BASIC ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

PROSPECTING RIGHT APPLICATION FOR COAL ON PORTIONS 14 & 15 OF THE FARM VAALBANKSPRUITDRIFT 334 IT SITUATED IN THE LOCAL MUNICIPALITY OF PIXLEY KA SEME, UNDER AMERSFOORT MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE.

DMRE REF: MP 30/5/1/1/2/ 15309 PR.

2022

PREPARED BY

Singo Consulting (Pty) Ltd

Office 870, 5 Balalaika Street,
Tasbet Park Ext 2, Witbank,
1040
Tell: +2713 6920 041
Fax: +27 86 5144 103
E-mail: kenneth@singoconsulting.co.za

PREPARED ON BEHALF OF:

LIMMKHOLO INVESMENT (PTY) LTD

Office D1, Groundfloor, President Park,
Jeneatte Street, Del Judor, 1034

PREPARED FOR

mineral resources & energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Department of Mineral Resources & Energy
Saveways Crescent Centre, Mandela Drive, eMalahleni, 1035

BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

Project applicant:	Limmkholo Investment(Pty) Ltd		
Registration no (if any):	2013/205714/07		
Trading name (if any):	Limmkholo Investment(Pty) Ltd		
Responsible Person, (e.g. Director, CEO, etc):	Director		
Contact person:	Mr Lucky Sambo		
Physical address:	Office Address: Office D1 Groundfloor, President Park, Jeneatte Street, Del Judor, 1034		
Postal address:	Office Address: Office D1 Groundfloor, President Park, Jeneatte Street, Del Judor, 1034		
Postal code:	1034	Cell:	+27 (0) 72 353 5358
Telephone:		Fax:	+27 (0) 86 218 9658
E-mail:	lucky@sothabacapital.co.za		

FILE REFERENCE NUMBER SAMRAD: DMRE Ref: MP 30/5/1/1/2/ 15309 PR.

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

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

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

DOCUMENT CONTROL	
Project Title:	Prospecting Right Application on portion 14 & 15 of the farm Vaalbankspruitdrift 334 IT
Minerals	Coal
Site Location	Magisterial district of Amersfoort Mpumalanga Province
Compiled on behalf of	Limmkholo Investments (Pty) Ltd
Compiled By	Mr Abel Mojapelo
Reviewed By	Dr Kenneth Singo
Version 1	Draft BAR & EMPr
Submission to	Department of Mineral Resources and Energy
Date	2022

i. Glossary

CA	Competent Authority
CBA	Critical Biodiversity Area
CSA	Constitution of South Africa (Act No. 108 of 1996)
DAFF	Department of Agriculture, Forestry and Fisheries
DEFF	Department of Environmental, Forestry and Fisheries
DMR	Department of Mineral Resources
DTM	Dimensional Terrain Modelling
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPR	Environmental Management Programme
ESA	Ecological Support Area
GN	Government Notice
GIS	Geographic Information System
GPS	Global Positioning System
GVA	Gross Value Added
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
Mamsl	Metres above mean sea level
MHSA	Mine Health and Safety Act (Act No. 29 of 1996) [as amended]
MPRDA	Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (as amended)
NEMA	National Environmental Management Act, 1998 (Act no 107 of 1998) (as amended)
NEMAQA	National Environmental Management: Air Quality Act (Act No. 39 of 2004) (as amended)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act (Act No. 59 of 2008) (as amended)
PTN	Portion

Disclaimer

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

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

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

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

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

ii. EXECUTIVE SUMMARY

Limmkholo University (Pty) Ltd (the Applicant) has applied for a Prospecting Right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and an Application for Environmental Authorization in terms of Chapter 6 of GNR 326 promulgated under the National Environmental Management Act (Act 107 of 1998) (NEMA) to prospect for coal resource.

The proposed project will aim to ascertain if economically viable mineral deposit exists within the applied area. To undertake prospecting activities, Limmkholo University (Pty) Ltd will require a Prospecting Right in terms of the Mineral and Petroleum Resources Development Act (MPRDA, Act No.28 of 2002). The Applicant is also required to obtain an Environmental Authorisation (EA) in terms of the National Environmental Management Act (NEMA, Act No. 107 of 1998) which involves the submission of a Basic Assessment Report (BAR) and Environmental Management Programme Report. Singo Consulting (Pty) Ltd has been appointed by Limmkholo University (Pty) Ltd to compile the BAR (this report) in support of the Prospecting Right application submitted by Limmkholo Investment (Pty) Ltd, which in turn will be submitted to the DMRE for adjudication.

This BAR has been designed to meet the requirements for a BAR and Environmental Management Programme report (EMPr) as stipulated in the 2014 EIA Regulations promulgated under the NEMA. The adjudicating authority for this Application will be the Department of Mineral Resources and Energy (DMRE), and this report has been compiled in accordance with the applicable DMRE guidelines and reporting template.

The proposed project area is used for crop farming and livestock farming. The landowner, Mr Arnoldi was consulted on the 15th of August 2022 at his farmstead. He shared his contact details on the spot. Project documents were later shared with him via email.

The proposed Prospecting Right Area is situated over the farm Vaalbankspruitdrift 334 IT and it is located approximately at 13.51 km south west of Amersfoort and 36.93 km South of Ermelo.

A Prospecting Work Programme (PWP) has been developed to include both non-invasive and invasive prospecting activities. The target geological formation of the PWP is the Karoo Supergroup – Vryheid formation.

The Prospecting Right Application and Application for EA was submitted to the DMRE. The DMRE accepted the proposed application on the 20th of March 2018, Singo consulting was only appointed sometime this to conduct PPP on behalf of Limmkholo Investment (Pty) Ltd. The BAR (this report) will be made available to Interested and Affected Parties (I&AP's) for comment from the **22nd of August 2022 – 20th September 2022.**

All comments received during this period will be included in the final BAR & EMPr to be submitted to the DMRE for adjudication.

2 OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

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

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

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

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

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

   ii. the degree to which these impacts—

      a. can be reversed;

      b. may cause irreplaceable loss of resources; and

      c. can be managed, avoided or mitigated;

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

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

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

   iii. identify residual risks that need to be managed and monitored.

Legislative Requirements

The most important legislation applicable to the proposed project are listed below:

National Environmental Management Act (No. 107 of 1998) [as amended]

Section 28: Duty of Care and responsibilities to minimise and remediate environmental degradation.

EIA Regulations, 2014 (Government Notices 982) [as amended]

The EIA regulations prescribe the manner and content of the Basic Assessment and Public Participation Processes to be followed as well as content of the Environmental Management Programme.

Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) [as amended]

In order to apply for a prospecting right, an application was submitted on the Department of Mineral Resources' Samrad online application system.

The approval of this prospecting application will not compromise the integrity of the existing environmental management priorities of the area as defined in the GPEMF, provided that sensitive areas and vegetation as indicated by the specialists are avoided and the mitigation measures as recommended in this report and in the EMPR (refer to Part B of this report), are implemented. However, should a mining right be applied for and be approved in future, the integrity of the existing environmental management priorities of the area may be compromised, and a full Environmental Impact Assessment must then be conducted to determine the sustainability of the mining activities.

Alternatives

Prospecting is conducted in phases, where the activities and location of drilling and trenching to sample soil are dependent on the previous phase. Therefore, the specific locations and extent of soil sampling and core drilling cannot be predetermined. The overall prospecting area is indicated in Figure 1. Areas to be avoided in terms of sensitivities are also indicated on the sensitivity maps in this report.

The following alternatives were investigated as feasible alternatives:

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

Main activity conducted to determine the coal resources available in an economic feasible quality and quantity is drilling. The boreholes will be drilled using the diamond drilling method

so the geologists can get a clear understanding of the actual subsurface setting of the lithologies. As outlined in the PWP all activities will be conducted in a phase approach whereby the execution of a new phase will depend on the results of the preceding phase. Prospecting activities will not compromise any future land uses on the study area as the applied activities are temporary

The site is therefore, the preferred site and alternative sites are not considered.

b) The type of activity to be undertaken

Prospecting activities will not compromise any future land uses on the study area. Should results of the prospecting indicate a viable reserve is present, then a comprehensive social and environmental impact assessment will be conducted to obtain environmental authorisation and a mining right from the competent authority/ies, in accordance with legislation. Alternative land uses to mining would be

investigated as part of the social and environmental impact assessments. c) The design or layout of the activity

The specific locations of intrusive drilling activities will be determined during Phase 1 of the Prospecting Work Programme.

All infrastructure to be developed will be mobile and temporary.

d) The technology to be used in the activity

In terms of technologies proposed, prospecting work will initially entail a high-level desktop study and potential desktop resource evaluation. This will include a data search of any previous drilling, trenching, sampling activities, exploration activities, existing maps and relevant historical data. Desktop studies to be undertaken would include studying of geological reports, prospecting data, plans/maps, aerial photographs, topography maps and any other related geological information regarding the specific area.

On successful completion of this desktop study, further possible drilling, trenching and resource estimations will be performed if the results warrant it. The type of invasive prospecting activities have been determined based on the historic success of the methods to be utilised. The prospecting activities are, however, dependent on the preceding phase (noninvasive) as indicated above and therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

Diamond core drilling is planned to be executed on a phase by phase basis. Planned borehole depths will be determined during the desktop study, but it is estimated that drilling activities will

be conducted down to relatively shallow depths. Logging and sampling of the borehole core will be performed to evaluate the area. Trenching will involve the digging of excavation trenches down to approximately 3 metres below surface using graders and excavators. Mapping of the trench walls will then be performed.

e) The operational aspects of the activity

No permanent services including water supply, electricity, or sewerage facilities are required. All infrastructure to be developed will be mobile and temporary including generators, portable toilets and water tanks.

f) The option of not implementing the activity

According to Section 24 of the Constitution, a development must be ecologically sustainable and also support socioeconomic development.

Not implementing the prospecting activities will result in a loss of information of mineral reserves present on the study area. Should economically feasible reserves exist on the study area and the applicant cannot prospect, the opportunity to utilise the reserves for future mining will be lost, i.e. the minerals will be sterilised and resultant socio-economic benefits will be lost.

The proposed prospecting activities have the potential to have a negative impact on the ecological environment as well as the social environment of the area. These impacts, however, can potentially be prevented, minimised, mitigated and managed to low and very low levels, as shown through the impact assessment.

Public Participation

A Public Participation Process is undertaken for the Environmental Authorisation for prospecting. The process is undertaken to ensure compliance with regard to the requirements in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) [as amended] (MPRDA) and the Environmental Impact Assessment Regulations (2014) [as amended].

Tasks undertaken for the Public Participation Process (PPP):

- Identification of key interested and affected parties (affected and adjacent landowners) and other stakeholders (organs of state and other parties);

Interested and Affected parties (I&APs) representing the following sectors of society have been identified:

- National, provincial and local government;

- Agriculture, including local landowners (affected and adjacent);
- Community Based Organisations;
- Non-Governmental Organisations;
- Water bodies;
- Tourism;
- Industry and mining;
- Commerce; and
- Other stakeholders.

- **Formal notification of the application to interested and affected parties (including all affected and adjacent landowners) and other stakeholders**

All I&AP registrations and comments that are received from stakeholders will formally be recorded in the Comments and Responses Report. The Draft BAR and EMPr are herewith released for a period of 30 days from 22nd August 2022 to 20th September 2022. Hard copies of the Draft BAR and EMPr are also submitted to all relevant organs of state and authorities.
In addition, copies will be placed at Wakkerstroom Public Library and Dr Pixley Ka Isaka Seme Local Municipality.

Next phases of the public participation process

All comments received from I&APs and organs of state and responses sent will be included in the final BAR and EMPr to be submitted to the Competent Authority (CA).

Specialist studies

The following baseline studies will be conducted:

- Hydrology Study
- Geohydrological Study
- Soil Study

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3 Contact Person and correspondence address

a) Details of

3.1 APPLICANT: LIMMKHOLO INVESTMENT (PTY) LTD

Name	Limmkholo (Pty) Ltd
cell	+27 (0) 72 353 5358
Fax	+27 (0) 86 218 9658
Email	lucky@sothabacapital.co.za
Postal address	Office Address: Office D1 Groundfloor, President Park, Jeneatte Street, Del Judor, 1034
Physical address	Office Address: Office D1 Groundfloor, President Park, Jeneatte Street, Del Judor, 1034

3.2 Principal EAP and Reviewer the Report

PRINCIPAL EAP CONTACT DETAILS

Name	Ndinannyi Kenneth Singo
Tel	013 692 0041
Cell	078 272 7839
Fax	086 5144 103
Email	kenneth@singoconsulting.co.za
Postal address	Postnet Suite 125 Private Bag X 7214 Ben Fleur, 1036
Physical address	Office 870, 5 Balalaika Street,

Tasbet Park Ext 2, Witbank,
1040

3.3 Expertise of the Principal EAP and Reviewer the BAR and EMPr

See attached CV appendix k

4 Location of the Activity

b) Location of the overall Activity.

Table 1: Location of the activity

<table>
<tr><td>Farm Name:</td><td colspan="3">Portion 14 & 15 of the farm Vaalbankspruitdrift 334 IT</td></tr>
<tr><td>Application area (Ha)</td><td colspan="3">Approximately 663.942 Ha.</td></tr>
<tr><td>Magisterial district:</td><td colspan="3">Amersfoort</td></tr>
<tr><td>Distance and direction from nearest town</td><td colspan="3"><table><tr><th>Town</th><th>Distance</th><th>Direction</th></tr><tr><td>Amersfoort</td><td>19.33 km</td><td>Northeast</td></tr><tr><td>Mooifontein</td><td>10.77 km</td><td>Northeast</td></tr><tr><td>Kalkoenkrans</td><td>14.85 km</td><td>West</td></tr></table></td></tr>
<tr><td>21 Digit Surveyor General Code for each farm portions</td><td colspan="3">T0IS00000000030400014
T0IS00000000030400015</td></tr>
</table>

c) Locality map

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

The proposed prospecting project area is situated approximately 19.33 km North east of Amersfoort, 10.77 km North east of Mooifontein and approximately 14.85 km west of Kalkoenkrans. The proposed project can be accessed via N11.

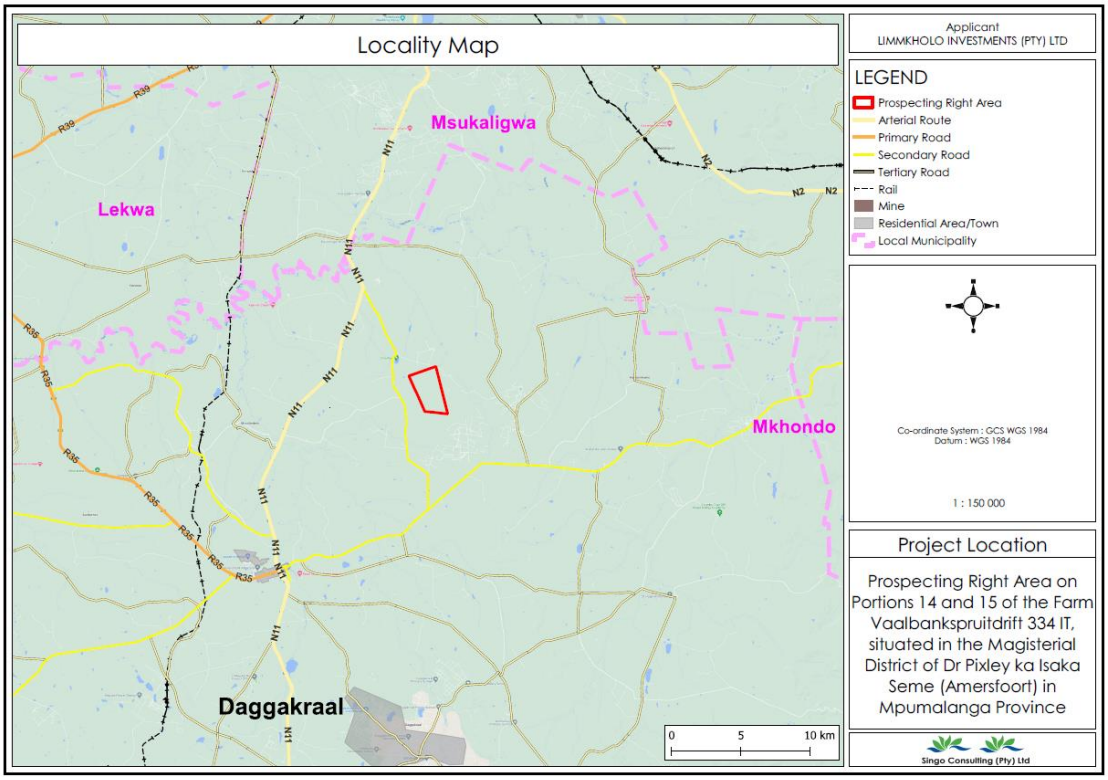


Figure 1: Locality map of the proposed project.

Figure 2: Google Earth View Map

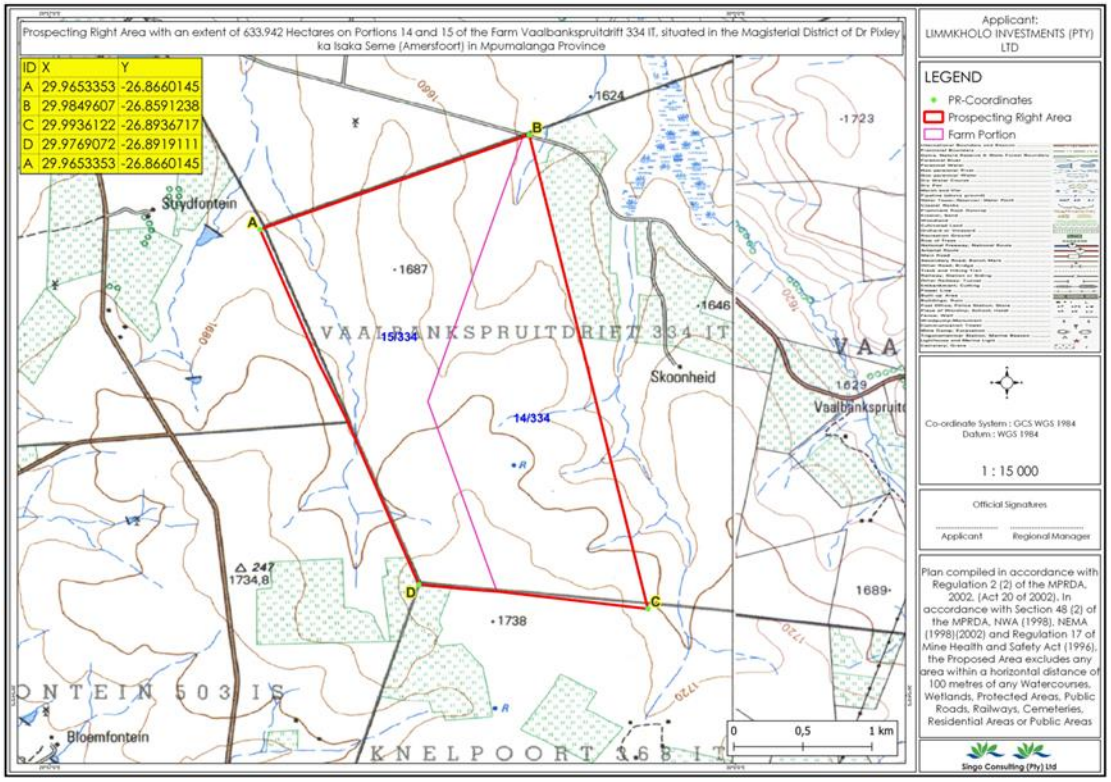


Figure 3: Regulation map showing locality of the proposed project area.

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).

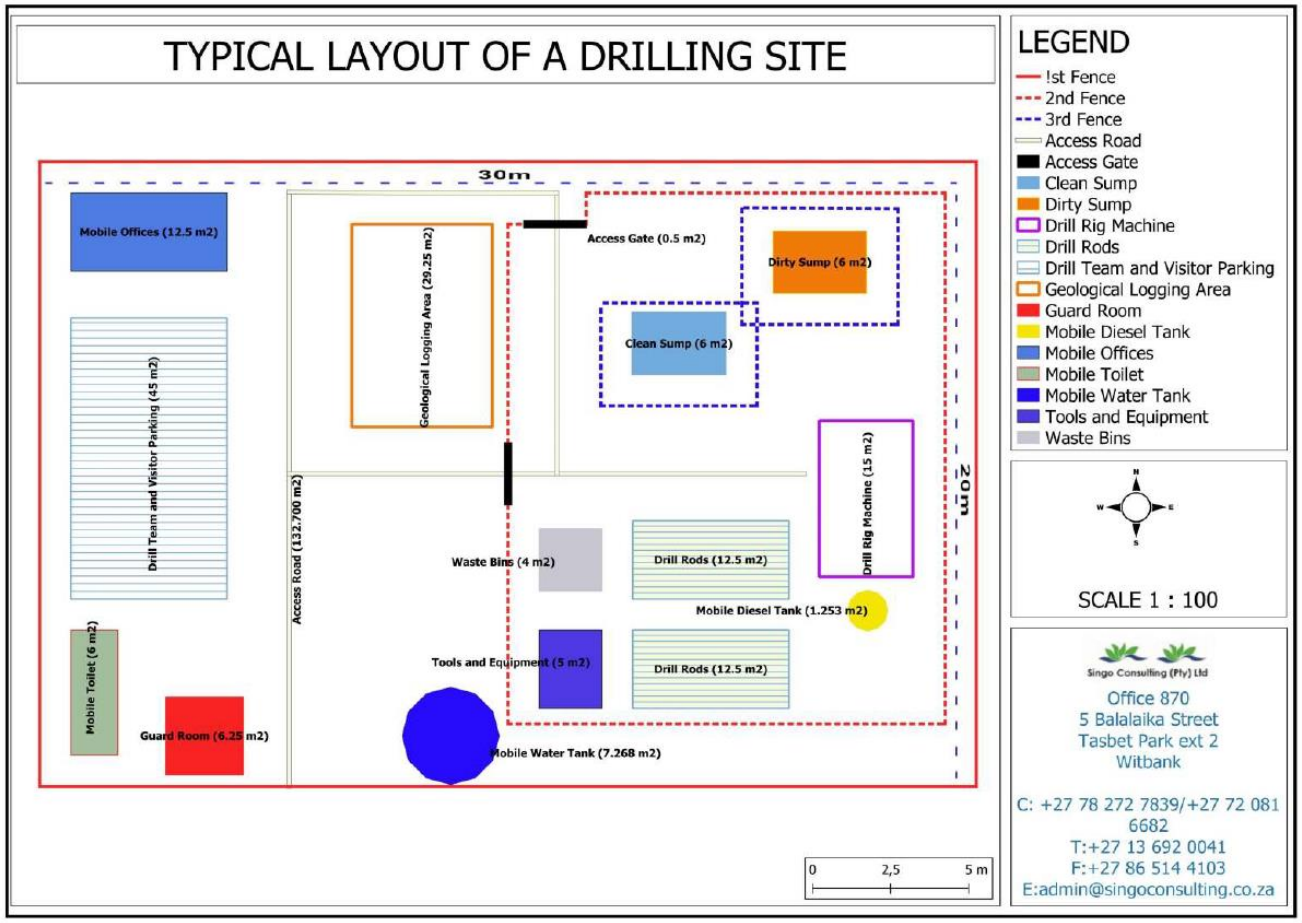


Figure 4: The drill site layout plan showing areas where specific activities will take place in the project area.

As part of the prospecting phase, physical prospecting is planned to be conducted on site and will involve the use of diamond core drilling to investigate the existence of the expected mineralization, the thickness of the coal and its distribution. Drill core will be logged and sampled on site as per figure 4 seen above, and the samples will be taken to the Laboratory of applicant's choice. An estimated 22 boreholes will be drilled, one at a time at various locations within the proposed project area. The depths of the drill holes will average 110 m and will be determined onsite whilst the drilling programme is underway as influenced by the depths and dips measured in other holes. A buffer of 100m will be kept from identified wetlands and non-perennial streams. A buffer of 100 meters will be kept from public roads.

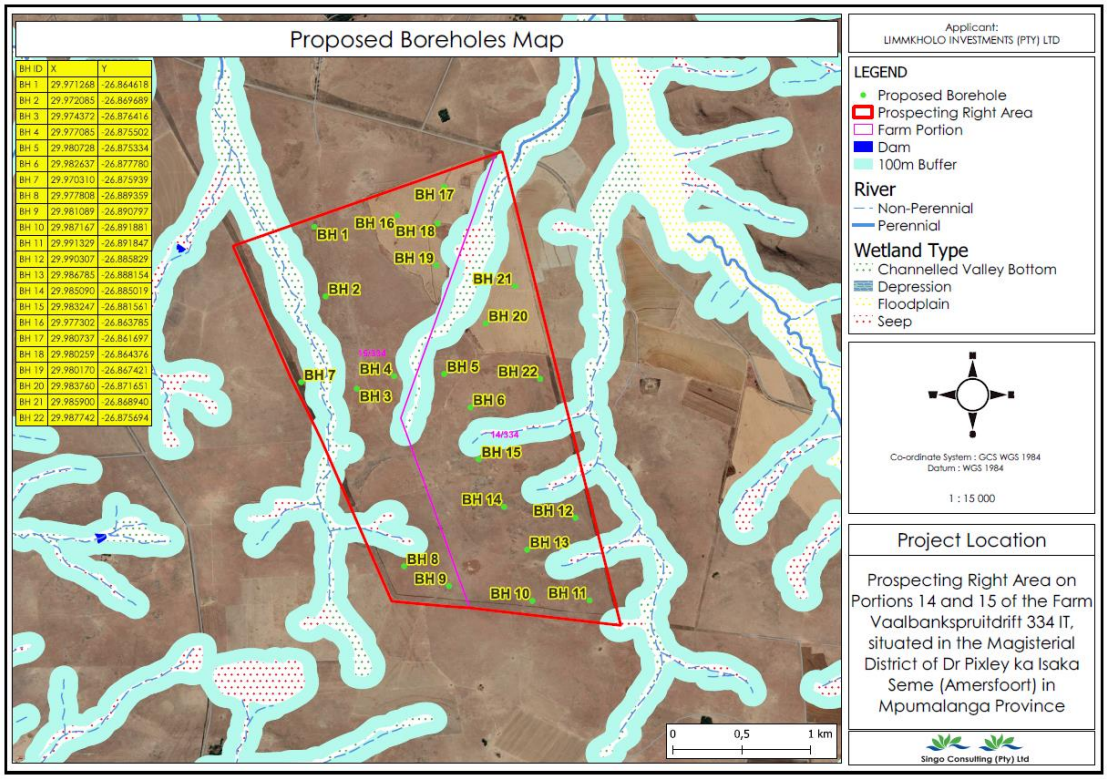


Figure 5: Proposed boreholes map of the anticipated project area.

