorisation with the Department of Environmental Affairs (DEA) and any relevant department including Department of Water and Sanitation amongst others.

This was done and signed at Bloemfontein on the 14th of June 2023

Yours sincerely

SOUTH AFRICAN POLICE SERVICE
COMMUNITY SERVICE CENTRE
PARK ROAD
2023 -06- 14
PARK RD
GEMEENSKAP DIENSSENTRUM

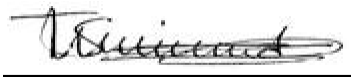
Mr T. Mulaudzi (Pr. Nat. Sci)
Engedi Minerals and Energy (Pty) Ltd (Consultant)

I CERTIFY THAT THIS DOCUMENT IS A TRUE REPRODUCTION (COPY) OF THE ORIGINAL DOCUMENT WHICH WAS PRODUCED TO ME FOR AUTHENTICATION. I FURTHER CERTIFY THAT NO ALTERATIONS, AN AMENDMENT OR A CHANGE WAS NOT MADE TO THE ORIGINAL DOCUMENT.
7167612
MV MOKGOHA.
SIGNATURE AND TELEPHONE NUMBER
MAGSNOMMER
FORCE NUMBER

APPENDIX 2

UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

I *Tshimangadzo Mulaudzi* herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected parties has been correctly recorded in the report.



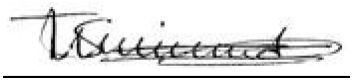
Signature of the EAP

DATE: 14 June 2023

APPENDIX 3

UNDERTAKING REGARDING LEVEL OF AGREEMENT

I *Tshimangadzo Mulaudzi* herewith undertakes that the information provided in the foregoing report is correct, and that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.



Signature of the EAP

DATE: 14 June 2023

APPENDIX 4
FINAL LAYOUT **MAP OF SITE**

Regulation 2 Plan

In the Kroonstad Magisterial District , Free-State Province

Project Extent: 923.524 ha

APPLICATION MADE FOR PROSPECTING RIGHT FOR DIAMONDS (GENERAL), ALLUVIAL & kIMBERLITE , IN TERMS OF SECTION 27 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002)

Legend

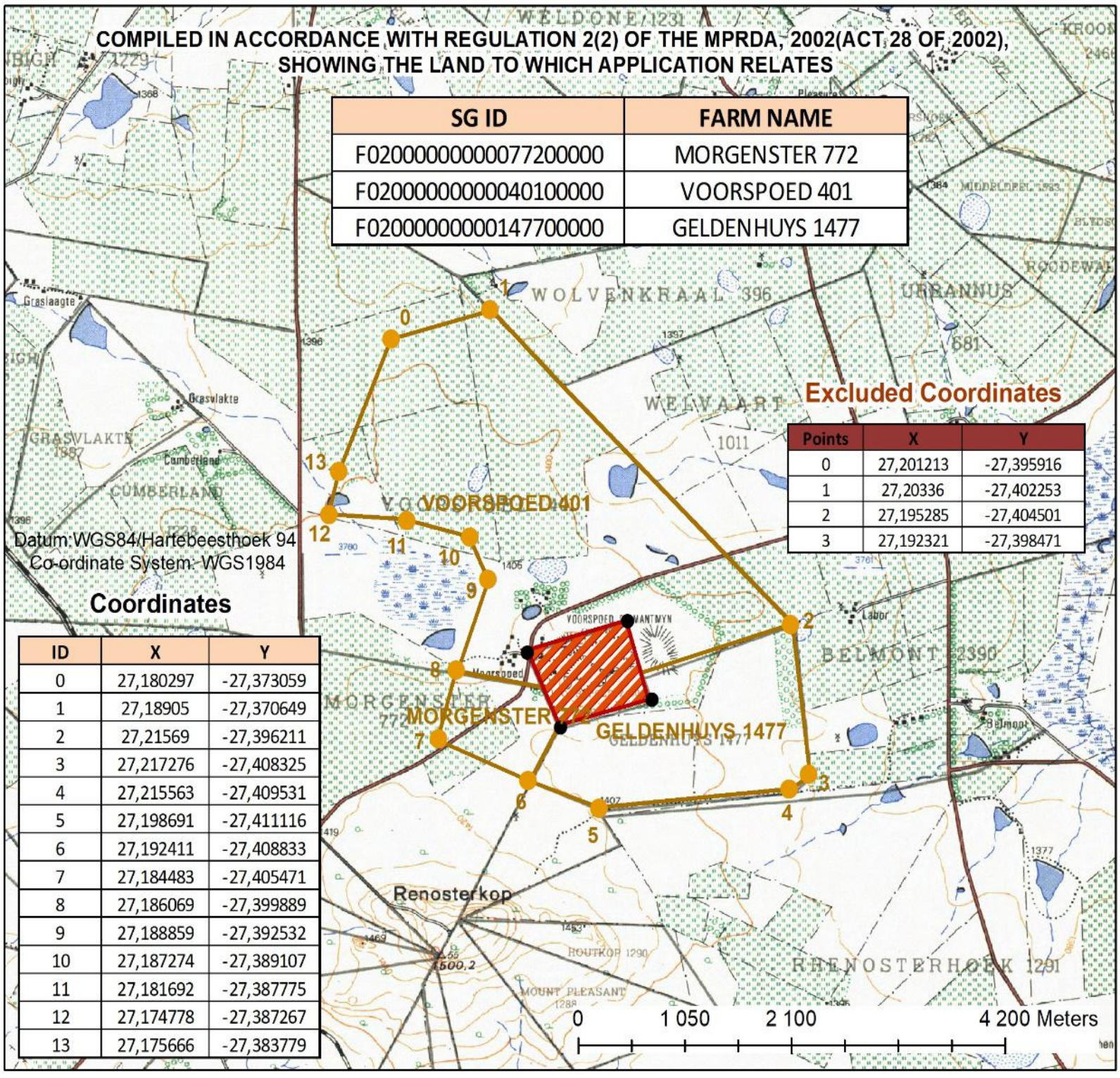
- Excluded Coordinates
- Coordinates
- Excluded Area
- Application Area

TIGANE DEVELOPERS AND PROPERTY ADMINISTRATORS

N W E S

COMPILED IN ACCORDANCE WITH REGULATION 2(2) OF THE MPRDA, 2002(ACT 28 OF 2002), SHOWING THE LAND TO WHICH APPLICATION RELATES

SG ID	FARM NAME
F02000000000077200000	MORGENSTER 772
F02000000000040100000	VOORSPOED 401
F02000000000147700000	GELDENHUYS 1477



Excluded Coordinates

Points	X	Y
0	27,201213	-27,395916
1	27,20336	-27,402253
2	27,195285	-27,404501
3	27,192321	-27,398471

Coordinates

ID	X	Y
0	27,180297	-27,373059
1	27,18905	-27,370649
2	27,21569	-27,396211
3	27,217276	-27,408325
4	27,215563	-27,409531
5	27,198691	-27,411116
6	27,192411	-27,408833
7	27,184483	-27,405471
8	27,186069	-27,399889
9	27,188859	-27,392532
10	27,187274	-27,389107
11	27,181692	-27,387775
12	27,174778	-27,387267
13	27,175666	-27,383779

-END