The operation site will be temporary barricaded, cleared and drilled. Rehabilitation will occur immediately after drilling. As a site is drilled, it will be rehabilitated, and the drilling crew will move onto the next planned hole. This procedure will be followed until all the holes are drilled. Drilling commitments date, time frame and compensation will be communicated with Landowners. No other excavations, bulk sampling or pitting is planned throughout prospecting phase.

5 DESCRIPTION OF ACTIVITY

i. Listed and specified activities

Table 2: NEMA-Triggered Activities

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc. E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…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 517, June 2021	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Prospecting Area	633.942 ha	X	GNR 517 Listing Notice 1, Activity 20.	Not required
Vegetation clearing	- $600m^2 * 22 = 13200m^2$ - 1.32 ha		Activity 27	
Drilling	1.32 ha		Not Listed	
Access road	3913,79 m^2		Activity 24 (i)	
Mobile Toilet	6 m^2		Not Listed	
Guard Room	6.25 m^2		Not Listed	
Mobile Offices	12.5 m^2		Not Listed	
Geological Core Logging Area	29.5 m^2		Not Listed	
Parking Lot	45 m^2		Not Listed	

Access Gate	0.5 m^2		Not Listed	
Dirty Sump	6 m^2		Not Listed	
Clean Sump	6 m^2		Not Listed	
Drill Rig	15 m^2		Not Listed	
Drill Rods	25 m^2		Not Listed	
Diesel Tank	1.253 m^2		Not Listed	
Waste Bins	4 m^2		Not Listed	
Tools & Equipment	5 m^2		Not Listed	
Mobile water tank	7.268 m^2		Not Listed	

ii. Description of the activities to be undertaken

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

Coal prospecting activities will be conducted over a period of five years in the following phases:

5.1 Phase 1: Non-Invasive Prospecting

Phase 1A: Data collection and review.

This phase includes data collection and review of all available information relating to the project, such as property description, tenure and permitting, accessibility, climate, environmentally sensitive areas, historical work, and geology. Ground true thing will be conducted during this phase.

Phase 1B: Field Mapping

Geological mapping involves plotting the location and altitude of the various rock units, faults, and folds on a base map. Geological maps are used to investigate

geological hazards, mineral resources, groundwater aquifers, and plain science. This method includes ground mapping of geological features including rock outcrops, lithological contact zones, any geological structural features, surface depressions.

Phase 1C: Data review report and analysis.

This phase involves confirming adequacy of baseline project data available to support preparation of a Bankable Feasibility Study (BFS). Upon gap analysis completion, recommendations will be made to fill the shortfall in any technical or study area that may directly impact the quality of the Bankable Feasibility study. Phase 1A and 1B (combined) will be conducted for about 1–2 months.

5.2 Phase 2: Geology and resources.

This phase includes drilling, geochemical sample analysis, data verification and mineral resource estimation according to international reporting codes, such as the South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves (SAMREC). Data acquisition and test work in the form of diamond or directional drilling (for geochemical assay and metallurgical test work) is required to support the study. Once the geochemical analytical results have been obtained, the generation of a geological and resource model and resulting SAMREC-compliant (or similar) mineral resource estimate may be completed. The drilling program will include at least 22 (twenty-two) boreholes (Table 3) mainly aimed at verifying the acquired historical data by obtaining reliable samples from different depths below surface. The potential drilling method are described in the following. Limmkholo Investment will appoint the drilling contractor and they must inform the drilling contractor that is required to comply with all the environmental measures specified in the BAR & EMPr.

Diamond core drilling

Diamond core drilling comprises a drill bit studded with diamond, which is mounted on a cylindrical rotating shaft. A hydraulic or mechanical chuck holds the drill shaft and mounted drill bit firmly, allowing it to rotate at the desired speed. The feed frame applies the necessary force to exert the right pressure on the bit for effective cutting. The flush pump passes water or other flushing fluids down the rod string and past the core barrel and core bit. This cools the bit and carries the cutting up to the surface outside the drill rod, reducing friction between the drill string and the borehole wall. The bit cuts out a core of rock, which moves up into the core barrel until the barrel is filled. When full, the rod string is hoisted until the core barrel reaches the surface where it can be emptied.

Figure 6: Typical example of Diamond Core drill rig and drill bits.

Table 3: Proposed drilling programme

Drilling method	Diamond core drilling
Number of boreholes	22
Depth of boreholes	110 m
Duration of drilling	A borehole takes about 4 days to complete; 22 boreholes will take about 84 days.
Demarcated working area	600 m^2 (600 m^2 per drilling site based on a 30 m x 20 m grid) which is equals to 0.06 ha per site
Total area to be disturbed	6000 m^2 (600 m^2 x 22 boreholes = 13 200 m^2 (1,32 ha))

5.3 Phase 3: Topographic survey

This phase includes a topographic survey. A detailed Digital Elevation Model (DEM) with 2m accuracy contour levels is required (existing LIDAr survey results to 5cm in the xyz space with a 1cm ortho-image is available).

5.4 Phase 4: Geophysical investigations

This phase involves collection of sub-surface information relative to the Karoo Supergroup stratigraphy; this will affirm the exact location of the and its depth; the nature and effects of other formation intrusions; and the characteristics of the bed rock and overburden. Geophysical survey results will be interpreted with geological and drilling data to provide a firm basis for analysis of the Coal characteristics and its potential of being converted from resource to reserves.

5.5 Phase 5: Mineral processing and metallurgical testing

This phase involves following standard procedures for Feasibility studies to obtain test work results to determine the Run of Mine (RoM) ore quality. RoM ore quality is needed to establish basic beneficiation plant design criteria and start with basic engineering, layout planning, preliminary tendering and cost estimates of initial capital costs for each of the main components, production planning and operating cost estimates.

5.6 Phase 6: Reporting

This phase includes review, interpretation, peer review, conclusions and recommendations, and the compilation of the final BFS report signed off by the Competent Person. The Mineral and Ore Reserve Report produced during this phase, will be SAMREC-compliant.

5.7 Equipments

The equipments to be used during prospecting process as follows:

- Drill Equipments
- Mechanical Shovel
- Temporary Fencing
- Wooden pegs
- Safety Cones
- Field vehicles
- Spades
- First aid kit
- Sample bags
- PPE (dust mask; gloves; goggles, reflector vest, and Safety Boots)

Equipments will be stored in a container (storage) the active drill site.

5.8 Auxiliary Activities

5.8.1 Access roads

There is an existing access gravel road within the proposed project area, that connects to the N11 which gives all project personnel easy access to the drill site. New access roads for borehole will be constructed for the current proposed activity. however, should the need arise once the prospecting right has been granted, the applicant will negotiate access with the landowner(s) to conduct a detailed technical evaluation of the prospecting area. A contract will be drawn up and negotiated with the landowner(s) regarding access and the suitability and time of year that is preferred for prospect drilling.

Figure 7: Existing access roads within the proposed project area.

5.8.2 Ablution facilities

Mobile toilets will be placed on site for ablution purposes, and they will be removed after the prospecting period.

Figure 8: An image showing a typical example of mobile toilets.

5.8.3 Temporary Office Area

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

Figure 9: Typical example of Gazebo for temporary offices/shaded Area.

5.8.4 Accommodation

Accommodation for staff and workers including Security will not be provided on site, but in nearby towns around the proposed project area as there are Lodges and guest house. Night security staff will be employed once equipment has been established on site.

5.8.5 Blasting

As Prospecting Works Programme (PWP)of this proposed prospecting project does not allow for bulk sampling, no blasting will take place.

5.8.6 Storage of dangerous goods

During drilling activities, limited quantities of diesel fuel, oil and lubricants will be transported to the site daily.

Figure 10: Typical example of fuel transport to the site.

5.8.7 Temporary Fences

Temporary Fences will be erected on the boundaries of prospecting target areas prior to commencement of works at the target footprint areas to prevent unauthorised entry and animals. Fences are to always remain maintained, and gates are not to be left open at any time. Signs indicating the risks involved in unauthorised entry must be displayed at each entrance.

6 LEGAL FRAMEWORK

e) Policy and Legislative Context.

The following context includes the legislations that are associated with prospecting processes.

Table 4: Applicable legislation to this application.

Applicable Legislation and Guidelines	Reference Where Applied (i.e. where in this document has it been explained how the development complies with and responds to the legislation and policy context)	How does this Development Comply with and Respond to the Legislation and Policy Context
National Environmental Management Act (No. 107 of 1998) (NEMA):	This entire report is prepared as part of the prospecting right application under the NEMA, section 24	In terms of the National Environmental Management Act an Application for Environmental Authorisation subject to a Basic Assessment Report. The application was lodged at the DMRE
Minerals and Petroleum Resources Development Act (No.28 of 2002) (MPRDA): In support of the Prospecting Right Application submitted by Limmkholo Investment (Pty) Ltd, the applicant is required to conduct a NEMA BAR process in terms of Section 5A and Chapter 16 of the MPRDA.	This entire report is prepared as part of the Prospecting Right Application under the MPRDA, section 16(2).	The application is for a prospecting right and therefore all regulations pertaining to the application process of a prospecting right and environmental management are applicable to this application. DMRE REF: **MP 30/5/1/1/2/ 15309 PR**
National Water Act (No. 36 of 1998) (NWA): Water may not be used without prior authorisation by the DWS. Section 21 of the National Water Act (No.36 of	No Water Use Licence has been applied for this prospecting project.	No water use license is required for this Application. The water required will be bought from the municipality or licensed water supplier that sells potable water or

1996) the NWA water uses for which authorisation is required.		treated industrial water for which a water sale agreement will be drawn and agreed upon before work commences. Appropriate dust extractions /suppression equipment will be a condition imposed on the drill contractor for their drill rigs.
The National Environmental Management: Biodiversity Act (Act No. 10 of 2004 – NEMBA) Section 57 and 87	Regulations published under NEMBA provides a list of protected species (flora and fauna), according to the Act (GN R. 151 dated 23 February 2007, as amended in GN R. 1187 dated 14 December 2007) which require a permit in order to be disturbed or destroyed	No applications have been submitted in terms of the National Environmental Management: Biodiversity Act.
Pixley Ka Seme Local Municipality Integrated Development Plan (IDP) Strategic Development Framework (SDF)	Needs and Desirability, socio-economic needs. Land use	Incorporated in Section 7 of this BAR. The applicant acknowledges the need to maximize economic benefit from mining, industrial, business, agricultural and tourism development in the area and promote a climate for economic development in line with the municipal development frameworks.
Municipality By-Laws: Waste Management by-law Act 59 of 2008, Air Quality Management By-law Act 39 of 2004, Noise control by-law, Spatial Planning	Environmental Management measures awareness plan	Best practice guidelines will be followed for any by-law's management and the development of the mine

and Land Use Management act no 16 of 2013 (SPLUMA).		environmental and other legislative management.
Constitution of South Africa, Specifically, everyone has the right: a) to an environment that is not harmful to their health or wellbeing; and b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that i) prevent pollution and ecological degradation; ii) promote conservation; and iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.	BAR & EMPr	Prospecting activities will only proceed after effective consultation. All activities will be conducted in a manner that does not violate the Constitution of the Republic of South Africa.
National Heritage Resources Act, 1999	Management measures	Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and SAHRA notified in order for an investigation and evaluation of the find(s) to take place.

7 NEED AND DESIRABILITY

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).

NEED AND DESIRABILITY OF THE PROPOSED PROJECT		
PART I: NEED		
Questions (Notice 792, NEMA, 2012)		Answers
1.	Is the land use associated with the activity being applied for considered within the timeframe intended by the existing approved SDF agreed to be the relevant environmental authority?	Prospecting is an integral part of its rationale to make use of the abundant natural resources in the area to create strong, resilient, and prosperous district. The land use is not associated with prospecting.
2.	Should the development, or if applicable, expansion of the town/area concerned in terms of this land use occurs here at this point in time?	Should a mining right be applied for and be approved in future, the integrity of the existing environmental management priorities of the area may be compromised, and a full Environmental Impact Assessment must then be conducted to determine the sustainability of the mining activities. The proposed project has the potential to have a positive impact on the socio-economic conditions of the local communities involved as well as for gathering information about the geographical layout of the area. Should the results of the prospecting show that feasible reserves are present to mine, a mining right may be approved.
3.	Does the community/area need the activity and the	According to the IDP (2017/2022) of Dr Pixley Ka Isaka Seme local municipality, the

	associated land use concerned? This refers to the strategic as well as local level.	unemployment rate of economically active population as of 2016 was 21.6% according to Census. High unemployed is also due to the influx of job seekers into the municipal area. The Covid-19 pandemic has resulted to further job losses. The Limmkholo Investment(Pty) Ltd prospecting will yield positive impact on the socio-economic conditions especially if it graduates to mining, by creating more jobs and providing developments to the local communities. In the last few years whilst Community Services has increased and Mining as an employer has grown and now contributes 12, 7%.
4.	Are the necessary services with adequate capacity currently available (at the time of application) or must additional capacity be created to cater for the development?	All infrastructure for services and capacity will be temporary and will be provided for the proposed prospecting/drilling activities. Temporary Infrastructure includes i.e Mobile toilets, temporary shaded area (in a form of Gazebo). Drilling mechanisms to be employed will be of diamond core drilling. The road networks are fully intact, and the project will not have a major impact on road congestion. Thus, additional capacity does not need to be created for the development.
5.	Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality	The development is not provided for in the infrastructure planning of the municipality as it is a small development of local importance. Thus, the proposed project will not have any implications for the infrastructure planning, as no services and/or infrastructure needs to be upgraded or

	(priority and placement of the services and opportunity cost)?	created to cater for this project. The proposed project will be making use of mobile structures.
6.	Is the project part of a national programme to address an issue of national concern or importance?	The mining sector is a significant contributor to the National GDP as well as a massive employer of people. This project will contribute to the National Development Plan of eradicating poverty/unemployment. Chapter 6 of the National Development Plan highlights an "inclusive rural economy" and the objectives of this plan are to create jobs in mining and industry and activating rural economies through service to small and micro mining.
PART II: DESIRABILITY		
7.	Is the development the best practicable environmental option for this land/site?	The project area lies on CBA irreplaceable land. The activities currently present on site (Farming) have already had an impact on environmental management. The disturbed areas (drill sites) will be rehabilitated immediately after prospecting activities.
8.	Would the approval of this application compromise the integrity of the existing approved and credible IDP and SDF as agreed to by the relevant authorities?	The approval of this prospecting application will not compromise the integrity of the existing environmental management priorities of the area provided that sensitive areas are avoided and the mitigation measures as recommended in this report and in the EMPr are implemented.
9.	Would the approval of this application compromise the integrity of the existing environmental management priorities for	The integrity of the existing environmental management priorities for the area will not be compromised by this development.

	the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?	
10.	Do location factors favour this land use at this place? (this relates to the contextualization of the proposed land use on this site within its broader context).	The coalfield lithology comprises sediments of the Dwyka and Vryheid Formations of the coal-bearing Ecca Group, Karoo Supergroup thus providing the ideal geological formation for the presence of the mineral applied for. The current infrastructure suffices for the process of prospecting. The planned drilling activities does not need any new infrastructure.
11.	How will the activity of the land use associated with the activity being applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	As far as the Basic Assessment on the area of question, there is no known heritage or cultural significance. Should the standings change, the relevant authority will be notified immediately and information will be included into the BAR & EMPr.
12.	How will the development impact on people's health and well-being? (E.g. In terms of noise, odours, visual character and sense of place, etc.)?	The impacts on well-being, following mitigation, will be as follows: • Visual: Medium to low • Dust: Low • Noise: Low • Vibrations: Low Strict adherence to the recommendations & mitigation measures identified will be ensured.
13.	Will the proposed activity or the land use associated with the activity being applied for, result in	The mining industry in Mpumalanga has been a cornerstone of the economy for a long period of history. South Africa offers ongoing proof that mineral revenues can

	unacceptable opportunity costs?	create sizeable benefits to the economy in countries where they are sourced. The applied commodities contribute significantly towards the Municipal's GDP.
14.	Will the proposed land use result in unacceptable cumulative impacts?	The proposed project has only been identified to have minimal cumulative impacts that can be mitigated to an acceptable level. The measures outlined in the EMP attached will serve as a method to keep the proposed project from having any serious long term cumulative impacts on the receiving environment.

8 ALTERNATIVES

Motivation for the overall preferred site, activities, and technology alternative.

The proposed project is designed at exploring in-situ coal seams and the majority of South Africa's coal resources originate within the Ecca group belonging to the Karoo Super Group. The project is located within Karoo Super Group; this facilitates the process of Prospecting Right application.

9 Full description of the process followed to reach the proposed preferred alternatives within the site.

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

There is no alternative site identified beside the project area as the property provides the ideal geological formation for the presence of the minerals applied for. Although there are no water bodies identified within the project area, however 100 m buffers were drawn to avoid negative impacts on the area, and it should be taken as "No Go" Area. Infrastructures and graves were identified within the site; therefore, 100 m buffer zone will be delineated to avoid negative impacts during drilling process. Drilling should

not be conducted on area cover by Critical Biodiversity Area 1 and Ecological Support Area to avoid negative impacts.

i. Details of the development footprint alternatives considered.

With reference to the site plan provided as **Appendix 1** and the location of the individual activities on site, provide details of the alternatives considered with respect to:

a. Property on which or location where it is proposed to undertake the activity;
b. Type of activity to be undertaken;
c. Design or layout of the activity;
d. Technology to be used in the activity;
e. Operational aspects of the activity; and
f. Option of not implementing the activity.

9.1 Property

Based on existing knowledge of the geological information of that area. The site was identified based on knowledge of the Coal deposit and as such, no site alternatives have been considered for the proposed activities. The following buffers will be applied to the final site selection:

- No drill site will be positioned within 100 m of a structure
- No drill site will be positioned within 100 m of a water course or wetland
- Where possible existing access roads will be utilized to access the drill sites.

9.2 Type of Activity

Techniques were chosen based on the long-term success of the selected drilling method and prospecting process.

- A total number of 22 drill holes are proposed for the site;
- It will be possible to drill 110m -120 per day, covering about a day to drill one hole;
- All holes will be drilled by means of a diamond drill rig.
- The holes will be drilled to an average of 110 m and broadness (diameter) may vary between 60 mm - 75.7 mm. This will allow establishment of the thickness of the overburden.
- Holes will not be drilled closer than 100 m from any stream/river and not within 100 m from a natural wetland.
- Identified heritage sites will be marked and avoided. 100 m buffer zone will be applied

- Overburden will be recorded, and the holes filled back simultaneously.
- Drilling will take place one hole at a time. Rehabilitation will occur concurrently with drilling.

9.3 Design & Layout

Since prospecting activities are temporary in nature no permanent structures will be constructed. Negotiations and agreements will be made with the farm owners to use any existing infrastructure like boreholes and access roads. Temporary Infrastructure will be developed on site; like portable ablution facilities will be used.

- Activities will be limited to the drilling of 22 boreholes to be determined by the geological formations found during prospecting.
- It is planned to use one rig for all drill holes. Rehabilitation will be tightly controlled, and supervision will be focused.

9.4 Technology

The biggest technology intervention is the use of geophysical surveys, which makes the requirement for less holes apparent. Geophysical surveys also provide an added advantage of being done quickly and so execution can commence early. The safety factor of utilizing geophysical surveys is also apparent, as there is less time to keep people exposed to moving machinery. Drilling will be performed on a closed radius which will be fenced, and safety signs will be plugged as per the requirement of Mine Health & Safety (MHS) compliances. The targeted area for operation will be near the existing road and modified area.

9.5 Operational aspects of the activity

Drilling will be done over a period of 88 days, during daylight hours to minimise risk exposure. Due to nature of the prospecting activities no permanent infrastructures will be erected on site such as water supply, electricity or sewer facilities. The prospecting will commence with non-invasive prospecting for 1 month which will entail Multi-Spectral and Aerial Surveys providing digital raster data of the area of interest delineating the Paleo channel on a map.

Thereafter, a further literature survey will be conducted for 1 month, combining the results from phase 1 with interpreted geological report. Only then will the applicant commence with invasive prospecting with the drilling and sampling programme continuing for approximately 1 month, which will culminate in a report on the drill results. This will again be followed with further non-Invasive prospecting through GIS & analytical desktop studies for 1 month, producing Pre-Feasibility reports, resource statements and 3D mapping. Once this is complete, a decision will be made whether further drilling or sampling is required in specific areas of interest, prior to finalizing the

Feasibility Report. The applicant shall ensure that this Environmental Management Programme Report is provided to the Prospecting Manager and any other person or organization who may work on the site.

9.6 Option of not implementing the activity

Drilling is required to investigate the potential and feasibility of a resource. It also serves as a DMRE-compliant mineral resource statement. There is no potential for any future investment in a mine without the confirmation of the mineral resources, which can only be obtained by drilling. Should the prospecting right be refused, a potential mineral resource development will be sterilized. The socio-economic benefit and future employment potential of mine development will also be lost if the prospecting activities are not implemented to determine the feasibility of a mineral deposit that occurs within the area.

10 PUBLIC PARTICIPATION PROCESS

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 they attended public meetings. Information to be provided to affected parties must include enough 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).

The Public Participation Process (PPP) mainly comprises the communications and discussions with Interested and Affected Parties (I&APs) and is of utmost importance in any assessment process. The PPP provides people who may be interested in or affected by the proposed development, with an opportunity to provide comments and to raise issues or concern, or to make suggestions that may result in enhanced benefits for the project. The PPP, inter alia, involves the following:
The main aspect around public participation is finding the relevant I&APs, in this project the relevant I&APs were

- Landowners
- Neighbours
- Local Municipality
- Government Departments

10.1.1 Notification of potentially interested and affected parties

- Newspaper Advertisement which was placed on Standerton Observer (in English & Zulu*)*, on Friday the 22nd July 2022.Please refer to **Figure 11** below.
- Site notices (A2) in English and Isizulu were placed accessible by the public on the 15th of August 2022 during the site visit. Please refer to **Figure 12** below.

4 NEWS Standerton | 22 July 2022

VF verwelkom rioolkontrakteur

Marina Schoombee

Wilma Venter, Vryheidfront Plus-raadslid vir wyk 10, het die aanstelling van 'n kontrakteur om aan die Coligny-rioollyn te werk, verwelkom.

Volgens 'n persverklaring van 11 Julie, kan dit die voortslepende rioolkrisis in die Lekwa Munisipaliteit beredder.

"Die aanstelling volg op volgehoue druk van die VF Plus om die jarelange rioolkrisis op te los," het Venter gesê.

'n Bedrag van R.21-miljoen is begroot vir die projek om die rioollyn vanaf Coligynstraat tot die Muller-rioolpomp aan te lê.

Volgens die verklaring, sou die kontrakteur na verwagting verlede week begin om te werk en die eindprodukt sal 'n langtermynoplossing wees.

"Duisende liters riool beland dagliks in storm waterslote op die dorp en vloei dan in die Vaalrivier," het sy bygevoeg.

Talle boere en inwoners is afhanklik van water uit die rivier vir landbou- en huishoudelike doeleindes.

Schalckardstraat verby Standerton Polisiestasie is moeilik navigeerbaar.

"Nie net het Lekwa se wanbestuur bygedra tot die agteruitgang van die munisipaliteit nie, maar ook tot gesondheidsgevare vir inwoners en die omgewing."

Volgens Venter het die VF Plus al in 2020 'n strafregtelike klag ingedien vir die aanhoudende besoedeling van die Vaalrivier.

Die oortredings was ingevolge artikel 151(i)(j) van die Nasionale Waterwet (36 van 1998) en die Afvalbestuurswet (59 of 2008).

Die munisipaliteit was ook in minagting van 'n hooggeregshofbevel (2018) vir besoedeling.

Die nasionale departement van water en sanitasie het in 2018 gesorg dat die hooggeregshof 'n bevel teen die munisipaliteit uitreik om sy rioolstasies dadelik te herstel en om te verhinder dat die Vaalrivier en ander bronne verder besoedel word.

Volgens inligting en video-opnames van inwoners op Standerton, loop die riool steeds die afgelope vier jaar in die rivier en die bevel is bloot geïgnoreer.

"Die VF Plus sal aanhou om druk op die Lekwa Munisipaliteit te plaas om seker te maak dat diensleweringsprobleme reggestel word," is mee afgesluit

"Inwoners is geregtig op die diens waarvoor hulle betaal."

Lekwa appoints new manager

Lekwa Municipality welcomed the appointment of the Municipal Manager, Malose Johan Lamola, who resumed duties on July 11. According to their communications department, he has a technical, project management and financial background. Lamola worked as the Director of Roads and Transport at the Polokwane Municipality until February. *Photo: Supplied*

Danger looms for old woman from Ext 4

Marina Schoombee

A time bomb is ticking for an elderly woman at eMa-9 in Ext 4.

This is the viewpoint of the concerned councillor, Gibson Zulu from Ward 2.

According to him, he reported the electrical situation more than once.

The woman cannot afford hiring a private electrician to connect the electrical meter box inside her RDP house and do proper wiring inside the house.

The covered meter box is lying in the back yard of the house after the shack was demolished.

The box reportedly makes funny sounds.

Zulu said this is dangerous and it needs to be moved into the house.

The Standerton Advertiser requested reference numbers, which were supplied, and contacted Thando Nkosi at the communications department of Lekwa Municipality on Thursday, July 14.

The reference numbers and address were supplied.

An attempt was also made to contact the resident, but the connection was broken once the newspaper identified itself.

The meter box is in the yard of a resident from Ext 4. *Photo: Supplied*

Water levels remain same at Grootdraai Dam

Mpumalanga water levels recorded a slight drop.

The Department of Water and Sanitation called on the public to strengthen water conservation initiatives and use the available water sparingly as water levels in the province dropped.

They also reminded the public that South Africa is a water-scarce country, and most parts of the country are currently in the dry, winter season, making it crucial to make every drop count.

According to a statement dated July 13, their weekly state of reservoirs report shows that the average levels in the listed dams recorded a slight 0.1% drop from last week's 95.3% to 95.2%.

Water levels also dropped from 84.7% to 84.5% in the Olifants Water Management Area (WMA) and remained unchanged at 98.9% in the Inkomati-Usuthu WMA.

In the Gert Sibande District, Morgenstond Dam is the only listed dam that recorded an improvement, increasing from 100.1% to 100.3%. Jericho and Westoe dams recorded declines in water volumes, dropping from 100.2% to 100.0% and 95.0% to 93.9% respectively.

Dams that remained unchanged in the district include Grootdraai at 100.2%, Nooitgedacht at 100.4%, Vygeboom at 100.5% and Heyshope at 100.4%.

The department encouraged the public to join the Clear Rivers Campaign and adopt a watercourse around them and always keep it clean and healthy for water security.

Grootdraai Dam in December a few year ago.

NOTICE OF PUBLIC PARTICIPATION FOR PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORISATION APPLICATION

ISIZULU

ENGLISH

ISAZISO SOKUPHAKWILA NOKUFUZA IMIBONO MAYELANA NALE APPLICATIONS

INVITATION TO COMMENT

EAP:

Singo Consulting (Pty) Ltd

Office No. 870, 5 Balobalka Street, Tasbet Park Ext. 2, Witbank

Contact person: Mr Abel Maipelo
Tel No: +27 13 692 0041
Fax No: +27 86 514 4103
Cell No: +27 71 362 7894
Email: abel@singoconsulting.co.za

APPLICANT

LIMMKHOLO INVESTMENT (PTY) LTD

Office 01, Groundfloor, President Park, Jeneatte Street, Del Judor, 1034

Contact Person: Lucky Sambo
Cell No: +27 72 353 5358
Fax No: +27 86 218 9658
Email: lucky@sosthubacapital.co.za

Figure 11: Proof of Newspaper Advertisement (outlined with Red polygon).

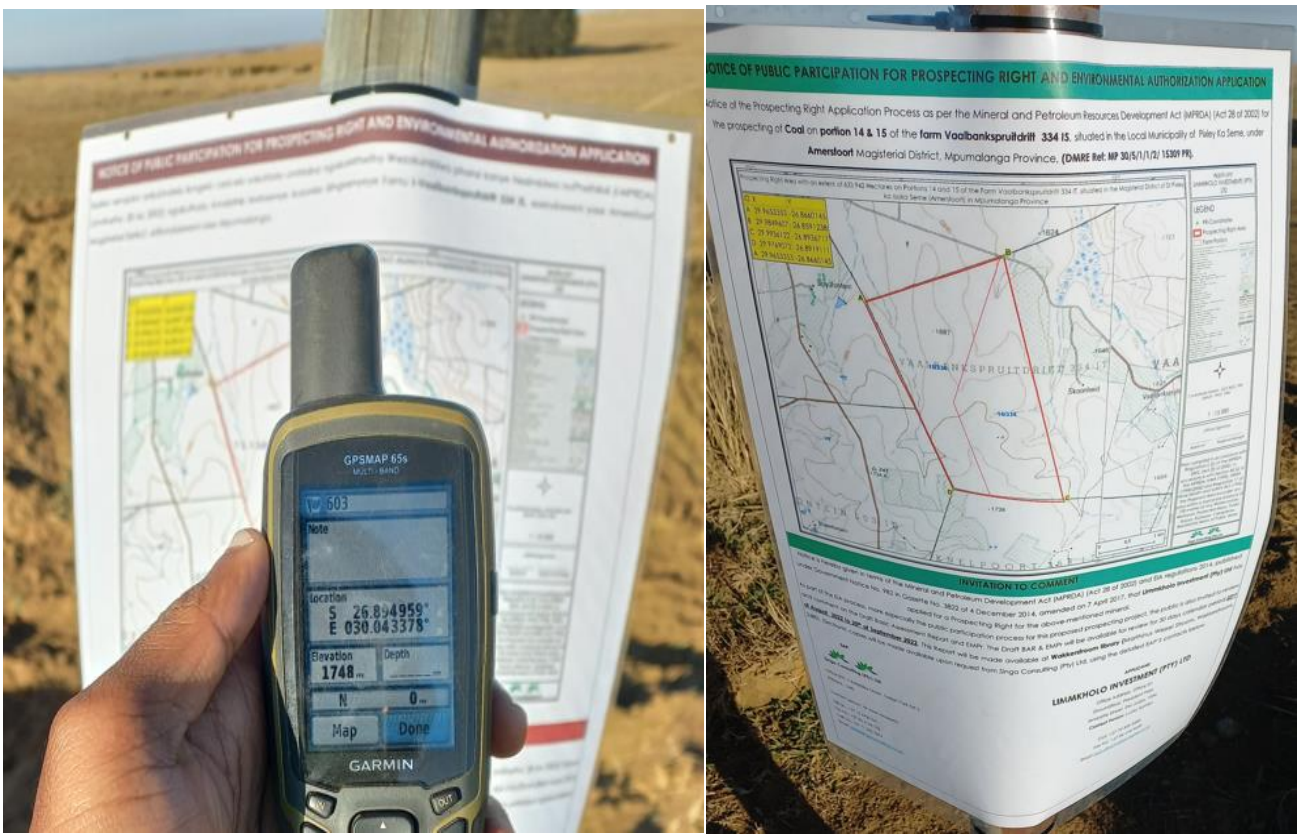


Figure 12: Proof of Site Notices.

- Draft Basic Assessment Report will be distributed to the Interested & Affected Parties and Stakeholders to comment regarding the prospecting right application.

The following have been identified as I & Aps

Table 5: Identified key stakeholders.

Names of I & Aps	Organization	Position
Pearl Moswathupa	Pixley Ka Seme Local Municipality	
Phumla Nkosi	Mpumalanga Tourism and Parks Agency	Official
	Department of Environmental Affairs	Official
Mary Dorcus Mogale	Department of Agriculture, Forestry and Fisheries.	Resource Auditor Land Use and Soil Management
NemukulaM@dws.gov.za	Department of Water and Sanitation	Officials

Tshilidzi Mavulwana	Transnet	Officials
	Eskom	
Ria Barkhuizen	SANRAL	Statutory Control Officer
Thomas Sambo	Department of Rural Development and Land Reform (DRDLR)	Official
Mr Arnoldi	Vaalbankspruitdrift 334 IT	Landowner

Windeed Results

WinDeed Database D/O Property - List
IT, 334, MPUMALANGA

Lexis® WinDeed

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

SEARCH CRITERIA			
Search Date	2022/07/21 14:00	Farm Number	334
Reference	-	Registration Division	IT
Report Print Date	2022/07/21 14:01	Portion Number	-
Farm Name	-	Remaining Extent	NO
Deeds Office	Mpumalanga	Search Source	WinDeed Database

PORTION LIST

Portion	Owner
0	KOJO BOERDERY PTY LTD
1	ARNOLDI BERNARD
2	JAN VAN NIEKERK TRUST
3	ARNOLDI BERNARD
4	ARNOLDI BERNARD
5	KOJO BOERDERY PTY LTD
6	ARNOLDI REINHARDT BOSHOFF
7	KOJO BOERDERY PTY LTD
8	B P JOHNSTONE TESTAMENTERE TRUST
9	B P JOHNSTONE TESTAMENTERE TRUST
10	B P JOHNSTONE TESTAMENTERE TRUST
12	** FOR INFO REFER TO REGISTRAR OF DEEDS **
13	ARNOLDI REINHARDT BOSHOFF
14	JOHAN ZIERVOGEL TRUST
15	JOHAN ZIERVOGEL TRUST
16	JAN VAN NIEKERK TRUST

DISCLAIMER
This report contains information provided to LNRM by content providers and LNRM cannot control the accuracy of the data nor the timely accessibility. LNRM will not be held liable for any claims based on reliance of the search information provided. This report is subject to the terms and conditions of LexisNexis Risk Management Agreement. LexisNexis Risk Management (Pty) Ltd is a registered credit bureau (NCRCB26).

LexisNexis

0861 946 333
windeed.support@lexisnexis.co.za
search.windeed.co.za | www.windeed.co.za

Page 1 of 1

Land Claim Enquiry regarding the proposed prospecting project was done. No correspondence has been received yet.

i) Summary of issues raised by I&APs

The table below will be completed after the 30-day review and comments period of the Draft BAR and EMPr. The comments received will form part of the Final BAR and EMPr to be submitted to the DMRE for decision making.

Table 6: Summary of issues raised during the public comment period.

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issued Raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
AFFECTED PARTIES					
Landowners/s					

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issued Raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
Lawful occupier/s of the Land					
Landowners or Lawful occupiers on adjacent properties					

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issued Raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
Municipality					
District Municipality					
Organs of state (Responsible for					

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issued Raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
infrastructure that may be affected Roads Department, Eskom, Telkom, DWA					
Department of Rural Development and Land Reform (DRDLR)					

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issued Raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
Traditional Leaders					
Community					
OTHER AFFECTED PARTIES					

11 DESCRIPTION OF THE ENVIRONMENT

I The Environmental attributes associated with the alternatives.

(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

12 Baseline Environment

In order to determine the baseline environment of the proposed location, baseline studies were initiated. The section to follow summarises these findings and recommendations.

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

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

12.1 Geographical Character

The regional geology of the area influences the geographical character of the area.

12.1.1 Geology

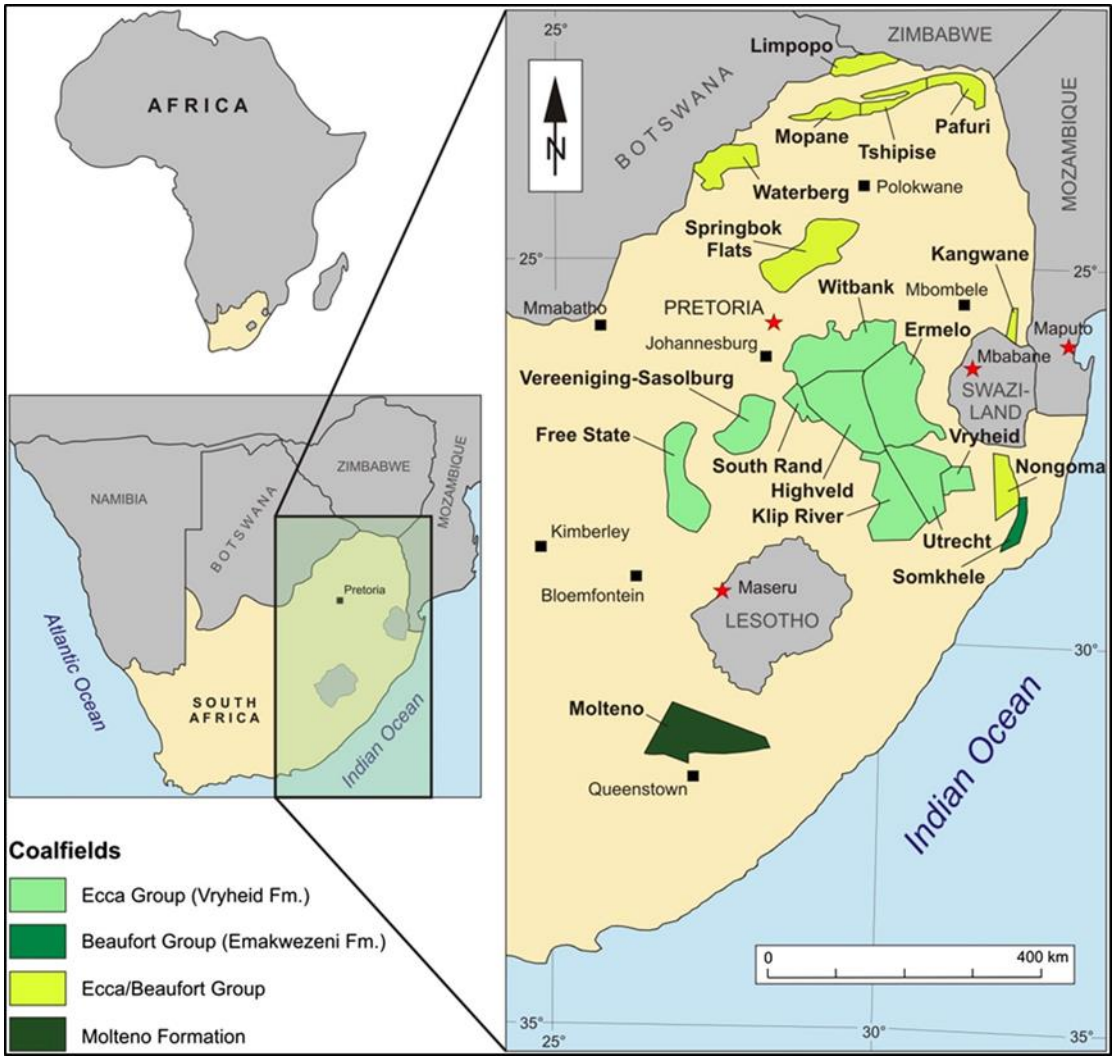


Figure 13: Coal of South Africa. (variously modified after Snyman, 1998)

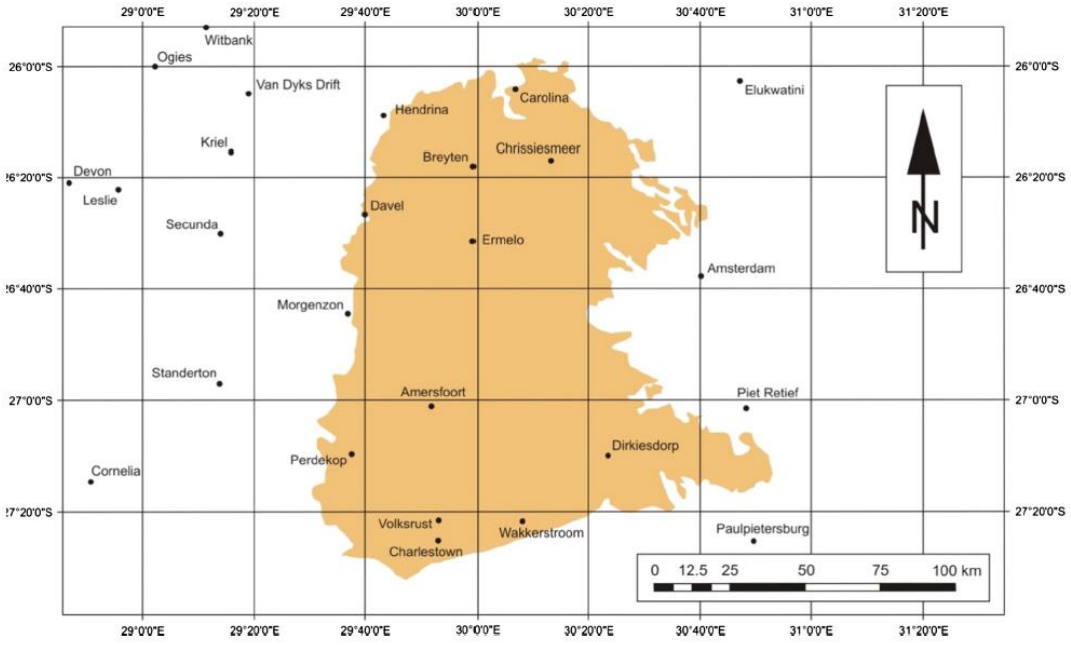
Ermelo Coalfield

The Ermelo Coalfield is located in the districts of Carolina, Dirkiesdorp, Hendrina, Breyten, Davel, Ermelo and Morgenzon in the southeast Mpumalanga Province. It extends approximately 75 km east–west, and 150 km north–south, covering an area of about 11,250,000 ha (Fig. 19). The northern and eastern boundaries of the Ermelo Coalfield are defined by the sub-outcrop of the coal-bearing strata against pre-Karoo basement. In the west, the Ermelo Coalfield shares a boundary with the Witbank and Highveld coalfields, and to the south with the Klip River and Utrecht coalfields of KZN (Greenshields, 1986). Between the Ermelo and westernmost part of the Highveld Coalfield there is an area of poor (thin) coal development where no coal mining takes place.

Rocks of the Permian Vryheid Formation and Jurassic aged dolerites dominate the surface exposures of the coalfield. As in the Witbank and Highveld coalfields the

Vryheid Formation is the coal bearing horizon in the Ermelo Coalfield and five coal seams are also recognised within an 80–90 m thick sedimentary succession. Unlike in the Witbank and Highveld coalfields, the seams are given letters as codes and are named from the top to bottom the A to E seams (Wybergh, 1928). The basement to the Ermelo Coalfield is less well known than for the Witbank and Highveld coalfields, as few boreholes have been drilled through to it. Where documented it is formed mainly by Archaean basement granites, BIC intrusives, or metasedimentary strata of the Transvaal Supergroup (Greenshields, 1986). De Oliveira and Cawthorn (1999) document granitic gneiss basement at Majuba Colliery in the far southwest of the coalfield. The basement is overlain by rocks attributable to the Dwyka Group, which throughout the Ermelo Coalfield are only poorly developed, except in the far south where the unit exhibits variable thickness (Greenshields, 1986). Where developed the Dwyka is usually confined to palaeo-valleys and consists of diamictites, sandstones and siltstones, attributed to glacial deposits, such are formed asmoraines and in glacial outwash fans and lakes, and on sandur plains. Wakerman (2003) notes that on the Sheepmoor project area the Dwyka Group is between 3 and 30 m thick, and consists of massive polymictic diamictite capped by interbedded siltstones and mudstones. He further notes that some units contain well-rounded dropstones of exotic provenance.

In the Ermelo Coalfield the thickness of the Vryheid Formation varies between 170 and 350 m (Greenshields, 1986) and as mentioned above contains five coal seams. Two stratigraphic marker horizons occur within the sequence that may be useful in exploration drilling (Stavrakis, 1991). These are a glauconitic sandstone unit,which overlies the B Seam package, and the bioturbated Siphonicnus-zone that occurs



below the C Seam and which may be used as a marker to terminate exploration drilling. Wakerman (2003) documents a 3 m thick E "shale" marker (a sandy bioturbated mudstone) in the floor of the E Seam, which he felt made a prominent end of hole (EOH) marker when the D and E seams are being targeted. The overlying Volksrust Formation is only present along the western and southern escarpment areas, where it can achieve a thickness of up to 106 m (Greenshields, 1986).

Vryheid Formation

The majority of the economically extracted coal in South Africa occurs in rocks of the Vryheid Formation, which ranges in thickness in the MKB from less than 70.0 m to over 500.0 m. It is thickest to the south of the towns of Newcastle and Vryheid, where maximum subsidence took place (Du Toit, 1918; Cadle, 1975; Whateley, 1980a; Stavrakis, 1989; Cadle et al., 1982) and where the basin was the deepest.

The coal seams in the Ermelo Coalfield are generally flat-lying to slightly undulating and as for the Witbank and Highveld coalfields, are separated by fine- to coarse-grained sandstones, siltstones and mudstones. The A, D and E seams are usually too thin to be of economic interest and historically the C Seam group was the most important in the Carolina–Breyton area, and the B Seam group in the Ermelo area. Coal qualities. The coal of the Ermelo Coalfield, whilst variable in quality, is generally of better quality than that of the Witbank and Highveld coalfields (Hancox and Gotz, 2014).

According to SACS (1980) the basic concept, distinguishing features and boundaries of the Vryheid Formation are those of the "Middle Ecca" as described by Du Toit (1954) and others. Prior to 1973 studies of the Vryheid Formation were largely stratigraphic. This situation changed when Hobday (1973) postulated deltaic depositional systems for the Vryheid Formation, and academic studies became more depositional process orientated.

The rapid sediment transfer into the basin was driven by bedload dominated fluvio-deltaic systems (Ryan, 1968; Hobday, 1973; Cadle, 1974) that prograded south and southwest, and had source areas to the northwest, north, northeast and east of the present-day basin margin (Cadle and Cairncross, 1993).

With the advent of later studies in the Witbank and Highveld coalfields (LeBlanc Smith, 1980;

Cairncross, 1980; Cadle 1982, 1986; Winter, 1985; Cairncross and Winter, 1984 and Cairncross, 1986) the basic fluvio-deltaic model became refined into greater palaeoenvironmental detail, including the interpretation of beach-barrier deposits (Vos and Hobday, 1977; Tavener-Smith, 1983), bed-load (braided) fluvial deposits (Cairncross, 1979; LeBlanc Smith, 1980; Winter, 1985), fine- and coarse grained anastomosed river deposits (LeBlanc Smith and Eriksson, 1979; Cairncross, 1980) and high constructive, lobate deltaic complexes (Cairncross and Winter, 1984). It was this array of palaeo-depositional environments, and palaeotopographic relief, palaeo-climate and tectonic setting which controlled the distribution and quality of the coal seams (Cadle et al., 1982; Cairncross, 1989).

Hobday (1973) was the first to refer to the cyclical nature of the upward-fining and upward coarsening successions that typify the Vryheid Formation, characteristics that are also well documented by Cadle (1974), Mathew (1974) and Van Vuuren and Cole (1979). Palaeontologically the Vryheid Formation is best known for the rich fossil plant assemblages of the famous *Glossopteris* flora, which is the source vegetation for most of the Vryheid Formation coals. Detailed palaeobotanical studies based on the well-preserved plant fossils date back to the early 20th century (Etheridge, 1901; Leslie, 1903). Subsequent work was done by the likes of Plumstead (1952, 1956, 1957, 1958, 1969), Lacy et al. (1974), Kovács-Endrödy (1976, 1991), Anderson and Anderson (1985), Rayner and Coventry (1985), Adendorff (2005), Bordy and Prevec (2008), Claasen (2008), Prevec et al. (2008, 2009, 2010) and Prevec (2011).

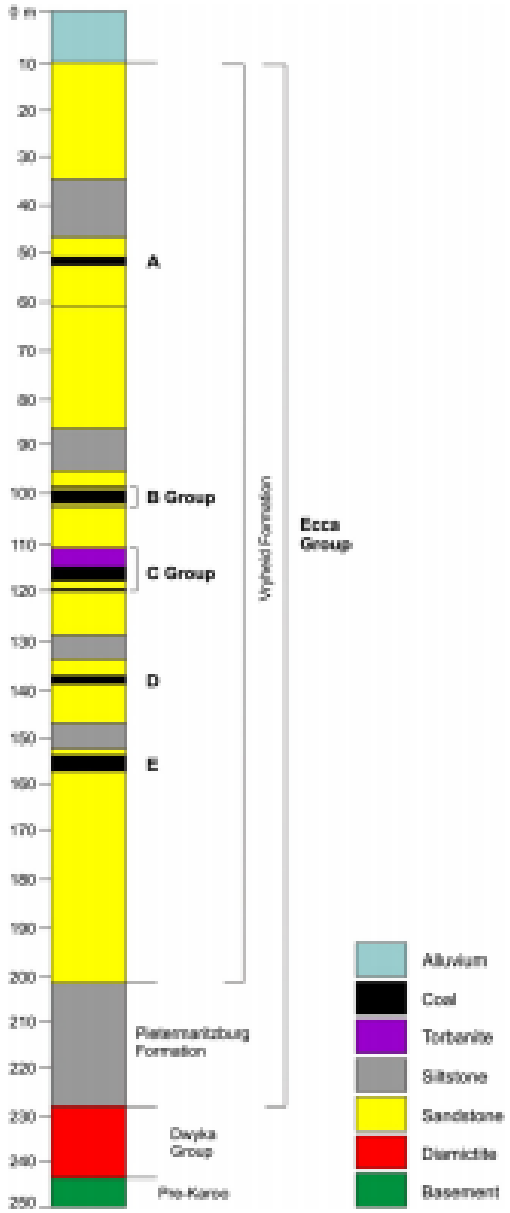


Figure 14: The stratigraphy of the Ermelo coal field under Vryheid formation.

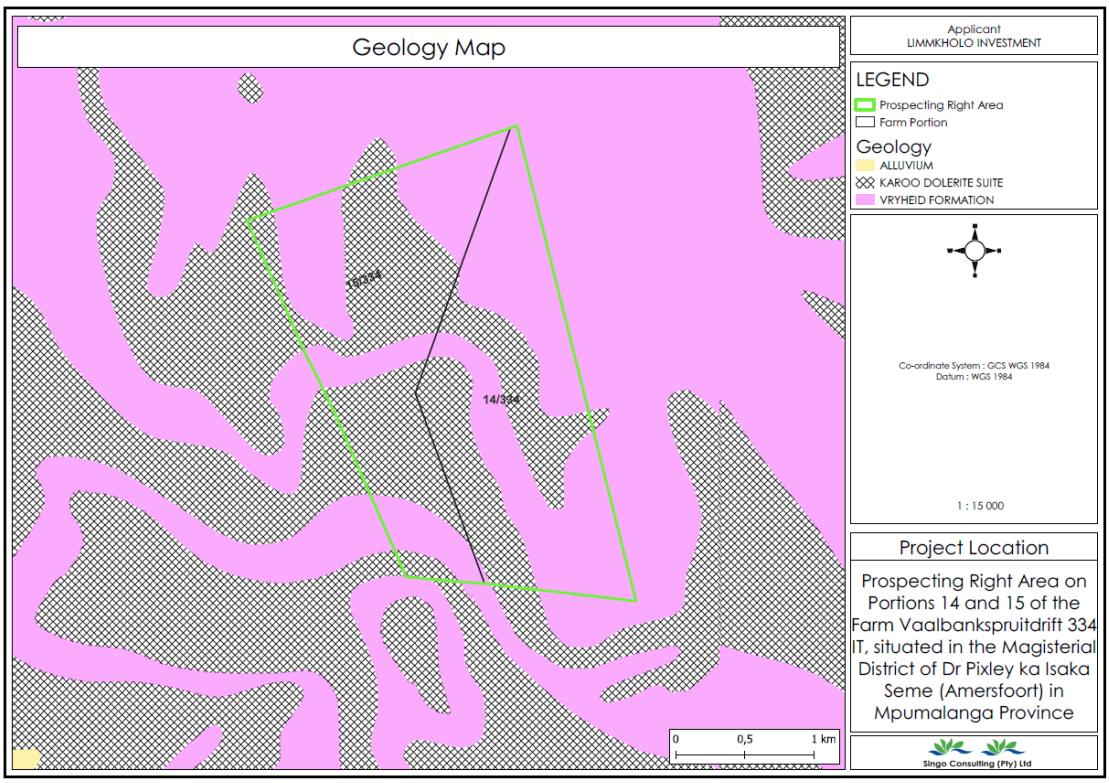


Figure 15: Geological map of the proposed project area.

12.2 Topography

The topology of the area is illustrated in **Figure 16** below. A Topographic map is a map which indicates, to scale, the natural features of the Earth's surface, as well as human features, with features at the correct relationship to each other (Oxford Dictionary; 2020). The topography map other than showing landform features, rivers, and associated water resources, it also shows the height above sea level with the use of contour lines. Contour lines are an Imaginary line on the ground surface joining the points of equal elevation.

In this environmental project, topography is used to determine how surface water flows during rainy seasons or how it would flow during the existence of the project. The topography also influences groundwater vulnerability, as topography also influences run-off and infiltration.

The highest elevation point within the proposed project are is 1100 mamsl in the eastern direction of the study area. The slope of the study area is classified as gentle slope, this is seen on the topographic map by the widespread spacing of the contours as seen on **Figure 16**.As evidenced by the contours on the Topographic map, the movement and direction of the rivers is from an area of higher elevation to an area of lower elevation. The river in the eastern direction flows from the east to the western direction

of the study area. This knowledge is vital in the sense that contaminating the non-perennial streams.

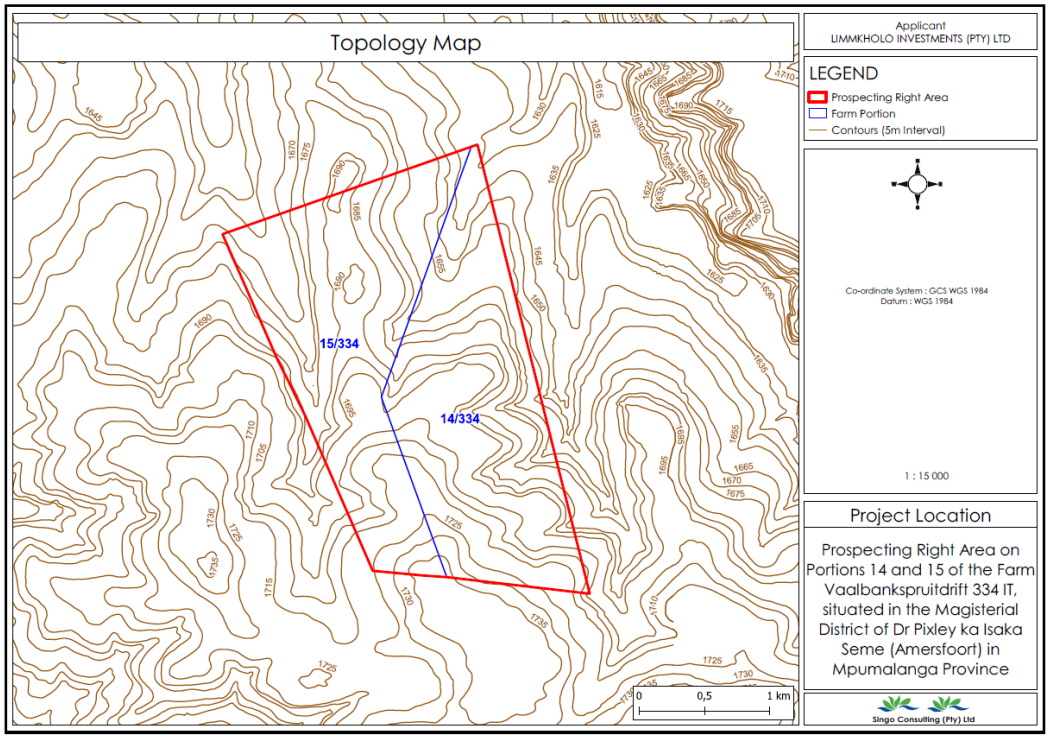


Figure 16: Topological map of the proposed project area.

12.3 Climate

Climate is defined as the average weather conditions in an area over a long time – 30 years or more (Naomi, 2014). The climate is warm during the summer in Magisterial District of Dr Pixley ka Isaka Seme (Amersfoort), when compared with winter, the summers have much more rainfall. This location is classified as Cwb by Köppen and Geiger. The coldest month is June and July, with zero possibilities of rainfall.

i. Temperature

ii. According to Köppen and Geiger, this climate is classified as Cwb. In Amersfoort, the average annual temperature is 16.1 °C. About 954 mm of precipitation falls annually. Precipitation is the lowest in June, with an average of 12 mm. The greatest amount of precipitation occurs in December, with an average of 165 mm. At an average temperature of 19.5 °C, February is the hottest month of the year. The lowest average temperatures in the year occur in July, when it is around 11.0 °C. Between the driest and wettest months, the

difference in precipitation is 153 mm. The variation in temperatures throughout the year is 8.4 °C.

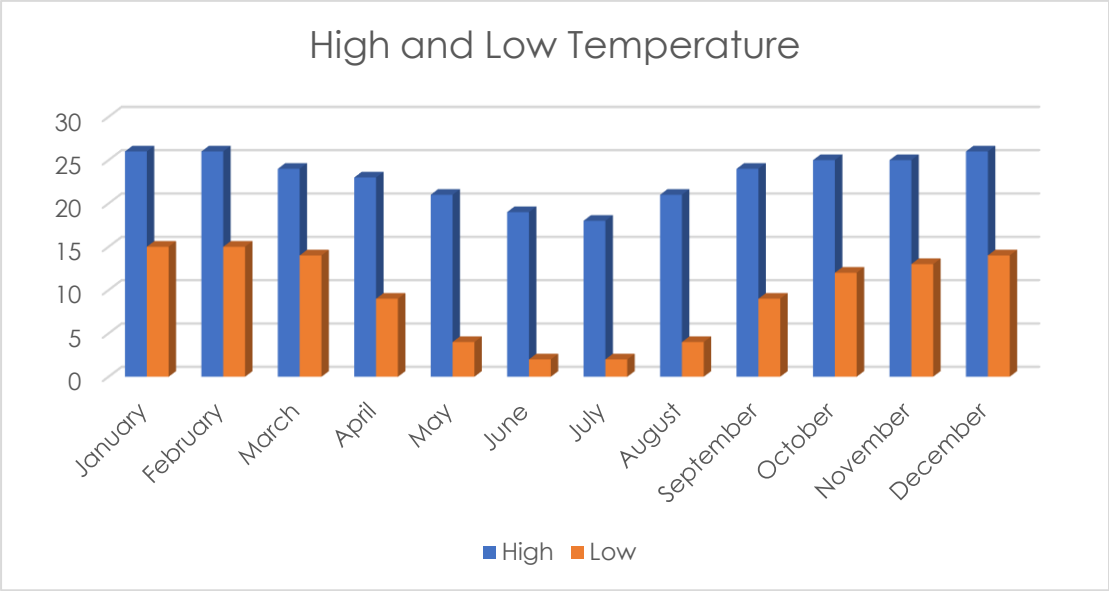


Figure 17: Graph showing summary of average temperature for the proposed site.

The mean minimum annual temperature for the proposed project area ranges from 4.1 Degree Celsius to 8 Celsius as seen in figure below.

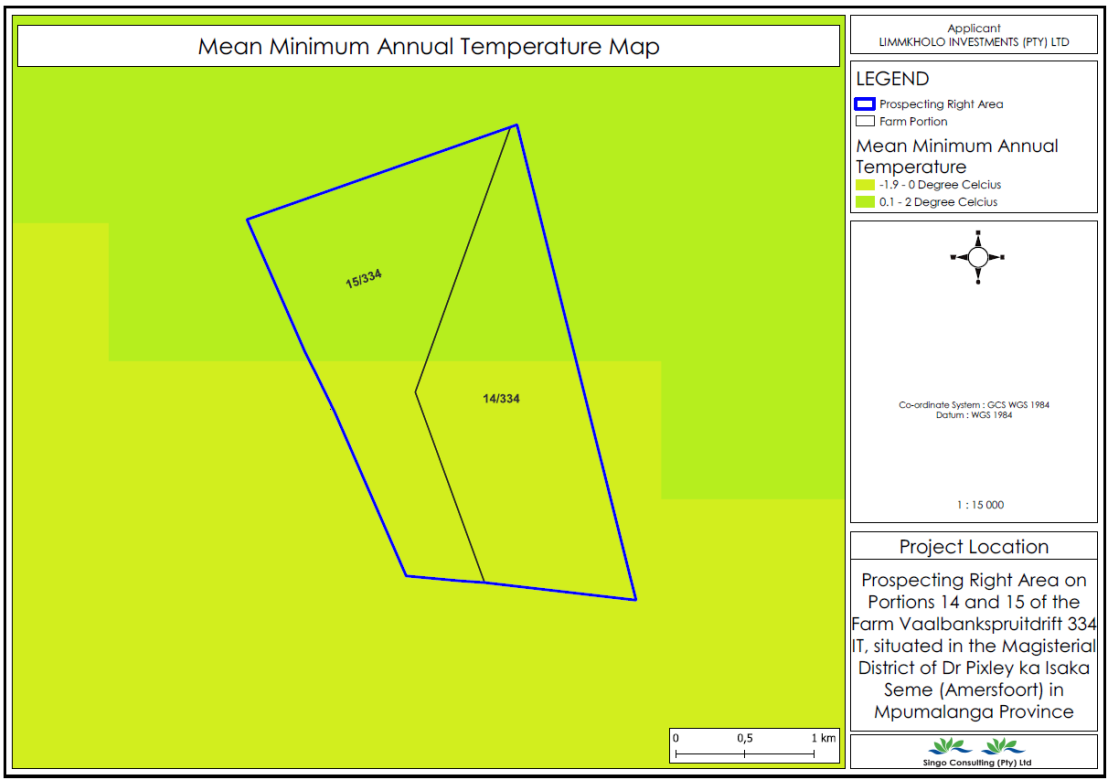


Figure 18: Map showing mean minimum annual temperature for the proposed site.

iii. Rainfall

To show variation within the months and not just the monthly totals, we show the rainfall accumulated over a sliding 31-day period centered around each day of the year. The area experiences significant seasonal variation in monthly rainfall.

The graph below indicate that the rainy period of the year lasts for 7.5 months, from September 21 to May 3, with a sliding 31-day rainfall of at least 13 millimeters. The most rain falls during the 31 days centered around January 17, with an average total accumulation of 87 millimeters. The rainless period of the year lasts for 4.6 months, from May 3 to September 21. The least rain falls around June 16, with an average total accumulation of 4 millimeters.

The proposed project area receives mean annual rainfall range from 201 mm to 600 mm as indicated in figure below.

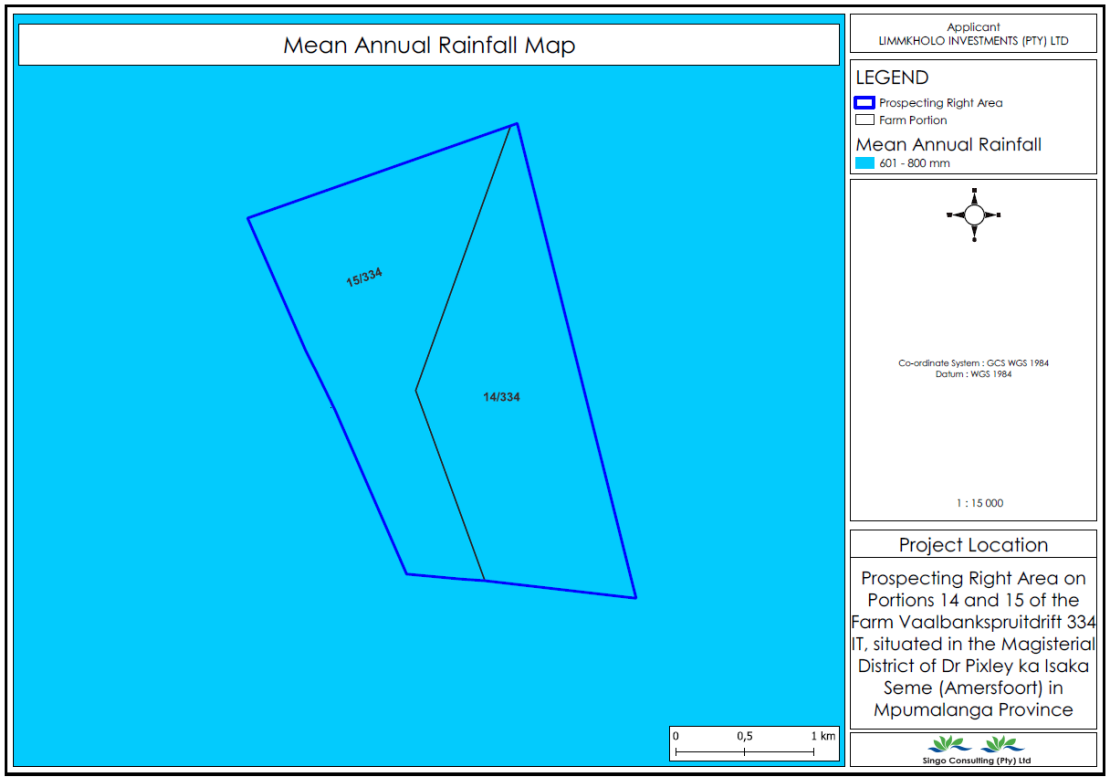


Figure 19: Map showing mean annual rainfall for the proposed site.

iv. Wind

This section discusses the wide-area hourly average wind vector (speed and direction) at 10 meters above the ground. The wind experienced at any given location is highly

dependent on local topography and other factors, and instantaneous wind speed and direction vary more widely than hourly averages.

The average hourly wind speed within the area experiences significant seasonal variation over the course of the year. The figure below shows that the windier part of the year lasts for 3.5 months, from August 21 to December 5, with average wind speeds of more than 12.3 kilometers per hour. The windiest day of the year is October 12, with an average hourly wind speed of 14.9 kilometers per hour. The calmer time of year lasts for 8.5 months, from December 5 to August 21. The calmest day of the year is May 15, with an average hourly wind speed of 9.6 kilometers per hour.

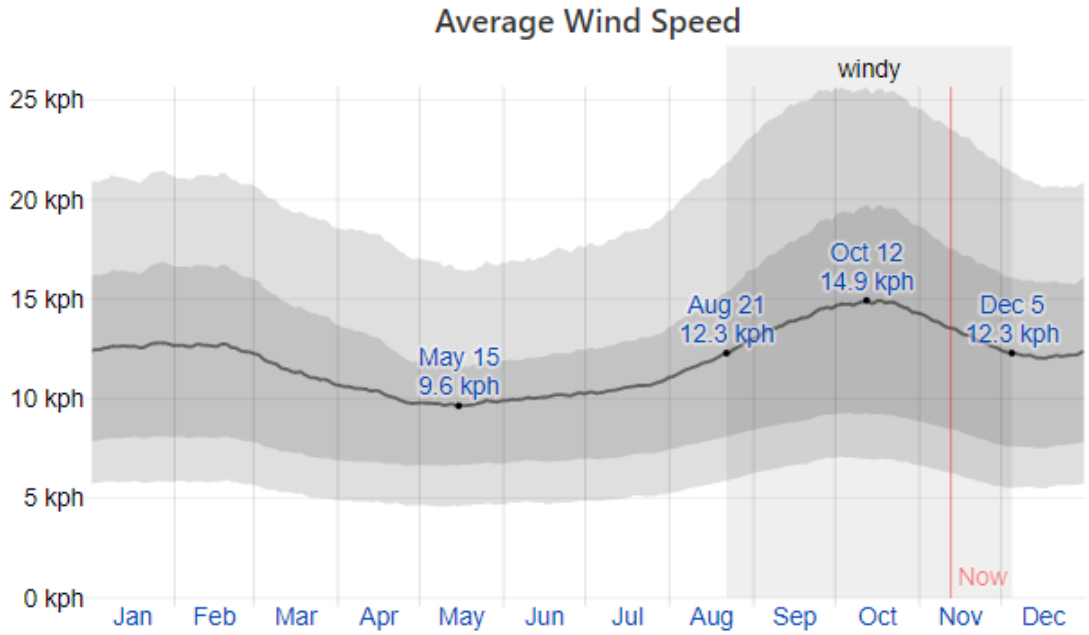


Figure 20: Graph showing summary of average wind speed for the proposed site. (Source: www. weatherspark.com)

12.4 Air Quality

The main objective of the Air Quality Impact Assessment is to determine the potential impact of emissions from the operational activities associated with the proposed prospecting project on ambient air quality. The proposed project area and surrounding where mainly utilised for Livestock farming, cultivation and more or less residential purposes. According to the Provincial Air Quality Management Plan of 2013 by the Limpopo Provincial Government, the following sources of emissions are present in the Limpopo area from various industries Sources identified as possibly impacting the air quality in the region include, but are not limited to:

- **Fugitive dust**: This includes fugitive dust from paved and unpaved roads, agricultural activities (land preparation and harvesting) and wind erosion from open areas, which generates fugitive dust and PM10. These activities may result in emissions such as PM10 (i.e. particulates with an aerodynamic diameter of less than 10µm), PM 2.5 (i.e. particulates with an aerodynamic diameter of less than 2.5µm), as well as nuisance dust.
- **Stack emissions**: stack emission include the release of Sulphur dioxide (SO_2) and heavy metals from surrounding nearby mining operations;
- **Biomass burning biomass:** burning emissions include with carbon monoxide (CO), methane (CH_4) and nitrogen dioxide (NO_2) gases;
- **Household fuel combustion**: It is likely that households within the local utilize Coal, Pseudocoal and Torbanite/ Oil Shale or wood for cooking and space heating (during winter) purposes. Emissions from domestic burning include PM10, carbon dioxide (CO_2), Sulphur dioxide SO_2 and carbon monoxide (CO).
- **Vehicle tailpipe emissions**: Significant primary pollutants include carbon dioxide (CO_2), carbon (C), Sulphur dioxide (SO_2), oxides of nitrogen (mainly NO), particulates and lead. Secondary pollutants include NO_2, photochemical oxidants such as ozone, Sulphur acid, sulphates, nitric acid, and nitrate aerosols (particulate matter).

The project that we are proposing will not be the source of some of the sources mentioned above. However, our project can contribute in some of them namely; Fugitive dust and Vehicle tailpipe. Therefore, there can be solutions and education that can be provided by us in some of the problems such as:

- **Household fuel combustion-**regarding this, we can advise people to wear warm clothes during winter than burning of woods to warm the space or using electric heaters.
- **Fugitive dust** -On this issue we will make sure that the dust is being suppressed all the time.

  -Reduced unnecessary trips

  -Vehicles low speed will be implemented
- **Vehicle tailpipe emissions**-all vehicles should be serviced and always be in a good condition to avoid producing unnecessary smoke.
- **Biomass burning-**the drilling team will be advised not to start any fire on site to avoid burning of the bush but then if this happens the EAP should be informed and call the nearest fire fighters to end the fire.

12.5 Groundwater

From the baseline study conducted in house, groundwater is as varied as the rock types in which they occur and as intricate as the formation of the crust, through geologic time. The occurrence and movement of groundwater is controlled by several factors such as Climate, Hydrology, Geology, Topography, Ecology and Soil-distribution.
The fractured aquifer system (~ 15 to 40m) present in the fresh rock below the weathered zone are well cemented, and do not allow significant water flow. All groundwater movement therefore occurs along secondary structures such as fractures, cracks, and joints in the rock. These structures are best developed in sandstone and quartzite; hence the better water yielding properties of the latter rock type.

Dolerite sills and dykes are generally impermeable to water movement, except in the weathered state. In terms of water quality, the fractured aquifer always contains higher salt loads than the upper weathered aquifer. The higher salt concentrations are attributed to a longer contact time between the water and rock (IGS, 2008).

The fractured aquifer consists of the various lithologies of siltstone, shale, sandstone and the coal seams. The pores of the geological units are generally well cemented, and the principle flow mechanism is fractured flow along secondary structures e.g. faults, bedding plane fractures etc. The intrusion of the fractured aquifer by dolerite dykes and sills has led to the formation of preferential flow paths along the contacts of these lithologies due to the formation of cooling joints. The dykes may act as permeable or semi-permeable features to impede flow across the dykes.
The flow mechanism is fracture flow as can be expected from the crystalline nature of the shale rocks. The water quality is generally characterized by high fluoride levels which limits exploitation of this aquifer in combination with the general low yields, deep (expensive) drilling and the low recharge (Grobbelaar et al, 2004). Mining of the coal seams has resulted in the introduction of an artificial aquifer system which generally dominates the groundwater flow on a local and regional scale.

Below is a cross sectional figure of a typical fractured aquifer. Water exists in fractures in Karoo weathered aquifers. Two important characterizations that exist in the study area is the upper weathered aquifer system and the lower fractured aquifer system. If the purpose of drilling boreholes is for the supply of water, drillers will usually be directed to drill targeting the fault zones, however in the present study where the boreholes to be drilled are for Coal exploration, fault zones and contacts should be avoided at all

costs, to minimize the impact to groundwater. The boreholes drilled must be cased to avoid clogging and contamination.

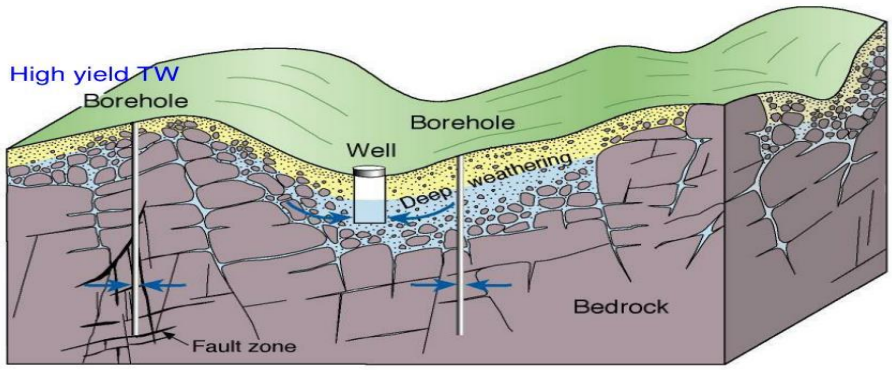


Figure 21:Cross section of a fractured aquifer

Potential contaminants

According to the specialist study, the potential contaminants for the prospecting of Coal are minimal and can be controlled easily as this activity will only take place for a short period of time. Fuel and oil handling facilities are likely sources of hydrocarbon related contaminants. Oils, grease, and other hydrocarbon products (such as petrol and diesel) handled in these areas may contaminate the environment by spillages and leakages (e.g., from drill rigs).

Absorbent Spill kits will be made available near the drill rigs during drilling activities refer to Figure below. The oil absorbent chemicals will ensure that no oils infiltrate down to the underground to cause any groundwater contamination.

Regarding soil erosion, the proposed boreholes will be located on gentle flat lying area, no drilling will take place in steeply terrains to avoid erosion, no vegetation will be removed or affected other than the only 1.32 ha being applied for, whereby revegetation as part of rehabilitation will take place soon after each borehole is drilled

Figure 22: Example of Absorbent spill kits to be used.

12.6 Surface Water (Rivers

From the baseline study conducted in house, the hydrology surrounding the proposed area is very importance during prospecting. In this context hydrology is all the surface waters appearing within and nearby the proposed project area, where a potential to be impacted upon by the project exist. The hydrology map, illustrates that the following water bodies exists:

- Non-perennial River

For this project where prospecting right poses a risk on them, there should be measures and guidelines put in place that will protect the water resources in this area to ensure optimal conservation of water. The prospecting right activities should take place during dry seasons when the water percentages are very low. Extreme caution should be taken during prospecting, owing to the rivers and numerous wetlands existing nearby and within the project area. And all the non-perennial rivers will be buffered as a no-go area as indicated on buffer map below.

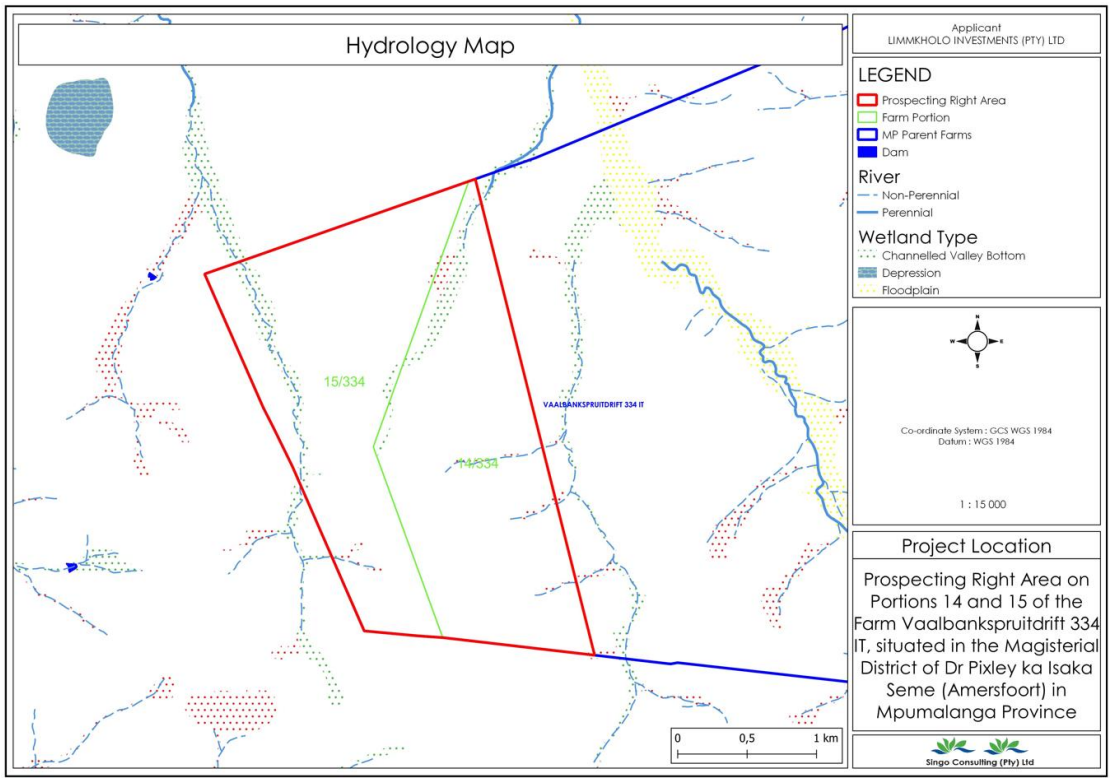


Figure 23: Hydrological map of the proposed project area.

The proposed prospecting area falls within the Limpopo Water Management Area (WMA) of quaternary catchment C11E. Figure below illustrates the Quaternary catchment and the Water Management Area (WMA).

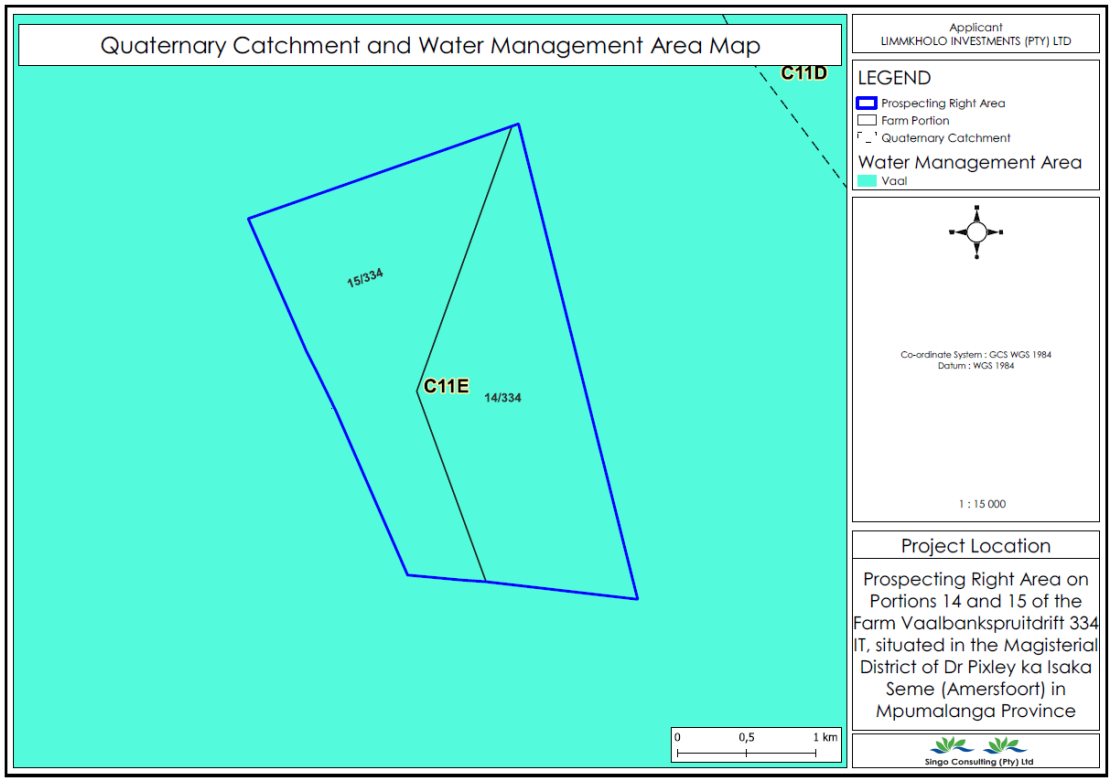
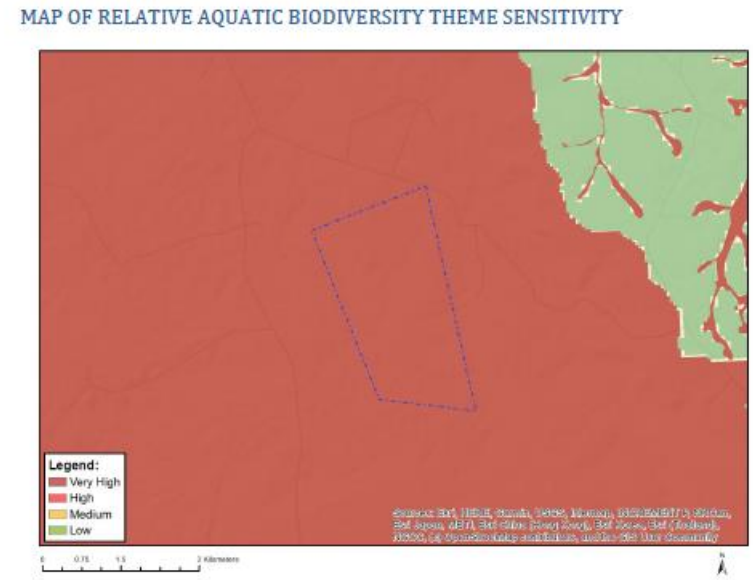


Figure 24: Quaternary Catchment and WMA of the proposed prospecting project.

A 100 m radius from the boundary (extent) buffer of any wetland rivers was delineated and mapped to avoid negative impacts. Detailed information was outlined on specialist study (Hydrogeological study).

The screening report that has been developed revealed that the proposed prospecting area has an aquatic biodiversity that is of very high sensitivity (seen in figure below), with features including the strategic water source area and a Freshwater ecosystem priority area quinary catchment. These buffers will ensure no physical prospecting will take place on the observed water resources within the project area.



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Figure 25: Map of relative aquatic biodiversity theme sensitivity. *(source: screening report)*

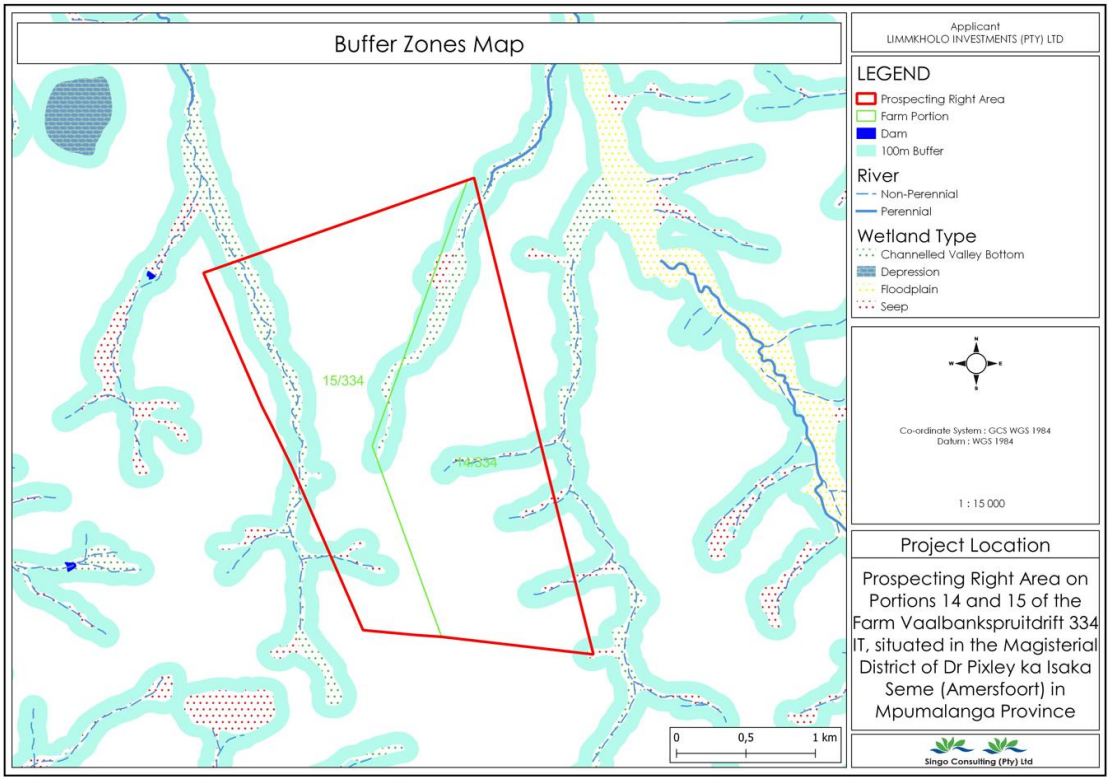


Figure 26: Hydrological Buffer map of the proposed project area.

12.7 Soils

Freely drained, structureless soils

From the baseline study conducted in house, the drained, structures soils are defined as well as drained, dark reddish soils with a marked bright, strong blocky (nutty) structure, typically fine (red soils). There may also be one or more vertical or melanic soils. The soil category can show, soil depth constrained, normal or unnecessary.

Non soil land classes

The soil on this area is very weakly developed mineral soils in unconsolidated materials that have only an ochric surface horizon and that are not very shallow. This are soils in unconsolidated mineral material of some depth, excluding coarse textured materials and materials with fluvic properties, and have no diagnostic horizons other than an ochric horizon.

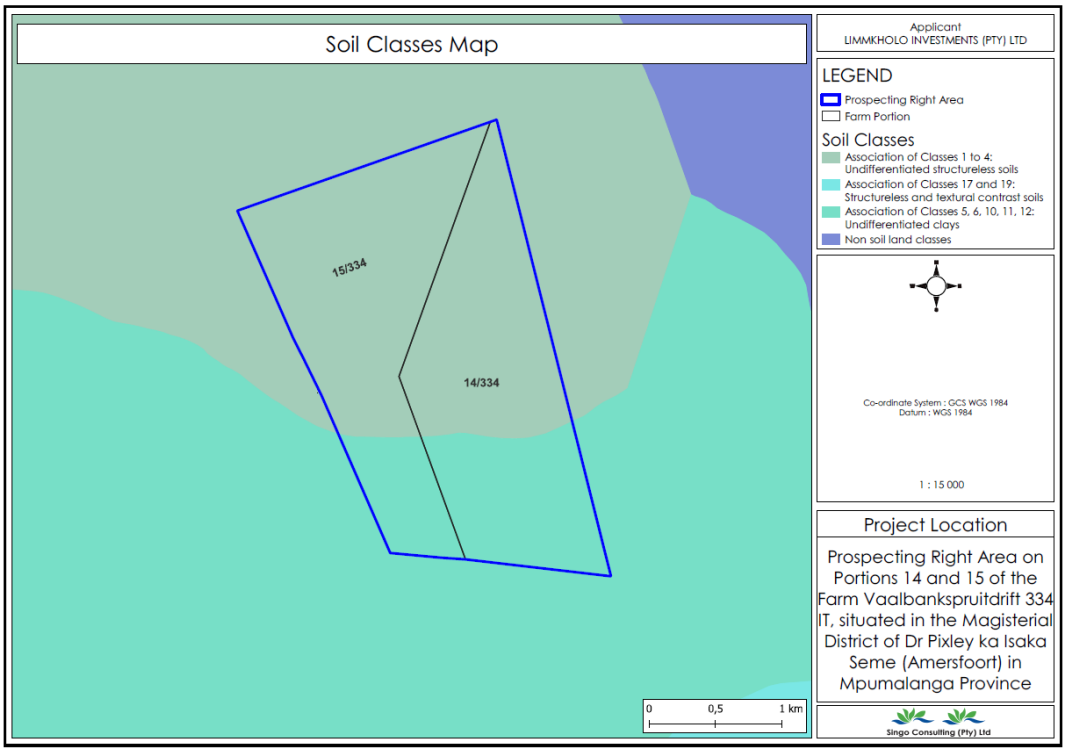


Figure 27: Soil class map of the proposed project area.

Figure 28: Soil type of the proposed project area.

12.8 Vegetation (Flora)

The proposed site is broadly classified as being within the Grassland Biome of South Africa (Low and Rebelo, 1996). More specifically according, the site falls with the Moist Cool Highveld Grassland. Moist clay Highveld Grassland is found in Mpumalanga and Kwazulu Natal Provinces, this extent in the North – south band from just south of Ermelo down through Amersfoort to the Memel area in the south. The Altitude ranges from 1580 – 1860 m.

The area is comprised of undulating Grassland plains with small, scattered patches of dolerite outcrops in the area.The vegetation is comprised short a short, closed grassland cover largely dominated by a dense Themeda triandra swad severly grazed to form a short lawn.(Mucina and Rutherford 2006).

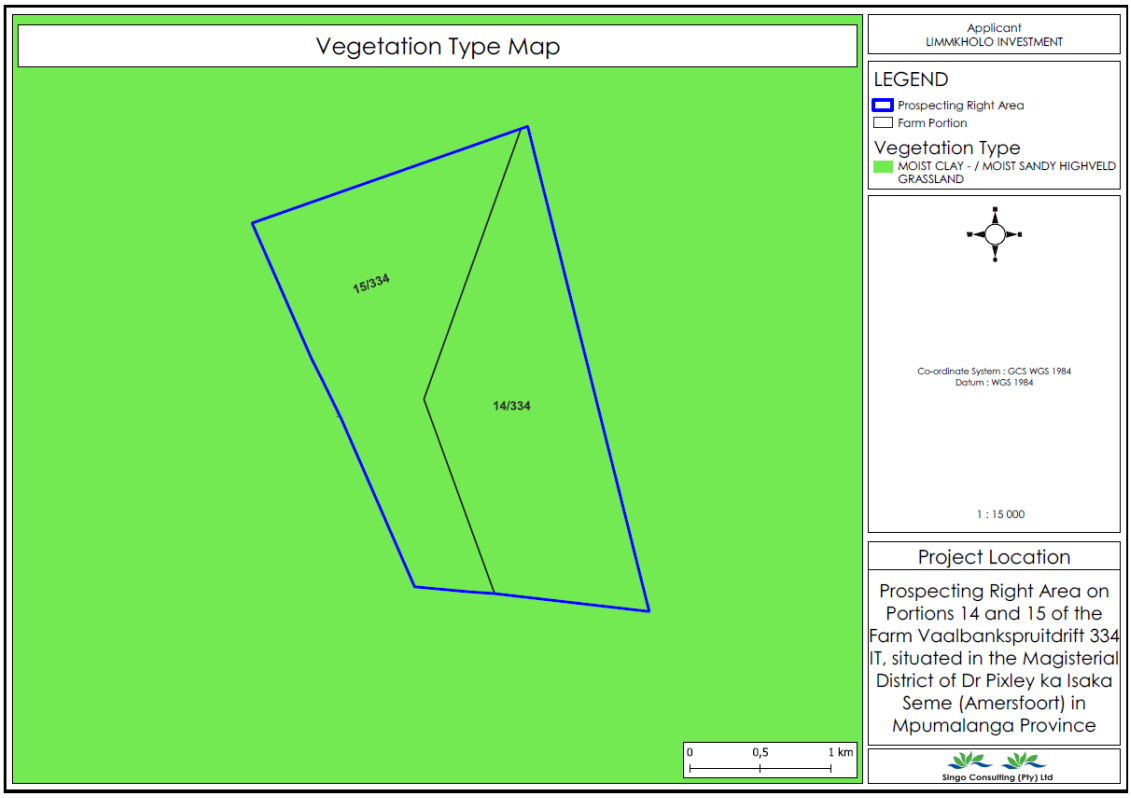


Figure 29: Vegetation type map of the proposed project area.

Figure 30: Vegetation type of the proposed project area.

12.9 Animal Life (Fauna)

Fauna is all the animal life present in a particular region or time.Fauna such as cows and sheep were observed on site during ground truthing. Fauna expected to occur on

site include assemblages within terrestrial and riverine ecosystems, including mammals, birds, reptiles, amphibians and invertebrates. The following animals were deduced from the screening report.

Figure 31: Fauna observed on site.

Aves-Balearica regulorum.

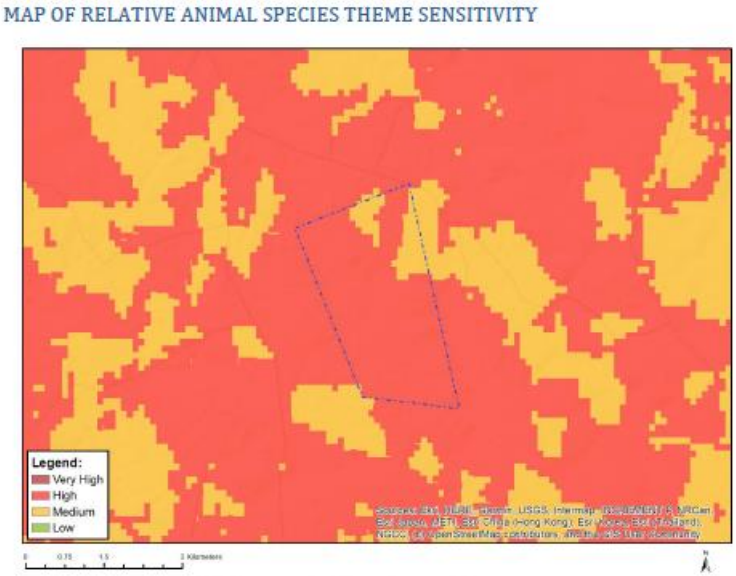
There are two subspecies of Balearica regulorum: Balearica regulorum gibbericeps, an East African crowned crane, and South African crowned cranes (Balearica regulorum regulorum). East African crowned cranes are found in Uganda and Kenya to Northern Zimbabwe and Northern Mozambique. South African crowned cranes are found in southern Angola and North Namibia and east through Botswana to Zimbabwe and south to South Africa. (Johnsgard, 1983; Walkinshaw, 1964; Walkinshaw, 1973; del Hoyo, et al., 1996).

Grey-crowned cranes are usually found in grasslands close to bodies of water, however they often feed in open Savannas and grasslands. They can also be found in agricultural areas such pastures, crops, and fields that are fallow and they are also located in the vleis in the south. They frequently choose areas with some trees since the grey-crowned crane is one of only two crane species the other being the black-crowned crane that can roost in trees. Their body masses ranges from 3 to 4 kg with wingspan ranging from 180 to 200 cm.

Aves – Geronticus Calvus

A large bird inhabiting semi-desert or open grassland in the mountains of southern Africa and Its analog in northern Africa, the waldrapp, is what it is most similar to (Geronticus eremita). Its home range as a species is quite constrained, only occurring

in highland and hilly parts of South Africa's southernmost points and it feeds and roots on substantial groups.



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Figure 32: Map of relative animal species theme sensitivity ***(source: screening report)***

12.1 Biodiversity

Biodiversity describes the variety of life in an area and including the number of different species, the genetic wealth within each species, the interrelationships between them and the natural areas in which they occur. Critical Biodiversity Areas are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan. Ecological Support Areas are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas and/or in delivering ecosystem services.

The proposed prospecting site falls within a (CBA) Irreplaceable.

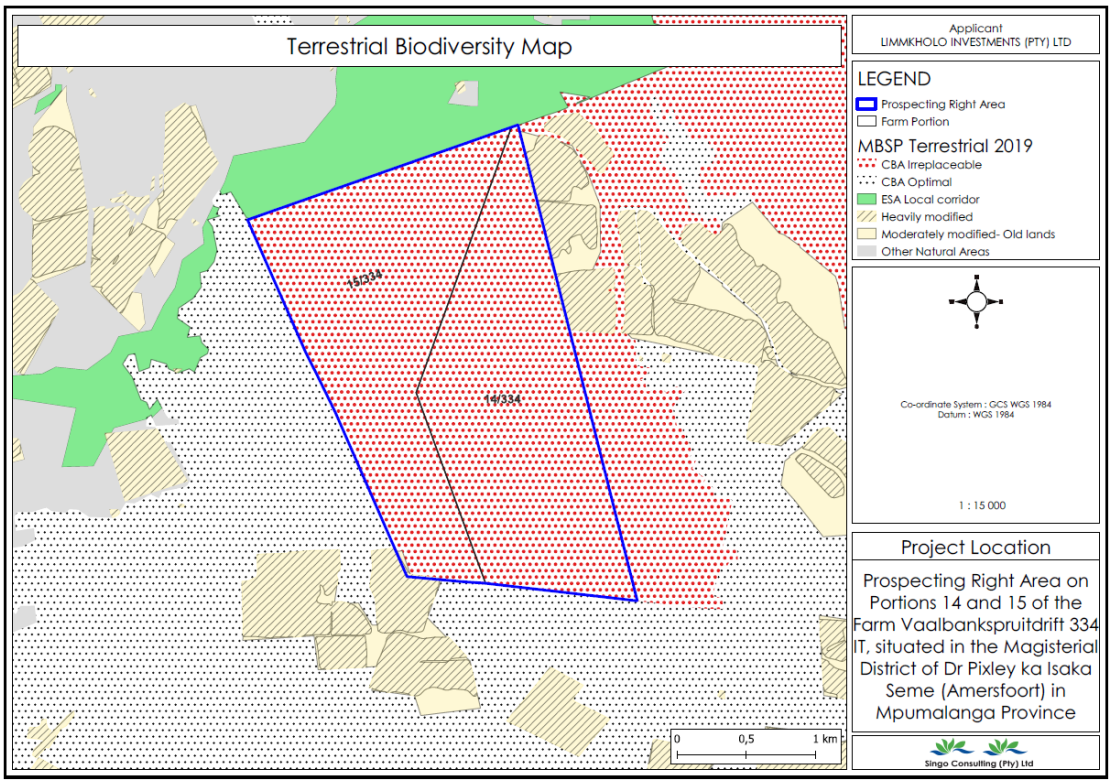


Figure 33: Critical Biodiversity map of the proposed project area.

During the desktop assessment CBA Irreplaceable (were identified with the proposed project area, (in figure above). These are areas that represent an optimized solution to meet the required biodiversity conservation targets, while avoiding areas where the risk of biodiversity loss is high. CBA1: Irreplaceable Sites – areas that are essential for meeting biodiversity targets and where no alternative sites are available to meet the targets.

CBA2: Optimal Sites-Areas selected to meet biodiversity targets where alternative sites may be available to meet targets, but these are the optimal sites based on complementarity, connectivity and avoidance of conflict with other land uses.

National Environmental Management Act: Biodiversity Act, National Environmental Management Protected Areas Act, Proclamation, MPE Environmental Management Framework, National and Biodiversity Guideline as well as Mining on the protected core and buffer zone are considered compatible land use. The MPE Environmental Management Framework state that operations which are not considered a compatible use of land, in terms of the mentioned Framework will require a full EIA as set out in section 27 to 32 of the EIA regulation. Therefore, the transitional zone is the only zone where any Economical activities can be practiced if it does not adversely affect the Core and Buffer zone.

According to the development footprint environmental sensitivity, the results for the Terrestrial biodiversity theme showed the area to have very high sensitivity, see Figure below. According to the results from the screening report, the area is classified within CBA irreplaceable, this is the area that should maintain its natural state with no loose of ecosystems.

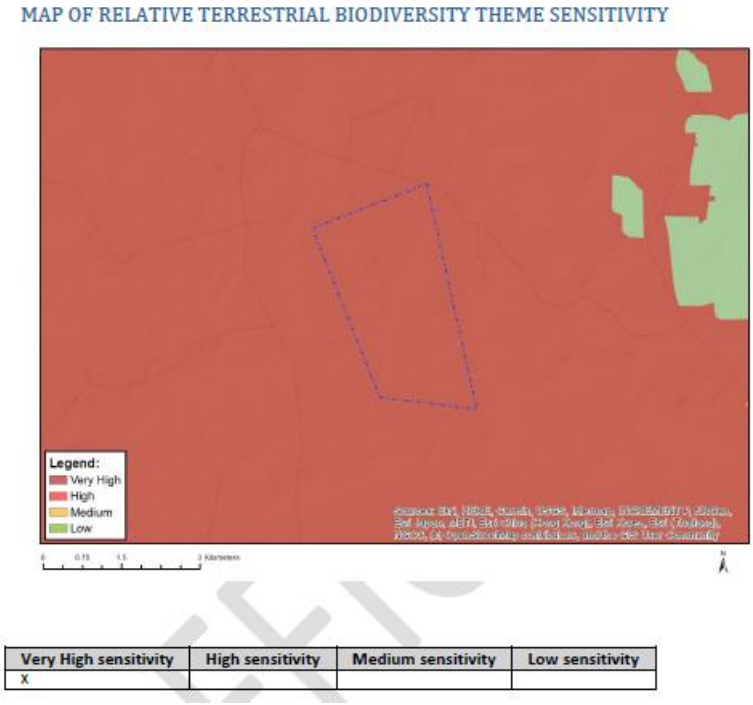


Figure 34: Terrestrial Biodiversity Theme map of the project area ***(source: screening report).***

12.2 Sensitive Environments

12.2.1 Protected Areas

Protected Areas are terrestrial, aquatic or marine areas that are formally protected by law and managed for the purpose of biodiversity conservation. Formal Protected Areas are gazetted in terms of the National Environmental Management: Protected Areas Act, 2003. NEMPAA distinguishes between several categories of Protected Areas: Special Nature Reserves, National Parks, Nature Reserves, and Protected Environments.

12.2.2 Conservation Areas

Conservation Areas are those areas of land not formally protected by law, but where primary land use is conservation. These areas are typically informally protected by the current owners and users and managed at least partly for biodiversity conservation. As

Conservation Areas are not gazetted in terms of NEMPAA, they are not considered to be Protected Area.

12.3 Socio-Economic Environment

The Dr Pixley Ka Isaka Seme Local Municipality is situated on the eastern border between Mpumalanga and Kwa - Zulu Natal (Newcastle Local Municipality). Furthermore, the municipal area is framed by the Mkhondo Municipality in the east, Msukaligwa Municipality to the north and Lekwa Municipality to the west and it falls under the Gert Sibande District. For the purposes of the Dr Pixley Ka Isaka Seme Integrated Development Plan the boundaries as proclaimed in terms of Section 21 (B) of the Local Government: Municipal Demarcation Act, 1998 (Act 27 of 1998) are used. The **Figure 35** below shows the Map of Dr. Pixley Ka Isaka Seme Local Municipality.

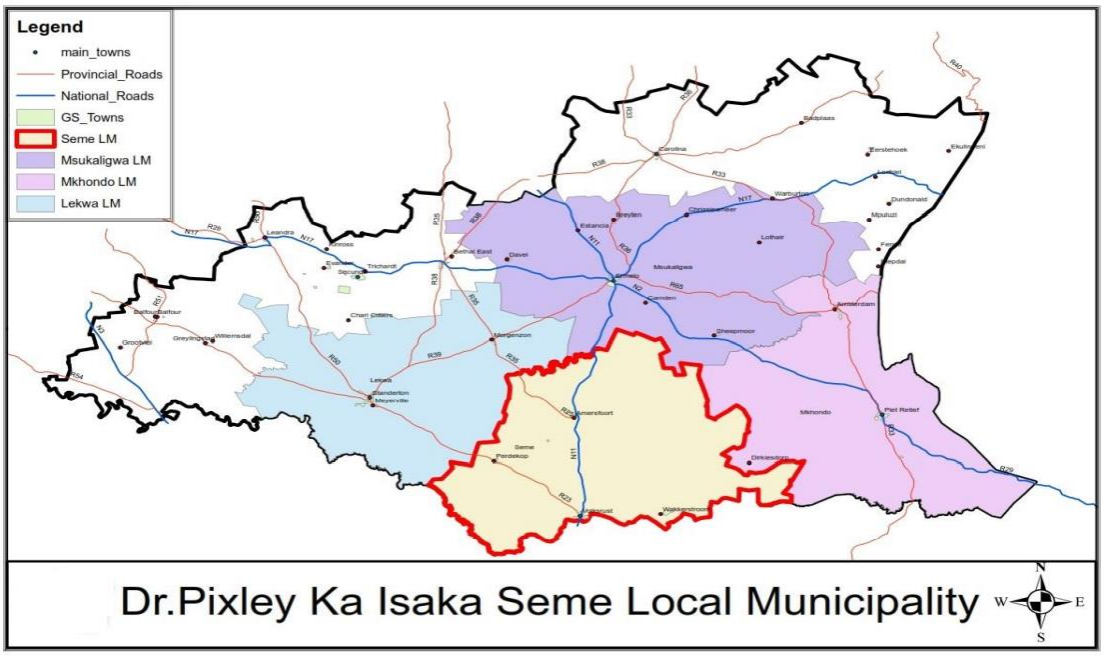


Figure 35: Local municipalities within Gert Sibande District municipality.

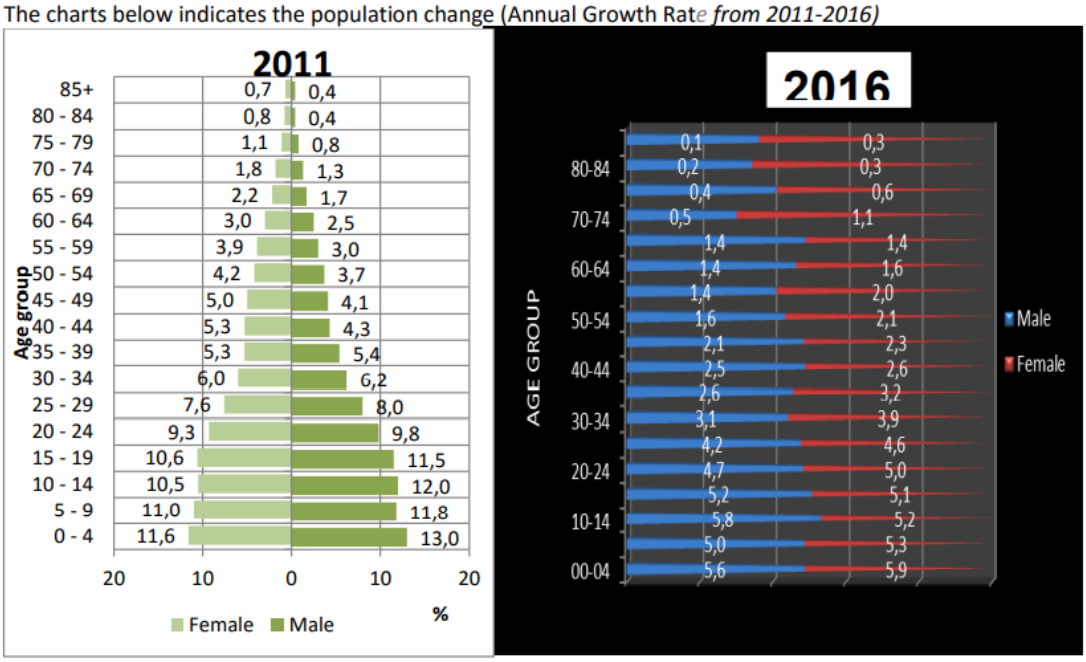
12.3.1 Population Distribution

The population of Makhado Local Municipality in terms of groupings categorised Black Africans are in the Majority as illustrated on the Figure below. In 2011 the population in Dr. Pixley Ka Isaka Seme Local Municipality was recorded at 83 235 by Statssa and was recorded at 85 395 in the 2016 Community Survey. The population grew by 2160 between 2011 and 2016 with an economic growth rate of 0.6%.

Year	Population	Source
2001	80 737	Statssa
2011	83 235	Statssa
2016	85 395	Statssa Community Survey

Figure 36: Population groups in Dr Pixley Ka Seme, (Source: Statistic SA, 2011 - 2016).

The charts below indicates the population change (Annual Growth Rate *from 2011-2016)*



Stats SA: Census 2011

& Community Survey 2016

The Municipality has a Total Population of 85 395 with 22546 households which amounts to a household size of 3.8 persons per household according to the 2016 Community Survey data. The table below gives an analysis of the total population, for the Census years 2011 & 2016 together with the Growth rate for the respective years.

Table 7: DPKSLM Population and growth rate.

	Total Population						Growth Rate		
	2011			2016			2011-2016		
Age Group	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 - 4	5126	5077	10203	4744	5020	9764	-1,549	-0,226	-1,775
09-May	4679	4804	9483	4263	4511	8774	-1,862	-1,259	-3,121
14-Oct	4756	4608	9364	4974	4402	9376	0,896	-0,915	-0,018
15 - 19	4548	4627	9175	4483	4362	8845	-0,288	-1,180	-1,467
20 - 24	3889	4066	7955	3992	4297	8289	0,523	1,105	1,628
25 29	3158	3332	6490	3582	3951	7533	2,520	3,408	5,928
30 - 34	2433	2617	5050	2622	3337	5959	1,496	4,861	6,357
35 - 39	2130	2331	4461	2252	2698	4950	1,114	2,924	4,038
40 - 44	1718	2298	4016	2116	2231	4347	4,167	-0,592	3,576
45 - 49	1615	2196	3811	1806	1932	3738	2,236	-2,562	-0,326
50 - 54	1469	1842	3311	1359	1782	3141	-1,557	-0,662	-2,219
55 - 59	1198	1700	2898	1182	1711	2893	-0,269	0,129	-0,140
60 - 64	991	1294	2285	1168	1359	2527	3,287	0,980	4,267
65 - 69	658	980	1638	1153	1208	2361	11,218	4,183	15,402
70 - 74	528	779	1307	395	922	1317	-5,804	3,371	-2,434
75 - 79	306	497	803	342	493	835	2,225	-0,162	2,063
80 - 84	178	359	537	140	269	409	-4,803	-5,772	-10,575
85+	140	310	450	121	214	335	-2,917	-7,412	-10,329

Source: Statssa – Community Survey 2016

The racial composition of Dr Pixley Ka Isaka Seme Local Municipality is indicated in the table below and geographically most of the African population is concentrated in an area of Dr Pixley Ka Isaka Seme Local Municipality. This illustrates the entrenched racial divisions within the municipality.

Table 8: Ethnic Group.

Racial Type	Number	Percentage
Black	78628	92%
White	5690	6.7%
Coloured	758	0.9%
Indian/Asian	319	0.4%
Grand Total	**85 395**	**100%**

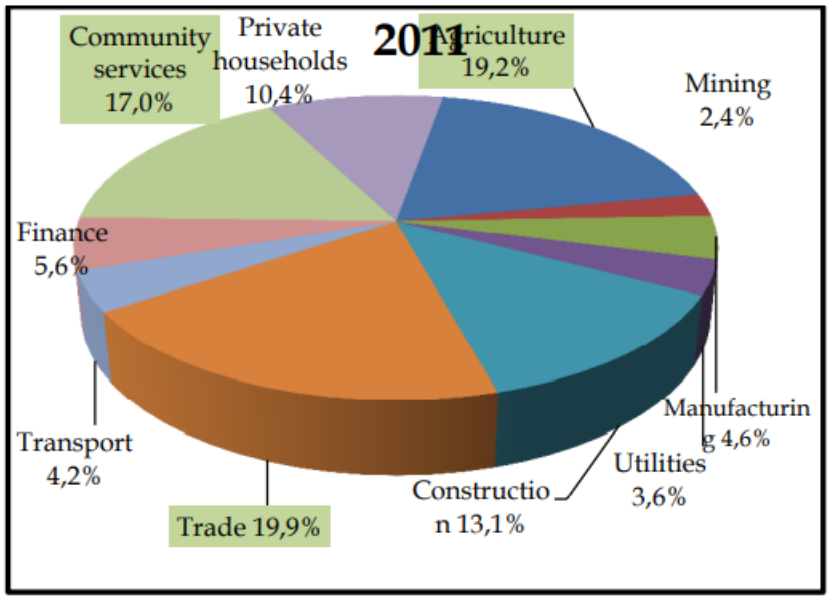
Source: Community Survey 2016

12.3.2 Employment

Employment or persons employed refers to those who performed work for pay, profit or family gain for at least one hour in the seven days. Whilst unemployment occurs when a person is willing and able to work but is unable to find employment.

Local Municipal Area	Unemployment rate Census 2011	Unemployment rate 2015 IHS Global Insight figures
Steve Tshwete	19.7%	16.4%
Lekwa	25.9%	19.3%
Thaba Chweu	20.5%	20.3%
Victor Khanye	28.2%	21.6%
Emalahleni	27.3%	23.2%
Govan Mbeki	26.2%	23.6%
Emakhazeni	25.9%	23.8%
Umjindi	26.9%	24.1%
Msukaligwa	26.8%	25.6%
Mbombela	28.1%	27.6%
Mkhondo	35.9%	31.7%
Nkomazi	34.3%	32.1%
Chief Albert Luthuli	35.4%	32.7%
Thembisile Hani	37.0%	33.3%
Dr. Pixley Ka Isaka Seme	**36.1%**	**33.7%**
Dipaleseng	37.2%	38.8%
Dr. JS Moroka	46.6%	44.9%
Bushbuckridge	52.1%	46.4%

The table above clearly articulates the unemployment challenges that are faced by the municipality. The percentage of unemployed individuals has been increasing over the years and slightly decreased from 36.1% in 2011 to 33.7% in 2015. The municipality has a substantial number of people who are looking for employment by fail to acquire the right knowledge or skill due to their poverty background, financial limitations etc. in spite of the aforementioned challenges, the municipality has been initiating Learner ship programmes and bursaries to the citizens of the area. This is the indication that the municipality is investing in its on development by capacitating the youth and making use of their skills once they are qualified.



Source: Census 2011

Figure 37: Sectoral Employment for Dr. Pixley Ka Isaka Seme Local Municipality in 2011.

Census 2011 indicated that the leading industries in terms of employment are agriculture (20.0%), Trade (19.4%) and Community Services (17.5%). The 2016 CS shows that the largest employing industries in Dr. Pixley Ka Isaka Seme are Trade, Finance and community services, almost 60% of the total employment. This therefore means that between 2011 and 2016 there was a decline in Agricultural projects or activities within the Municipality. The High labour intensity is found in industries such as transport, manufacturing and construction.

Poverty Indicators

The share of population in Dr. Pixley Ka Isaka Seme below STATSSA's lower-bound poverty line increased or deteriorated to 40.7% in 2015 placing it on the 4th highest(unfavourable) amongst the municipal areas. The Lower-bound poverty line is equal to R575 per capita per month. The number of people below the lower bound poverty line increased to 38 723 in 2015. According to the 2016 CS of STATSSA, the so-called poverty headcount of the Municipality increased from 9.2% in 2011 to 10.2% in 2016, whilst the poverty intensity remained at 41.8%. Unequal distribution of income in Dr. Pixley Ka Isaka Seme if measured by the share of income by the poorest 40% of households, but an improvement from 8.2% in 2011 to 8.6% in 2015.

12.3.3 Education Levels

According to the 2016 CS, the population in Dr Pixley Ka Isaka Seme aged 20+ that completed grade 12, increased from 14 184 in 2011 to 17 332 in 2016 – an increase of

more than 4.6% pa. The grade 12 pass rate improved from 46.0% in 2011 to 60.7% in 2015 but it is the 2nd lowest of the municipal areas in Mpumalanga. The area also achieved the 2nd lowest admission rate to university/degree studies in 2015, which was recorded at only 13.6%. The challenge is to accommodate the educated young people in the area as there are inadequate economic opportunities within the Municipal Jurisdiction.

Table 9: Education Attainment.

	Male	Female	Grand Total
No schooling	8312	10133	18445
Grade 0 - Grade 7/Standard 5/ABET 3	11069	14519	25588
Grade 8/Standard 6/Form 1 - Grade 12/Standard 10/Form 5/Matric/NCV Level 4/ Occupational certificate NQF Level 3	17546	19083	36629
NTC I/N1 - Other	2392	1457	3849
Grand Total	**39320**	**45191**	**84511**

Source: Community Survey 2016

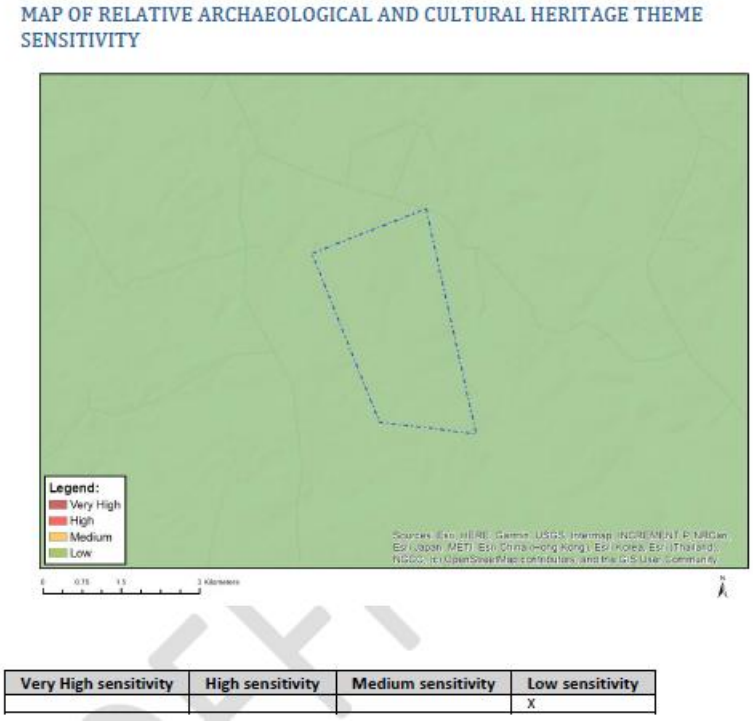
Should the proposed project be a success, demographics such as unemployment will decline or flatten.

12.4 Heritage Resources

Heritage resources such as Stone Age sites, rock paintings and engravings; stone tools; small, inconspicuous stone walled sites from the Late Iron Age farming communities; formal and informal graveyards, etc. may occur in the project area.

The National Heritage Resources Act, No. 25 of 1999 (NHRA) place specific focus on ensuring there no altering or demolition of structures older than 60 years. There are no heritage sites or graves that were identified within the proposed prospecting area during site assessment.

However, should any heritage resources of significance be exposed during the operational phase of the project, the South African Heritage Resources Agency (SAHRA) should be notified immediately, all development activities should be stopped, and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notified to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation from SAHRA to conduct the required mitigation measures.



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Figure 38: Map showing Archaeological and Cultural Heritage sensitivity (source: screening report).

(b) Description of the current land use

The land use in the proposed project area comprises of agricultural activities such as cultivation and Livestock farming (Sheep and cows). Limited low-density settlement within the project area. The area is also capable for grazing according to the desktop studies illustrated by the map in figure below and is also capable of being used to grow crops (Arable).

The land use map in below illustrates a variety of land uses that is currently taking place in the proposed prospecting right area. These land uses include, cultivated area, Live stock farming etc within the proposed project area. The prospecting right activity possess a lower risk in these soil types as the prospecting activity is short term and no huge excavation impact will be caused by this activity.

Where the land use is currently cultivation, drilling will only take place after the reaping period is over to avoid destroying the crops or on the edge of cultivated area. Because of non-perennial streams in place, drilling will also be conducted during dry season when the water percentage is low in the wetlands and non-perennial streams within the project area.

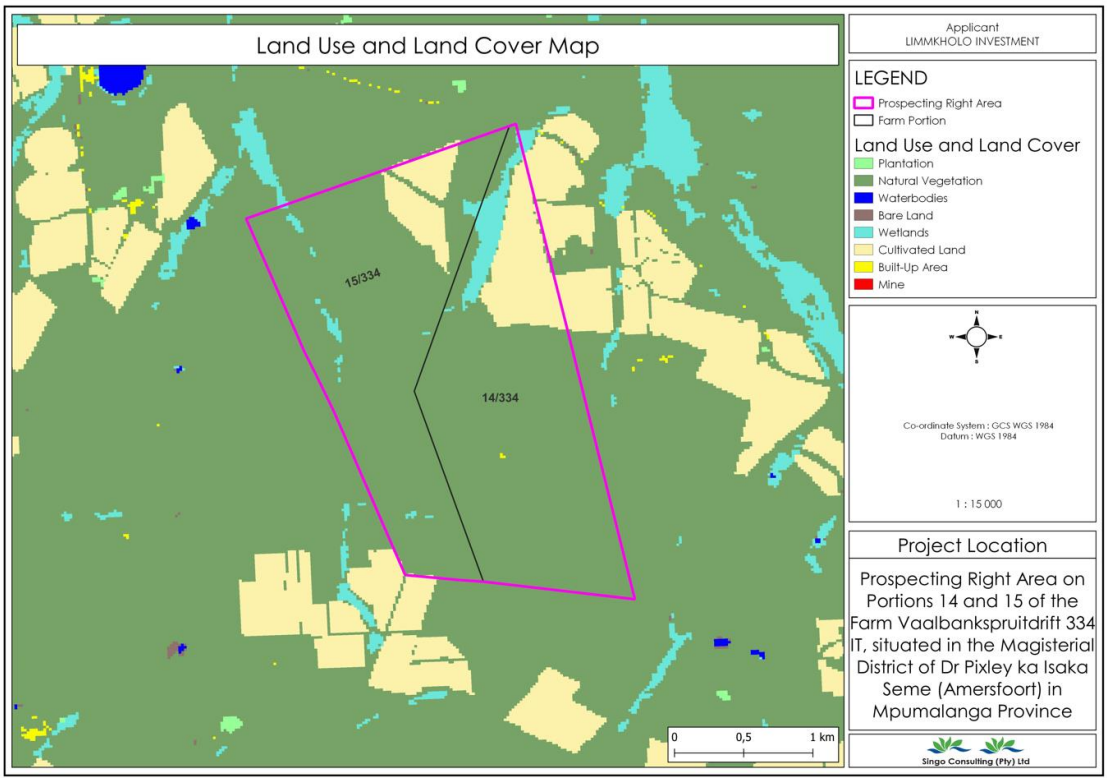


Figure 39: Land cover and use map of the proposed project area.

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

12.4.1 Environmental features

map (Show all environmental, and current land use features)

12.4.2 Infrastructure

Infrastructure is the fundamental facilities and systems serving a country, city, or other area, including the services and facilities necessary for its economy to function. Infrastructure is composed of public and private physical improvements such as road, bridges, tunnel, water supply sewage electric grids, and telecommunications. No infrastructure observed on site during ground truthing.

Roads

The gravel road that connects to the N11 that runs between Ermelo and Volksrust can be used as the access road to the proposed project area.

(d) Environmental and current use map

(Show all environmental, and current land use features)

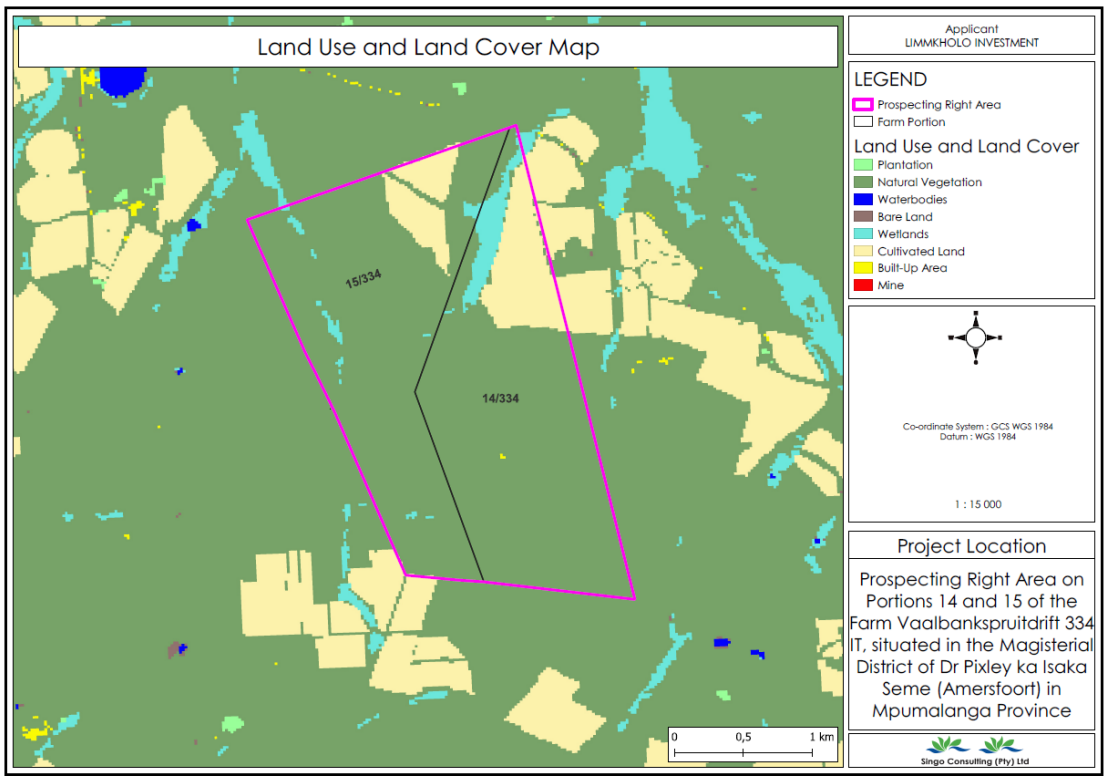


Figure 40: map showing current land use and environmental features.

13 Impact Assessment

iv) 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).

The following potential impacts were identified of each main activity in each phase. The significance rating was determined using the methodology as explained under vi) Methodology Used in Determining and Ranking the Significance. The impact rating listed below was determined for each impact prior to bringing the proposed mitigation measures into consideration. The degree of mitigation indicates the possibility of partial, full or no mitigation of the identified impact.

Table 10 : Impacts and mitigation measures.

13.1 Impact Assessment Methodology

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

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

The requirements of the NEMA 2014 EIA Regulations guide the impact assessment process (as amended). The Environmental Risk (ER) is calculated by comparing the Consequence (C) of each effect (which includes Nature, Extent, Duration, Magnitude, and Reversibility) to the Probability/Likelihood (P) of the impact occurring. The Environmental Risk is determined by this. Other criteria, including as cumulative impacts, public concern, and the risk of irreversible resource loss, are also considered when determining a Prioritization Factor (PF), which is then applied to the ER to establish the overall Significance (S).

13.2 Determination of Environmental Risk

The significance (S) of an impact is determined by applying a Prioritization Factor (PF) to the Environmental Risk (ER).

The Environmental Risk is dependent on the Consequence (C) of the particular impact and the Probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M) and Reversibility (R) applicable to the specific impact.

For the purpose of this methodology the Consequence of the impact is represented by:

Aspect	Score	Definition
Nature	- 1	**Likely to result in a negative/ detrimental impact**
	+1	**Likely to result in a positive/ beneficial impact**
Extent	1	**Activity (i.e. limited to the area applicable to the specific activity)**
	2	**Site (i.e. within the development property boundary),**
	3	**Local (i.e. the area within 5 km of the site),**
	4	**Regional (i.e. extends between 5 and 50 km from the site**

	5	**Provincial / National (i.e. extends beyond 50 km from the site)**
Duration	1	**Immediate (<1 year)**
	2	**Short term (1-5 years)**
	3	**Medium term (6-15 years)**
	4	**Long term (the impact will cease after the operational life span of the project),**
	5	**Permanent (no mitigation measure of natural process will reduce the impact after construction).**
Magnitude/ Intensity	1	**Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected)**
	2	**Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected)**
	3	**Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way)**
	4	**High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease) or**
	5	**Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease)**
Reversibility	1	**Impact is reversible without any time and cost**
	2	**Impact is reversible without incurring significant time and cost**
	3	**Impact is reversible only by incurring significant time and cost**
	4	**Impact is reversible only by incurring prohibitively high time and cost**

Each individual aspect in the determination of the Consequence is represented by a rating scale as defined in **table 11.**

Table 11: Criteria for determination of impact Consequence.

Aspect	Score	Definition
	5	Irreversible Impact

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/scored as per **table 12**.

Table 12: Probability scoring.

Probability	1	Improbable (the possibility of the impact materializing is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows (**table 13**):

13.2.1.1.1 ER= C x P

Table 13: Determination of Environmental Risk.

Consequence	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
	Probability					

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in **table 14 .**

Table 14: Significance classes.

Environmental Risk Score	
Value	Description
< 10	Low (i.e. where this impact is unlikely to be a significant environmental risk),
≥ 10; < 20	Medium (i.e. where the impact could have a significant environmental risk),

≥ 20	High (i.e. where the impact will have a significant environmental risk).

The impact ER will be determined for each impact without relevant management and mitigation measures (pre- mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/ mitigated.

13.2.2 Impact Prioritization

In accordance with Appendix 3(1)(j) of the NEMA 2014 EIA Regulations (as amended) (GNR 326 of 2017), and in addition to the assessment criteria presented in the Section above, each potentially significant impact must be evaluated in terms of cumulative impacts and the degree to which the impact may cause irreplaceable resource loss.

Furthermore, public opinion and attitude about a potential development, as well as its potential consequences, must be considered during the decision-making process.

An impact Prioritization Factor (PF) will be assigned to each impact ER in order to ensure that these considerations are considered (post-mitigation). This element is used to direct the attention of the decision-making authority on the higher priority/significant issues and impacts, rather than to distract from the risk assessments. The PF will be applied to the ER score assuming that all recommended management/mitigation measures are executed.

Table 15: Criteria for the determination of prioritization.

Public response (PR)	Low (1)	Issue not raised in public response.
	Medium (2)	Issue has received a meaningful and justifiable public response.
	High (3)	Issue has received an intense meaningful and justifiable public response.
Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.

	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable loss of resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources.
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criterion. The impact priority is therefore determined as follows:

Priority = PR + CI + LR

The result is a priority score which ranges from 3 to 9 and a consequent PF ranging from 1 to 2 (Table 16).

Table 16: Determination of prioritization factor.

PRIORITY	RANKING	PRIORITIZATION FACTOR
3	LOW	1
4	MEDIUM	1.17
5	MEDIUM	1.33
6	MEDIUM	1.5
7	MEDIUM	1.67
8	MEDIUM	1.83
9	HIGH	2

In order to determine the final impact significance the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is to be able to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are

high (i.e. if an impact comes out with a medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential, significant public response, and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance (table 17).

Table 17: Environmental significance rating.

ENVIRONMENTAL SIGNIFICANCE RATING	
VALUE	DESCRIPTION
≤ 1	VERY LOW (IMPACT IS NEGLIGIBLE. NO MITIGATION REQUIRED)
>1≤2	LOW NEGATIVE (I.E. WHERE THIS IMPACT WOULD NOT HAVE A DIRECT INFLUENCE ON THE DECISION TO DEVELOP IN THE AREA).
>2≤3	MODERATE NEGATIVE (I.E. WHERE THE IMPACT COULD INFLUENCE THE DECISION TO DEVELOP IN THE AREA).
>3≤4	HIGH NEGATIVE (I.E. WHERE THE IMPACT MUST HAVE AN INFLUENCE ON THE DECISION PROCESS TO DEVELOP IN THE AREA).
>4≤5	VERY HIGH NEGATIVE (IMPACT IS OF HIGHEST ORDER POSSIBLE. MITIGATION IS REQUIRED TO LOWER IMPACTS TO ACCEPTABLE LEVELS. POTENTIAL FATAL FLAW
0	NO IMPACT
>1≤2	LOW POSITIVE (I.E. WHERE THIS IMPACT WOULD NOT HAVE A DIRECT INFLUENCE ON THE DECISION TO DEVELOP IN THE AREA).
>2≤3	MODERATE POSITIVE (I.E. WHERE THE IMPACT COULD INFLUENCE THE DECISION TO DEVELOP IN THE AREA).
>3≤4	
>4≤5	HIGH POSITIVE (I.E. WHERE THE IMPACT MUST HAVE AN INFLUENCE ON THE DECISION PROCESS TO DEVELOP IN THE AREA)

vi) 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)

13.2.2.1 Positive Impact associated with the proposed Prospecting:

- Employment contributing to the economy
- Boreholes will be left for farmers

13.2.2.2 Negative Impacts associated with the proposed prospecting:

- Destruction of cultural heritage sites and artefacts
- Loss of soil resources
- Change of current land use
- Removal / damage of natural vegetation
- Damage to sensitive biodiversity areas
- Disturbance of, riparian habitats & non-perennial river
- Contamination of surface water
- Impact on current land use
- Contamination of soils
- Loss of Natural habitant
- Air Quality Impact (Dust)
- Litter
- Disturbance of important bird species and fauna in the vicinity

13.3 Mitigation Measures

vii) 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).

Mitigation measures were identified for all possible impacts even though the destruction of heritage resources is considered a high impact, therefore heritage sites will not be drilled if they are found on site.

The applicant shall ensure that this Environmental Management Plan is provided to the Project Manager and any other person or organisation who may work on the site. Limmkholo Investment(Pty) Ltd development shall ensure that any person or organisation that works on the site complies with the requirements of this Environmental Management Programme report.

viii) Motivation where no alternative sites were considered.

The location of the property is in an area where the geological formation that is known to host the desired mineralisation.

Since exploration is temporary in nature no permanent structures will be constructed, Negotiations and agreements will be made with the farm owners to use any existing infrastructure like access roads.

ix) Statement motivating the alternative development location within the overall site.

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

This is an application for prospecting without bulk sampling where a total of 10 holes will be drilled at locations determined by the geology of the site. Drill holes will be located at least 500m from any watercourse and 500 m away from formal or informal dwelling or building structure.

Since exploration is temporary in nature no permanent structures will be constructed, Negotiations and agreements will be made with the farm owner to use any existing infrastructure like access roads

x) 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.)

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

• Landowner and stakeholder consultation Environmental assessment conducted for proposed projects

• A detailed desktop investigation was undertaken to determine the environmental setting in which the project is located. Based on the desktop investigations various resources were used to determine the significance and sensitivity of the various environmental considerations. The desktop investigation involved the use of:

-South African National Biodiversity Institute (SANBI) Biodiversity

-Geographic Database LUDS system

-Geographic Information System base maps

• Site visits conducted. The site visit was used to ground truth the desktop information.

• The rating of the identified impacts was undertaken in a quantitative manner as provided in this document. The ratings are undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses the outcomes of the calculation to determine whether the outcome reflects the perceived and actual views.

• The identification of management measures is done based on the significance of the impacts and measures that have considered appropriate and successful, specifically as Best Practical and Economical Options.

Please refer to Tables 13.

13.4 Assessment and Evaluation of Potential Project Impacts and Mitigation Measures.

The following potential impacts were identified during the Basic Assessment. Mitigation measures have also been provided for each environmental aspect assessed.

The draft BAR+EMPR was made available to I&APs for review and comment and their comments and concerns have been addressed in this final report that is submitted to the DMRE for decision-making. The results of the public consultation were utilized to update the impact scores upon completion of the public review period. Furthermore, it is noted that the results of the public consultation were utilized to update the proposed potential mitigation measures.

13.5 Topography and Landform

Topography refers to the surface shape and features of an area. Opencast operations will remove surface material to access and mine an orebody and this can alter the

natural topography of the site. Resultant changes to the topography can in turn impact on groundwater, surface water drainage, visual character and the safety of both people and animals if not properly mitigated. If mining extraction techniques are not carried out correctly, lack of support from underlying layers could cause the surface soil profile to vertically subside to a greater or lesser degree. This could result in limitations to the viability of potential post mining land uses.

Impacts on the topography and landform within the application area are expected to occur as follows:

- Alteration of topography.
- Altered drainage patterns.
- Soil surface subsidence.

13.6 Significance of Impacts

The above impacts on topography and landform will be negative but site specific. With mitigation, the impact can be controlled but not prevented and will remain low to moderate in significance.

The following mitigation types are associated with potential impacts on topography and landform:

- Control through site planning and design.
- Control through proper soil management procedures.
- Avoidance through mine design and planning (depth of mining, safety factors, overburden, and rock qualities).

13.7 Impact on Geology

Geology refers to the underlying mineral structure of an area. Alterations to the natural geology could have impacts on other aspects such as groundwater and topography. Mining operations will remove the entire ore body layer which will alter the geology of the site. Resultant changes to the geology can in turn impact on groundwater, soil forms, and paleontological resources. Mining will have a permanent impact on the geology of the application area.

13.8 Significance of Impact

The impact on the local geology is permanent as an entire orebody and stratigraphic unit will be removed during the mining operations. There are no mitigation measures to

reduce the impact on geology as the removal of a geological unit is the goal of the activity. The impact will remain high.

The following mitigation types are associated with potential impacts on the geology:

- Control through site planning and design.
- Control through proper soil management procedures.
- Avoidance through mine design and planning (depth of mining, safety factors, overburden and rock qualities).

13.9 Impacts on Soil.

Mining operations have the potential to damage soil resources through physical loss of soil and/or the contamination of soils, thereby impacting on the soils ability to sustain natural vegetation and altering land capability. Due to the increased activity of trucks and heavy machinery the possibility of soil contamination by leaking oils and fuels is increased. The contamination of soils may contribute to the contamination of surface and groundwater resources. Increased soil erosion can be caused by a loss in vegetative cover resulting in increased water runoff. This is especially likely to occur on sloping terrain. Impacts on soil structure can result in changes to soil drainage, increasing runoff and erosion, and may also result in further potential knock on effects impacting on surface and underground water resources. Loss of the topsoil resource reduces chances of successful rehabilitation and restoration.

Impacts on soil resources are expected to occur as follows:

- Erosion and sedimentation.
- Soil compaction.
- Soil pollution/contamination.

13.10 Significance of Impacts

The above impacts on soil resources will be negative but site specific. With mitigation, the impact can be controlled but not prevented and will remain low to moderate in significance.

The following mitigation types have been associated with potential impacts on soil:

Avoid and control through preventative measures (soil placement, storm water infrastructure, erosion control structures).

- Avoid through implementation of EMPR mitigation measures

- Remedy through application of treatment measures (e.g. ripping).
- Avoid through preventative measures (e.g. bunding, spill kits).
- Remedy through clean-up and waste disposal.
- Modify through soil treatment if required.

13.16 Impacts on Land Capability

Land capability is closely linked to the soil. Mining operations have the potential to significantly transform the land capability, often irreparably. The types of impacts related to land capability involve post mining compaction, loss of fertility, impeded soil drainage and insufficient depth of the replaced soil. In many cases, mining may result in the land capability class changing from arable to grazing post closure. The loss of potentially productive agricultural land, along with a reduction in land capability may occur as a result of site sterilisation due to mining activities. Some impacts such as acidification and loss of original soil depth and volume can be permanent and will reduce the capability post closure.

Impacts on land capability are expected to occur as follows:

- ❖ Loss of soil fertility (denitrification, loss of soil nutrient store and organic carbon stores) and loss of land capability.
- ❖ Loss of soil resource and its utilization potential.

13.17 Significance of Impacts

The above impacts on land capability will be negative but site specific. They are long term impacts and are expected to last for the duration of the life of the mine and in some cases the disturbance will be permanent. With mitigation, the impact can be controlled but not prevented and some impacts will be permanent.

The following mitigation types are associated with potential impacts on land capability:

- ❖ Avoid through preventative measures (e.g. limit area of disturbance).
- ❖ Remedy through soil remediation if required (e.g. fertilizer and organic matter applications)

13.18 Impacts on Land Use.

The predominant land use in the surrounding area is Shrubland. Mining activities have the potential to affect land uses within the application area and in the surrounding

areas. This can be caused by physical transformation of land through direct or indirect impacts. Impacts may be related to factors such as loss of soil, loss of biodiversity, pollution of water, dewatering, air pollution, noise pollution, and damage/destruction from blasting. The nature of opencast mining is such that it is unlikely that mining and other land uses can coexist. This means that any area utilized for opencast mining will be unavailable for other land uses.

Impacts on land use are expected to occur as follows:

- Damage/Disruption of services (such as water and power supply, etc.).
- Interference with existing land uses.

13.19 Significance of Impacts

The above impacts on land use will be negative but site specific. With mitigation, the impact can be controlled but not prevented and will remain low in significance.

The following mitigation types have been associated with potential impacts on land use:

- Avoid through implementation of EMPR mitigation measures (e.g. service detection and communication with landowners).
- Remedy through repair or reinstatement of services if required.

13.19.1 Protection of fauna and flora

The risk on the fauna and flora of the footprint area, as well as the surrounding environment, as a result of the proposed mining activities, can be reduced to low by implementing the following mitigation measures:

- The site manager must ensure that no fauna is caught, killed, harmed, sold or played with.
- Workers must be instructed to report any animals that may be trapped in the working area.
- No snares may be set or nests raided for eggs or young.
- No plants or trees may be removed without the approval of the Environmental Control Officer (ECO).

13.20 Motivation where no alternatives sites were considered.

Amandla Africa Mining identified the growing need for Coal resources due to an increase in power demand, bombs creations, recreational field making and brick and concrete making. In this light, the applicant identified the proposed area as the preferred and only viable site alternative because of its immediate availability backed by data reviewed, which has proven that the resources are available in the area. The establishment of a pit in this un-utilised area was found to be most viable.

Various project alternatives were considered during the planning phase of the project and the preferred alternatives proved to be:

- The open cast mining of the Coal identified as the most effective method to produce the desired Coal.
- The use of temporary infrastructure will reduce the impact on the environment and decrease closure objectives with regard to infrastructure decommissioning.
- It is recommended that the existing farm road connected to the National road (N11) immediately to the property be used as an access road.

13.21 Statement motivating the alternative development location within overall site.

Provide a statement motivating the final site layout that is proposed.

The open cast mining of the Coal has been identified as the most cost-effective method to produce the desired Coal. It is proposed that all mining-related infrastructure will be contained within the boundaries of the proposed prospecting area. As no permanent infrastructure will be established on site, the layout/position of the temporary infrastructure will be determined by the space on the proposed prospecting area.

13.22 Process undertaken to identify, assess and rank impacts and risk of site activities.

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

During the impact assessment process, several potential impacts were identified of each main activity in each phase .An initial significance rating was determined for each potential impact, should the mitigation measures proposed in this document not be implemented on-site. The impact assessment process continued to identify mitigation measures to address the impact that the proposed mining activity may have on the surrounding environment. A significance rating was again determined for each impact using a relevant methodology. The impact ratings listed in the following section was determined for each impact after bringing the proposed mitigation measures into consideration and therefore represents the final layout/activity proposal.

13.23 Specialist Studies

ix) Summary of specialist reports.

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

Table 18: Summary of specialist reports.

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.**
Hydrogeological Baseline Study	The prospecting activity should take place during dry seasons where the water percentages in the surrounding streams and wetlands are very low. all the Wetlands and non-perennial rivers will be buffered as no go area preferably a 100m buffer will apply. Drilling activity will not be conducted near these water resources.	X	Surface water and buffer zones

Hydrological baseline Study	all the Wetlands and non-perennial rivers will be buffered as no go area preferably a 100m buffer will apply. Drilling activity will not be conducted near these water resources.	x	
Baseline soil Study	No washing of any mechanical equipment's or vehicles should be allowed near the water resources The core logs of boreholes with coal should be cleared from the ground immediately after logging by the geologists to prevent washing and leaching to the water resources during rainfall.	x	

x) 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.

Please refer to **Appendix 1**.

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

Positive Impact associated with the proposed Prospecting:

- Employment contributing to the economy (about 10 people per drill site)
- Positive contribution to the South African Gross Domestic Product
- Concurrent rehabilitation during prospecting

Negative Impacts associated with the proposed prospecting

- Destruction/loss of cultural and heritage resources during the construction/set-up phase.
- Noise generation from construction/set-up and operational activities of drilling.
- Visual intrusion caused by the drilling activities in the largely rural setting.
- Increased traffic near the drilling site during site establishment and prospecting.
- Dust fall and nuisance from drilling activities.
- Soil and vegetation disturbance from drill pad preparation during construction/set-up and operations, as contractors rehabilitate one site and move to the next.
- Animal life will be affected in the immediate vicinity of the drilling rig. It is expected that the noise and general activity will keep them away from the prospecting site.
- Disturbance of riparian habitats & non-perennial river
- Litter

Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

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

The objectives of the impact management process are as follows:

Air Quality:

To ensure that the prospecting activities has a minimal adverse impact on air quality, dust limitation and suppression to be applied.

Groundwater:

To ensure that the prospecting activities have minimal adverse impact on the surrounding groundwater water quality and prevents pollution of existing groundwater resources. Detailed in Appendix L.

Surface Water

To ensure that the prospecting activities effectively utilize the consumption of freshwater, have minimal adverse impacts on the surrounding surface water quality and prevent pollution of surrounding surface water resources. A buffer of 500m to be observed from the water course.

Soils

To ensure that the prospecting activities have a positive impact on land and soils by mitigating potential erosion, preventing contamination and pollution.

Biodiversity

To ensure that the prospecting activities do not have an adverse impact on the current biodiversity.

Socio-Economic

To aid in the improvement of the current local economy and improve the social environment of communities affected by the prospecting activities.

Visual

To limit the visual impact of the prospecting activities. Only one drill rig to be used and concurrent rehabilitation to be implemented.

Noise

To control noise pollution stemming from the prospecting activities through the restriction of operational hours.

Heritage

To ensure that the prospecting activities avoid adverse impacts on the heritage resources of significance. Interaction with SAHRA and local residents to identify and confirm heritage sites. Marking and avoidance of sites if identified.

Waste

To ensure that the proposed prospecting operation adopts and implements waste management principles that are environmentally responsible.

b) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

- A field survey must be undertaken before drilling commences at each drilling site to confirm that no cultural heritage site is present in sections to be cleared.
- Prospecting should not occur within 100 m from any watercourse.
- Boreholes and access tracks will be located in areas that will result in minimal ground disturbance.
- Indigenous tree should be avoided during prospecting activities .
- Boreholes should be located nearby existing access road to avoid disturbance of natural vegetation
- Each target area to be pursued through invasive methods needs to be inspected for nests in trees of Vultures and other birds. All trees accumulate nest of birds must be avoided
- During the pegging phase for each borehole, specific controls must be identified and implemented, based on site conditions.
- No employees will be permitted to stay on the site.
- Collection of firewood will not be allowed.
- Where an access road is needed, the relevant occupant and owner will be consulted prior to the development of that access to ensure that consensus is reached on the matter and the access will be rehabilitated at the end of the drilling programme.
- Concurrent rehabilitation of disturbed areas must be undertaken.

c) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

The location of the final planned boreholes designed were identified through the approach of the prospecting work programme. This assessment is therefore based on a desktop approach at a broad scale and assuming that drilling could not occur anywhere within the proposed prospecting license area as the area is highly sensitive on Critical Biodiversity. Once drill sites have been identified, then it is recommended that focus should be given to these sites in order to identify any cultural or heritage resources of significance, any ecologically significant areas that may occur as well as re-engaging landowners regarding the intention to access and conduct drilling activities on their property.

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

a. Reasons why the activity should be authorized or not.

Prospecting is a short-term activity with minimal impact. According to the impact assessment undertaken for the proposed project, the key impacts of the project are on soils, endemic flora and fauna species and landowners/occupiers. The project will also have positive impacts due to the employment to be created although for a short term. The site has been identified as one the ecologically hotspots internationally; The site is its natural state and has been declared a CBA irreplaceable. The regional ecology is highly diversified and so is the proposed.

The public has also been requested for their comments. All comments to be received during Public Participation Process will be included in the final BAR & EMPr.

Prospecting activities may be undertaken provided all probable impacts will be effectively managed. The management of the impacts identified in the impact assessment for all phases of the proposed project will be undertaken through a range of programmes and plans contained in the EMPr. In consideration of the programmes and plans contained within the EMPr, layouts and method statements compiled for the project, which is assumed will be effectively implemented, there will be significant reduction in the significance of potential impacts. Based on the above, it is therefore the opinion of the EAP that the activity should be authorized.

b. Conditions that must be included in the authorisation

- No prospecting should occur within 100m from any watercourse
- The positioning of boreholes and access tracks should be in areas that will result in minimal ground disturbance
- During the pegging phase for each borehole, specific controls must be identified and implemented, based on site conditions
- No employees will be permitted to stay on the site.
- Where new access road is needed to be created, the relevant occupant and owner will be consulted prior to the development of that access to ensure that consensus is reached on the matter and the access will be rehabilitated at the end of the drilling programme.

e) Period for which the Environmental Authorisation is required

The authorization is required for the duration of the prospecting right which is 5 years. plus, a potential to extend the right by an additional 3 years. Therefore, a total period of 8 years is required.

f) 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.

An undertaking is provided at the end of this report.

13.24 Financial Provision

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

A financial provision of approximately **R43769** which includes rehabilitation activities, has been made by Limmkholo Investment (Pty) Ltd (see in Table below). The applicant undertakes to provide financial provision through funding from the personal account.

i. Explain how the aforesaid amount was derived.

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 PWP.

A financial provision of approximately **R1745944.50** has been budgeted for the prospecting programme over 5 years as PWP, which includes rehabilitation activities.

The drilling contractor will be responsible for rehabilitating the drill pad once the drilling activities have been completed at each exploration hole. This is typically a contractual arrangement between Limmkholo Investment (Pty) Ltd, and the drilling contractor employed to implement drilling activities which include construction / set-up of drill pad, operational drilling activities and the rehabilitation of the drill site after drilling has ceased. The financial guarantee was calculated using the DMRE official financial quantum calculator below.

Table 19: Financial Quantum.

CALCULATION OF THE QUANTUM

Applicant: **Limmkholo Investment (Pty) Ltd** Ref No.: **MP30/5/1/1/2/ 15309 PR**
Evaluator: **Abel Mojapelo** Date: **18-Aug-22**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	3913,79	49	0,08	1	15342,0568
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0	284292	1	1	0
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	L
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612	1	1	0
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	1,32	150138	0,08	1	15854,5728
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0	57087	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		31196,6296
1	Preliminary and General		3743,595552		weighting factor 2 1		3743,595552
2	Contingencies			3119,66296			3119,66296
					Subtotal 2		38059,89
					VAT (15%)		5708,98
					Grand Total		43769

Singed: Abel Mojapelo
Date: 18/08/2022

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

The financial support provided by Limmkholo Investment (Pty) Ltd submitted their financial support demonstrates the availability of funds to undertake prospecting of the desired mineral.

g) Specific Information required by the competent Authority

i) 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: -

ix) Impact on the socio-economic conditions of any directly affected person

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

There are no anticipated direct impacts on the socio-economic conditions of the landowners. Private owners of portions that are used for agricultural purposes will be compensated fairly for any loss due to the drilling programme. Drill holes will be immediately closed to avoid any contamination to the groundwater.

As the final positioning of the drill sites cannot be confirmed without completion of phase 1 of the prospecting programme, a recommendation has been made to ensure that the directly affected landowners are re-consulted a minimum of 1 month prior to implementing invasive activities (drilling). The purpose of the re-consultation is to ensure that socio-economic impacts on directly affected persons can be raised and where possible addressed.

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

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

Mitigation measures proposed in this report include that no drill site will be located within 100m of any identified heritage site (which may occur during the prospecting

programme). Furthermore, identified graves and other heritage site that maybe identified during prospecting activities within the area will be buffered as "no go" area by 100m zone. A recommendation has been made to undertake a heritage survey of the drill sites once these are known in order to identify any cultural or heritage resources of significance.

However, any heritage resources of significance be exposed during the rather operational phase of the project, the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities should be stopped, and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notified to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the required mitigation measures.

xi) 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).

The proposed prospecting activities (including the drilling) requested as part of this authorization is the only current viable way a mineral resource can be identified and used to generate a resource which is a minimum requirement to determine whether it is viable to invest in a future mine.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME

14 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).

Please refer to the Details of the EAP included in Part A, section 1(a)

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).

The aspects of the activity are described in Part A Section 1(h).

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).

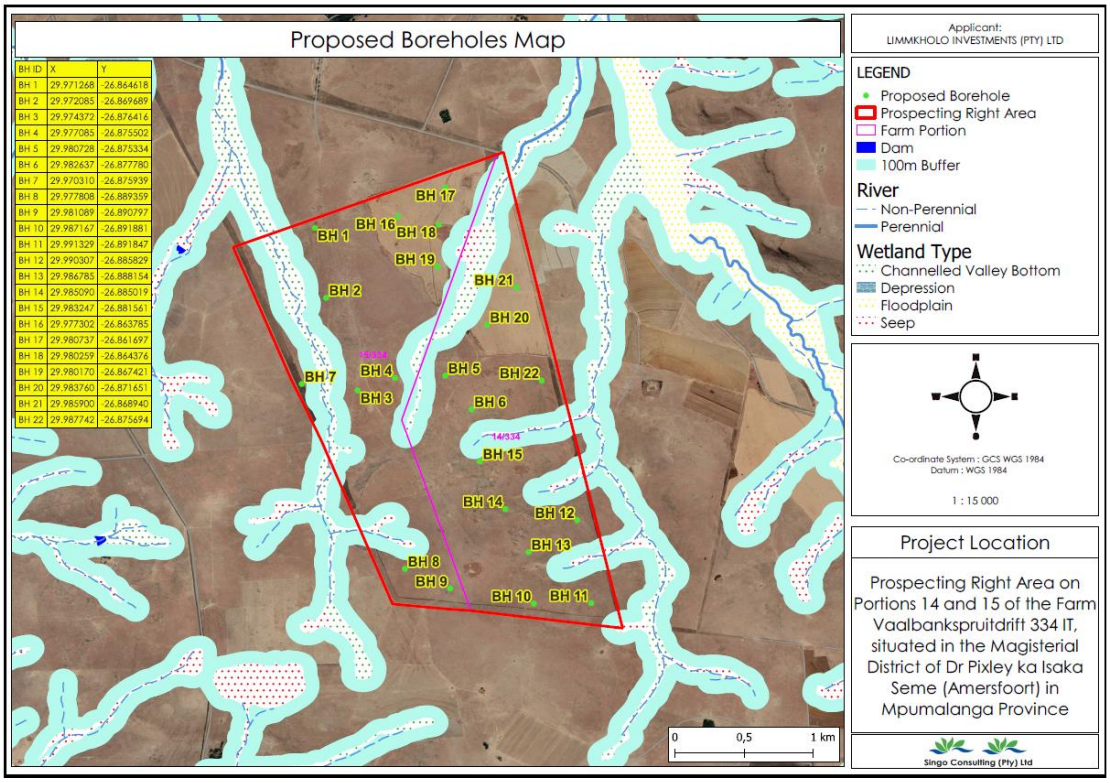


Figure 41: Proposed boreholes map for the proposed prosed prospecting project.

A general layout is enclosed though exploration is a temporal activity thus no permanent structures will be erected. Please refer to Appendix 1.

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)

The overall goal for closure of the prospecting site is to re-instate the predetermined land-use of the landowners, neighbors and community, ensuring that the land is stable and safe in the long-term.

The closure objectives apply to the prospecting area in its final closed state and not whilst the site is in transformation towards this state. They nevertheless provide guidance during the operational phase. Closure objectives relate to the following:

Physical stability: To back-fill boreholes and pits on the prospecting site to ensure continuation of the land use after completion of prospecting activities.

Environmental quality: To ensure that local environmental quality is not adversely affected by possible physical effects and chemical contaminants arising from the prospecting site after completion of prospecting activities.

Health and safety: To limit the possible health and safety threats to humans and animals using the rehabilitated prospecting area after completion of prospecting activities.

Land capability/land-use: To ensure continuation or to the re-instate a suitable land capability over as large as possible area affected during prospecting.

Aesthetic quality: To leave behind a rehabilitated prospecting site that is neat and tidy, giving an acceptable overall aesthetic appearance.

Biodiversity: To encourage the re-establishment of indigenous and/ or appropriate vegetation on the rehabilitated prospecting site such that the biodiversity is largely re-instated over time, as well as protect the undisturbed areas to maintain/enhance the biodiversity of these areas. Prospecting area rehabilitated to limit impact on current land use

Environmental Legislation

To comply with all environmental legislation. Specific aspects to be adhered to from environmental legislation include National Environmental Management Act, Act 107 of 1998 (NEMA)

As the NEMA is the cornerstone of all environmental legislation, the management measures implemented by the Limmkholo Investment will strive to adhere to the principles of NEMA:

• That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

• That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, minimised and remedied;

• That the disturbance of landscapes and sites that constitute the nations cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;

• That waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;

• that the use and exploitation of non-renewable natural resources is responsible and equitable, and considers the consequences of the depletion of the resource;

• That a risk averse and cautious approach is applied, which considers the limits of current knowledge about the consequences of decisions and actions; and

• That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, will be minimised and remedied.

Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.

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

After careful consideration of the scale of operation it has been deduced that approximately 40 L will used as potable water. It is anticipated that water will be purchased from a private water filter dealer such as Oasis and brought onto the site.

iii) Has a water use license has been applied for?

No, the main prospecting right activities that will take place includes Drilling, Logging, Sampling and Mapping. It should be noted that these activities do not include any mining activities nor bulk sampling, and No PCD, Trenches and Berms will be constructed. The drilling activity will only take up about 1.32 ha per planned borehole, and all the planned exploration boreholes will be outside the 100m DWS regulated radius from the watercourses. No water will be abstracted from the drilled exploration boreholes. 5000L Jojo tank will be used to store water for drilling.

iv) Impacts to be mitigated in their respective phases

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

Table 20: Impact mitigation and rehabilitation.

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Implementation period
E.g. for prospecting: Drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route, etc. E.g. for mining: Excavations, blasting, stockpiles, discard dumps/dams, loading, hauling, transport, water supply dams, boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	In which impact is anticipated, e.g. construction, commissioning, operational, decommissioning, closure and post-closure.	Volumes, tonnages and ha/m^2	Describe how each of the recommendations 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 period when the measures in the environmental management program must be implemented. Measures must be implemented when required. Rehabilitation must take place at the earliest opportunity. With regard to rehabilitation, state whether it will take place upon cessation of the individual activity or cessation of mining, bulk sampling or alluvial diamond prospecting.
Site establishment activities Vegetation clearance Topsoil stripping and stockpiling Drill pad compaction Placement of temporary portable toilets and resting place Vehicle movements	Construction/setup and operational phase	600m^2 diamond drill holes	Any buried artifacts that may be uncovered during site activities will require such activities to stop and a qualified archaeologist will be commissioned to assess their significance and determine appropriate mitigation measures.	Heritage Act	Before and during drilling activities

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Implementation period
Waste management	Construction/setup and operational phase	600m^2 diamond drill holes	Control noise generation by maintaining equipment. Limited to daylight hours on Mondays to Saturdays and no activities on Sundays and public holidays. Maintain a buffer of 100 m between drill sites and dwellings. The resting place shall be located outside of the 82dB Zone of the drill site.	SANS 10103 guideline	Before and during drilling activities
Exploration drilling: Drilling Drill maintenance and re-fueling Core sample collection and storage Vehicle movements Waste generation and management	Construction/setup and operational phase	600m^2 diamond drill holes	The drilling rig and other visually prominent items on the site will be located in consultation with the landowner; Make use of existing vegetation as far as possible to screen the prospecting operations from view; and If necessary, the operations can be screened from view by	N/A	Before and during drilling activities

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Implementation period
			erecting a shade cloth barrier		
	Construction/setup and operational phase	600m^2 diamond drill holes	Control dust emission by ensuring drill rig employs dust suppression system. Low vehicle speeds will be enforced on unpaved surfaces. Maintain a buffer of 100 m between drill sites and dwellings	GN R. 827 (NEMAQA)	Before and during drilling activities
	Construction/setup and operational phase	600m^2 diamond drill holes	The soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required and will not be dozed or scraped with vegetation roots left intact for later re growth; and Disturbed areas will be vegetated with locally indigenous species as soon as possible.	N/A	Before and during drilling activities

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Implementation period
	Construction/setup and operational phase	1.32 Ha per drill site	All operations will be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution, including environmental coordinator where applicable; All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some of the local residents may not welcome the prospecting activities in the area.	NEMA	Before and during drilling activities

h) Impact Management Outcomes

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

2.1 Impact Management Outcomes

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

Table 21: Impact management.

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
E.g. for prospecting: Drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route, etc. E.g. for mining: Excavations, blasting, stockpiles, discard dumps/dams, loading, hauling, transport, water supply dams, boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	Including the potential impacts for cumulative impacts. E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.		In which impact is anticipated, e.g. construction, commissioning, operational, decommissioning, closure and post-closure.		
Site establishment activities (-ve) Vegetation clearance Topsoil stripping and stockpiling	Cultural and heritage	Destruction or loss of Cultural and Heritage Resources: No cultural/ heritage artefacts have	Construction/ set-up	If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease	Heritage Act

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Drill pad compaction Erection of office, toilets, fuel storage (if not by road tanker), water tanker, core storage Vehicle movements Waste management		been identified on site.		immediately. The find must be reported to a heritage specialist so that systematic and professional investigation/ excavation can be undertaken.	
	Noise	Noise generation	Construction/ set-up	Construction/setup, operational and decommissioning activities will be limited to daylight hours on Mondays to Saturdays and no activities on Sundays and public holidays. Separation of distance of minimum 500m, but preferably 1 000m to be maintained between drill sites and dwellings. Noise abatement equipment, such as mufflers on diesel engines, will be maintained in good condition. If intrusive noise levels are experienced by any person at any point, the source of the noise will be moved if practical, or it will be placed in an acoustic enclosure, or an acoustic barrier will be erected between the source and the	SANS 10103

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				recipient.	
	Visual	Visual intrusion	Construction/ set-up	The drilling rig and other visually prominent items on the site will be located in consultation with the landowner. Make use of existing vegetation as far as possible to screen the prospecting operations from view. If necessary, the operations can be screened from view by erecting a shade cloth barrier.	N/A
	Traffic	Increase in traffic volumes in drilling site vicinity	Construction/ set-up	Traffic signs to be put around the site to notify motorist of the activities. Construction vehicles to make trips on/off site only when necessary. Construction vehicles to adhere to local speed limits as far as possible when driving in around site.	National Traffic Act Regulations
	Dust fall	Dust fall and nuisance from activities	Construction/ set-up	Wet suppression should be applied to ensure that no visible dust is raised by any of the prospecting operations. Separation of distance of minimum	GN R. 827 (NEMAQA)

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				500m, but preferably 1 000m to be maintained between drill sites and dwelling. Low vehicle speeds will be enforced on unpaved surfaces.	
	Soil and vegetation	The potential impact of the proposed prospecting on the vegetation would occur at proposed drilling sites and the access routes used to get to these sites.	Construction/ set-up	The soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required; No clear scraping (dozing) be carried out unless necessary to establish a level drill pad. Rather that surface vegetation is cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow. Disturbed areas will be re-vegetated with locally indigenous species as soon as possible.	NEMBA
	Animal life	Animal life will be affected in the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep	Construction/ set-up	Environmental awareness training sessions should be part of the workers' induction and site workshops. If any animals are met, they must	NEMBA

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		the animal life away from the site while the prospecting is ongoing.		not be killed or injured, but should rather be removed or chased away from the site.	
	Social	Friction between residents/landowners and construction personnel.	Construction/ set-up	All operations will be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution. All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some of the residents may not welcome the prospecting activities in the area. There will always be a strict requirement to treat residents with respect and courtesy .	NEMA
	Job creation	Employment will be created for the clearing of the land and establishing the drilling site.	Construction/ set-up	No mitigation measures required.	NEMA
Exploration drilling (ve) Drilling	Noise	Noise generation	Operations	Activities will be limited to daylight hours on Mondays to Saturdays and no activities on Sundays and public	Heritage Act

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Drill maintenance and refuelling Core sample collection and storage Vehicle movements Waste generation and management				holidays. Separation of distance of minimum 100m, but preferably 1 000m to be maintained between drill sites and dwellings; Noise abatement equipment, such as mufflers on diesel engines, will be maintained in good condition. If intrusive noise levels are experienced by any person at any point, the source of the noise will be moved if practical, or it will be placed in an acoustic enclosure, or an acoustic barrier will be erected between the source and the recipient.	
	Visual	Visual intrusion	Operations	The drilling rig and other visually prominent items on the site will be located in consultation with the landowner. Make use of existing vegetation as far as possible to screen the prospecting operations from view. If necessary, the operations can be	SANS 10103

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				screened from view by erecting a shade cloth barrier.	
	Traffic	Increase in traffic volumes in the drilling site vicinity	Operations	Traffic signs to be put around the site to notify motorist of the activities. Construction vehicles to make trips on/off site only when necessary. Construction vehicles to adhere to local speed limits as far as possible when driving in around site.	N/A
	Dust fall	Dust fall and nuisance from activities	Operations	Wet suppression will be applied to ensure that no visible dust is raised by any of the prospecting operations. Separation of distance of minimum 500m, but preferably 1000m to be maintained between drill sites and dwellings. Low vehicle speeds will be enforced on unpaved surfaces.	National Traffic Act regulations
	Soil and vegetation	Soil and vegetation disturbance from drill pad preparation	Operations	The soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required. No clear scraping (dozing) be	GN R. 827 (NEMAQA)

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				carried out unless necessary to establish a level drill pad. Rather that surface vegetation be cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow. Disturbed areas will be re vegetated with locally indigenous species as soon as possible.	
	Animal life	Animal life will be affected in the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep the animal life away from the site while the prospecting is ongoing.	Operations	Measures implemented during site establishment should apply in this phase as well.	NEMBA
	Social	Friction between residents/landowners and construction personnel	Operations	All operations will be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution. All prospecting personnel will be	NEMBA

Activities	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				made aware of the local conditions and sensitivities in the prospecting area and the fact that some of the residents may not welcome the prospecting activities in the area. There will always be a strict requirement to treat residents with respect and courtesy .	
	Job creation	Employment will be created for the clearing of the land and establishing the drilling site.	Operations	No mitigation measures required.	NEMA

The fauna at the site will not be impacted by the proposed processing activity, as they will be able to move away from or through the site unharmed. Workers must be educated and managed to ensure that no fauna at the site is harmed. Upon commencement of the proposed processing activities, the processing area will be fenced off to prevent livestock, from wandering into the work areas. Rehabilitate pits and drill holes sites immediately after sampling, concurrent rehabilitation, do not wait until the end to rehabilitate.

i) Impact Management Actions

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

Table 22: Impact management actions

Activities	Potential impact	Mitigation type	Implementation period	Compliance with standards
Whether listed or not. E.g. excavations, blasting, stockpiles, discard dumps/dams, loading, hauling and transport, water supply dams/boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, ground water contamination, air pollution, etc.	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. E.g., modify through alternative method, control through noise control, control through management and monitoring, and remedy through rehabilitation.	State when the environmental management programme measures must be implemented. Measures must be implemented when required. This must take place as soon as possible. Regarding rehabilitation, state upon cessation of the individual activity or mining, bulk sampling or alluvial diamond prospecting.	A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities.
Site establishment activities Vegetation clearance Topsoil stripping and stockpiling Drill pad compaction Erection of office, toilets, fuel storage (if not by road tanker), water tanker, core storage Vehicle movements Waste management	Cultural and heritage	Undertake heritage survey prior to site activities to identify cultural/heritage features and cordon these off with Chevron tape. Avoid cultural/heritage impacts by maintaining 100m buffer from any identified heritage feature. Any buried artifacts that may be uncovered during site activities will require such activities to stop and a qualified archaeologist will be commissioned to assess their significance and determine appropriate mitigation measures.	Before and after drilling activities.	Heritage Act
Exploration drilling Drilling	Noise	Control noise generation by maintaining equipment and limiting operation hours to daylight hours from	Before and after drilling activities.	SANS 10103

Activities	Potential impact	Mitigation type	Implementation period	Compliance with standards
Drill maintenance and refueling Core sample collection and storage Vehicle movements Waste generation and management		Mondays to Saturdays (no activities on Sundays and public holidays). Maintain a buffer of 500m-1 000m between drill sites and dwellings. If intrusive noise levels are experienced by any person at any point, the source will be moved if practical, or placed in an acoustic enclosure, or an acoustic barrier will be erected between the source and the recipient.		
	Visual	The drilling rig and other visually prominent items on site will be placed in consultation with the landowner. Existing vegetation will be used as far as possible to screen the prospecting operations from view. Operations can be hidden from view by erecting a shade cloth barrier.	Before and after drilling activities.	N/A
	Dust fall	Control dust emission by ensuring drill rig employs dust suppression system. Low vehicle speeds will be enforced on unpaved surfaces.	Before and after drilling activities.	GN R. 827 (NEMAQA)
	Soil and vegetation	Soil disturbance and vegetation clearance at drill pads will be kept to the minimum required and not be dozed/scraped; vegetation roots will be left intact for regrowth. Disturbed areas will be re-vegetated with indigenous species as soon as possible.	Before and during drilling activities; disturbed areas to re-vegetated as soon as possible.	N/A
	Social	Operations will be carried out under the guidance of an experienced manager with public consultation and conflict resolution skills. All prospecting personnel will be made aware of	Before and after drilling activities.	NEMA

Activities	Potential impact	Mitigation type	Implementation period	Compliance with standards
		conditions and sensitivities in the prospecting area and of the fact that some residents may not welcome the prospecting activities. Residents will always be treated with respect and courtesy .		

i) Financial Provision

1. Determination of the amount of Financial Provision.

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

The following closure objectives will be applicable for concurrent rehabilitation:

- Land disturbed will be rehabilitated to a stable and permanent form suitable for subsequent land use e.g., crop farming and livestock farming.
- The final land use will be like surrounding land-use i.e., crop farming & Livestock farming (cattle & sheep).
- There will be no adverse environmental effect outside the small, disturbed areas (1.32 ha) per borehole and the affected area will be shaped to ensure effective drainage.

The closure objectives are to minimize disturbance wherever possible so that normal land use can continue after closure. Monitoring and maintenance of rehabilitated areas forming part of site closure to ensure the long-term effectiveness and sustainability of measures implemented. Rehabilitation of areas that will be disturbed because of prospecting activities to a land capability that will support and sustain a predetermined post-closure land use. The closure objectives include:

- Eliminating any safety risk associated with drill holes and sumps though adequate drill hole capping and backfilling
- Remove and/or rehabilitate all pollution and pollution sources, such as waste materials and spills
- Establishing the rehabilitated area, which is not subject to soil erosion and may result in the loss of soil, degradation of the environment and pollution of surface water resources
- Restore disturbed area and re-vegetate these areas with grass species naturally occurring in the area to restore the ecological function of such areas as far as is practicable

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

The environmental objectives in relation to closure were consulted with affected parties. It was explained that should the prospecting yield negative results, then the

end use for area will revert to its pre-prospecting land use. The end-use of the area will therefore not be changed by the prospecting operations.

Minimise the area to be disturbed and to ensure that the areas disturbed during the prospecting activities are rehabilitated and stable, as per the commitments made in the EMPr. Sustain the pre-prospecting land use and return the site to its near natural state as far as possible.

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

The activities involved are for prospecting and will involve no permanent removal of soil and rock.

Should the prospecting yield negative results, then the end use for area will revert to its pre-prospecting land use. The end-use of the area will therefore not be changed by the prospecting operations.

However, should the prospecting operation yield positive results, then the farm could be subject to bulk sampling, mining rights or permit application and another more comprehensive Public Participation, Scoping, EIA and EMPr process.

If a mining right is granted, then the area will be rehabilitated according to the requirements of the approved Environmental Management Programme that would apply throughout the life of the mine.

Rehabilitation of the prospecting site

To the effect on plants, seeds should be collected from plants reserved prior to disruption. If seeds are harvested from nearby seedbanks, the availability of seeds as a food source for several animals and birds may be indirectly affected. To facilitate establishment, replanting should only take place in springs or early summers (September to November), once the first rains have fallen.

The areas shall be cleared of any polluted soil upon the completion of the prospecting project. The surface shall then be ripped or ploughed to a depth of at least 300 mm and the surface of the surface previously stored adjacent to the site shall be distributed uniformly over the entire area to its original depth. If required, the area is then fertilized (based on a soil analysis). A plant seed mix adapted to represent the local indigenous flora is to be planted at the site. The surface shall be scarified or torn where the site has been rendered devoid of vegetation/grass or where soils have been compacted due to traffic.

Before and during the prospecting activity and after recovery and closure, photographs of the camp, office locations and various borehole locations shall be taken at selected fixed points and kept on record for the knowledge of the Regional Manager.

Destruction/removal of infrastructure

On completion of operations, all structures on the prospecting terrain shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act,2002 (Act No. 28 of 2002). Infrastructure that will be demolished should be assessed for its suitability to be re-used or recycled. these proposed prospecting activities will not involve permanent infrastructure. After drilling has been completed in one area, the drilling team will ensure the site is Reverted to its original state by implementing the measures listed in Table 18 below.

Table 23: Rehabilitation measures.

Aspect/Impact	Rehabilitation Measure	Monitoring Frequency and Responsibility
Removal of construction structures	• Clear and completely remove from site all construction plant equipment, storage containers, signage, temporary fencing, • temporary services, fixtures and any other temporary works; and Ensure that all access roads utilised during construction (which are not earmarked for closure and rehabilitation) are returned (as far as possible) to their state prior to construction.	Once-off, Limmkholo Investment (Pty) Ltd
Vegetation clearing/Replanting	• Remove any emerging alien and invasive vegetation to prevent further establishment; • All planting work is to be undertaken by suitably qualified personnel making use of • the appropriate equipment;	When revegetation is done and in blooming season,

	Transplant during the winter (between April and September); and Plant indigenous plants to minimise the spread of alien and invasive vegetation.	
Topsoil replacement	• Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas of the • prospecting site, including temporary access routes and roads. Replace topsoil to the original depth (i.e. as much as was • removed prior to construction). Prohibiting the use of topsoil suspected to be contaminated with the seed of alien vegetation. Alternatively, the soil is to be sprayed with specified herbicides. Backfill planting holes with excavated material / approved topsoil, thoroughly mixed with weed free manure or compost (per volume about one quarter of the plant hole), one cup of 2:3:2 fertiliser and an approved ant and termite poison. Avoid compaction of soil as the single problem limits the effective of rehabilitation	Once-off, Limmkholo Investment (Pty) Ltd

Alien Plant Management Plan

The Alien and Invasive Species Regulations of the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA) regulates all invasive organisms in South Africa and categorizes invasive plant species into four different categories: Category 1a & 1b, Category 2 and Category 3. Land users must control these plants by means of the methods prescribed in the Act. Unless authorised thereto in terms of the National Water Act, 1998 (Act No. 36 of 1998), no land user shall allow category

2 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland. Category 3 plants are also prohibited from occurring within close proximity to a watercourse (source: Droogenfontein, Vegetation Assessment, 2013).

In terms of the National Environmental Management: Biodiversity Act, invasive species are either prohibited or require a permit to be reserved on site. It is recommended that these species are controlled using registered control methods. The compilation of an Alien Plant Management Plan is recommended to achieve control of alien plants as follows:

- Prevention, early detection and eradication of weed species is the most economical and effective means of invasive plant management.
- Minimize soil disruption during both prospecting activities and rehabilitation
- Ensure vehicles and equipment are clean of invasive plants and seed
- Limit the movement of weed-infested soil.

Final Land use after rehabilitation

After the prospecting operations, the use of Trekpad land within the proposed prospecting project area will not change. However, the area will need to be monitored every second month for the first three (3) years after borehole drilling, especially on the drilled rehabilitated area, until the land brings to its original state.

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

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

The land use capability assessment should be done before commencement of prospecting activities thus assumes fundamental importance in determining the rehabilitation plan. Safety after the completion of the prospecting activities will be

done by concurrent rehabilitation of drill holes. Overburden will be recorded, and the holes filled back simultaneously.

compaction is the greatest single factor limiting the effective of rehabilitation.
Due to the nature of the activities, the impacts will be extremely limited and of short duration. The management plan is provided in such a manner as to ensure concurrent rehabilitation. The areas for drilling purposes will be the main area experiencing impacts. In this event the activities will be temporary in nature, and a detailed management plan has been provided to address potential impacts associated with these activities

To minimise compaction of replacement of soil

- Move soil when is dry. Soils should only be handled during dry season.
- Use appropriate equipment. Equipment used to replace soil has a major effect on compaction. After soil replacement, initial smoothing of the rough soil. Minimise travelling over the re-created profile

The objective of rehabilitation is to establish natural vegetation (e.g to enhance biodiversity) and where soil have been stripped and replaced directly with the seed-containing horizon on top, there should be no requirement for seed-ed preparation or seeding.

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

The quantum of the financial provision required is **R43769**. The Company must annually update and review the quantum of the financial provision (as per Regulation 54 (2) of the MPRDA).Regulation 54 deals with the quantum of financial provision and stipulates that it must be updated and reviewed annually. It must include, amongst others, a detailed breakdown of the cost required for post-closure management of residual and latent environmental impacts.

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

Limmkholo Investment(Pty) Ltd herewith confirms both its capacity and willingness to make the financial provision required should the prospecting right be granted. The amount is anticipated to be an operating cost and provided for in the Prospecting Work Programme (PWP).

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

g. **Monitoring of Impact Management Actions**

h. **Monitoring and reporting frequency**

i. **Responsible persons**

j. **Time period for implementing impact management actions**

k. **Mechanism for monitoring compliance**

Table 24: Mechanism for monitoring

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
Drilling (Site Establishment)	The clearing of vegetation	Weekly monitoring	Appointed drilling contractor	Weekly, annually by independent environmental assessment practitioner to compile the required annual environmental compliance report required by the DMRE
Drilling	The storage of hydrocarbon-based materials on site	Weekly monitoring	Appointed Drilling Contractor	Weekly, annually by independent environmental assessment practitioner to compile the required annual environmental compliance report required by the DMRE
Drilling	On-site waste management	Weekly monitoring	Environmental Control Officer	Weekly, annually by independent environmental assessment practitioner to compile the required annual environmental compliance report required by the DMRE
Drilling	The creation of roads/tracks	Weekly monitoring	Appointed drilling contractor	Daily by hired contractor, annually by independent environmental assessment practitioner to compile the required annual environmental compliance report required by the DMRE

Drilling	The removal of soil	Weekly monitoring	Drilling Contractor	Weekly done by contractor, annually by independent environmental assessment practitioner to compile the required annual environmental compliance report required by the DMRE
Drilling	Driving activities	Weekly monitoring	Licensed Driver	Daily by qualified driver, independent environmental assessment practitioner to compile the required annual environmental compliance report required by the DMRE
Drilling	Groundwater: Monitor the water quality of the boreholes	Weekly monitoring	Hydrogeologists	Weekly by Hydrogeologist, annually by independent environmental assessment practitioner to compile the required annual environmental compliance report required by the DMRE

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

Regular monitoring of all the environmental management procedures and mitigation measures shall be carried out by the Company in order to ensure that the provisions of this EMPr are adhered to. Formal monitoring and performance assessment of the EMPr will be undertaken annually. A framework for a monitoring and performance assessment report is included in Appendix. Site photographs taken before drilling commences after each frilling site has been rehabilitated must be included in the performance assessment reports. Environmental audit report will be submitted annually.

m. Environmental Awareness Plan

(1) Manner in which the applicant intends to inform his or her employees of an environmental risk which may result from their work.

All employees will be required to undergo site induction. Additionally, daily toolbox talks will be held each morning before the activities for the day are commenced.

The Site Induction training will focus on the following:

- Discussion of environmental impacts as indicated in the Impact Assessment Table
- Waste management –The removal of all waste from site to prevent litter
- Water usage – Conservation of water, correlation between water & erosion.
- Driving protocol – Pre-start vehicle checks prior to driving, adhering to speed limits on dirt roads.
- Famers protocol
- Environmental mitigation – Example no collection of wood, no open fires, no snaring or poaching of animals, no unnecessary destruction of vulnerable natural vegetation, clean-up of hydrocarbon spills, etc.
- Emergency procedure – Type of emergencies, type of alarms, emergency equipment, location of assembly point and identification of emergency wardens.

During the daily toolbox talks, the following will be discussed:

- Any environmental or health and safety incidents that may have occurred the previous day.
- Status of housekeeping on site.
- Ad hoc refresher in terms of emergency procedures.

All employees must be provided with environmental awareness training to inform them of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment.

Employees should be provided with environmental awareness training before prospecting operations start. All new employees should be provided with environmental awareness training Induction courses will be provided to all employees by a reputable trainer.

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

Please refer to the following:

- Impact Table

Environmental training needs for each section should be identified and addressed to ensure environmental management is part of day-to-day operations. The environmental risk responsibilities guide the training requirements of everyone. The responsibility for each level of management according to the Integrated Risk Management and ISO14001 role descriptions are. Environmental training recommended for the different levels of management guide the training needs identification process. This is a minimum guideline, and any additional training can be added where section specific issues or high-risk items require training and awareness It is the responsibility of the line manager to ensure environmental training needs for individual staff members are identified, agreed to, facilitated and tracked.

n. Specific information required by the Competent Authority

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

- Prospecting Work Programme
- The Financial Provision reviewed on an annual basis indicating work that would have been completed and money used for rehabilitation as required by the law.
- Performance assessment
- External Audits

o. UNDERTAKING

The EAP herewith confirms

a) The correctness of the information provided in the reports

b) The inclusion of comments and inputs from stakeholders and I&APs;

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

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

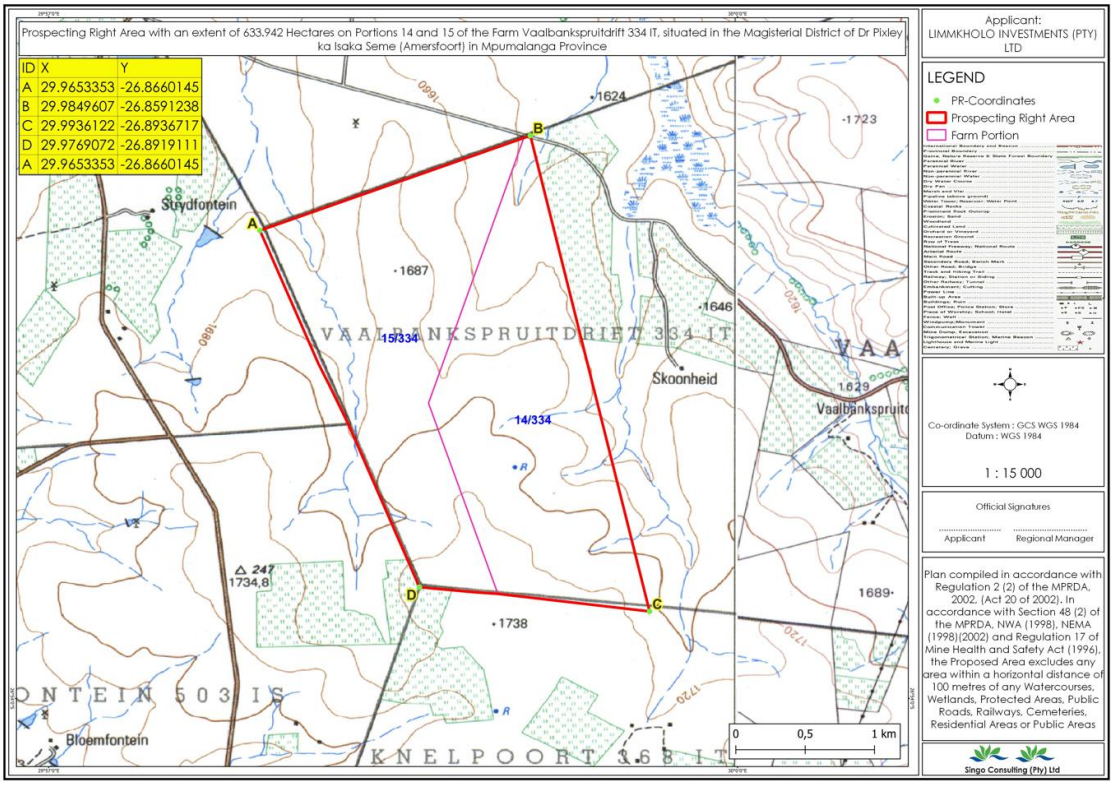
Signature of the environmental assessment practitioner:

Singo Consulting (Pty) Ltd

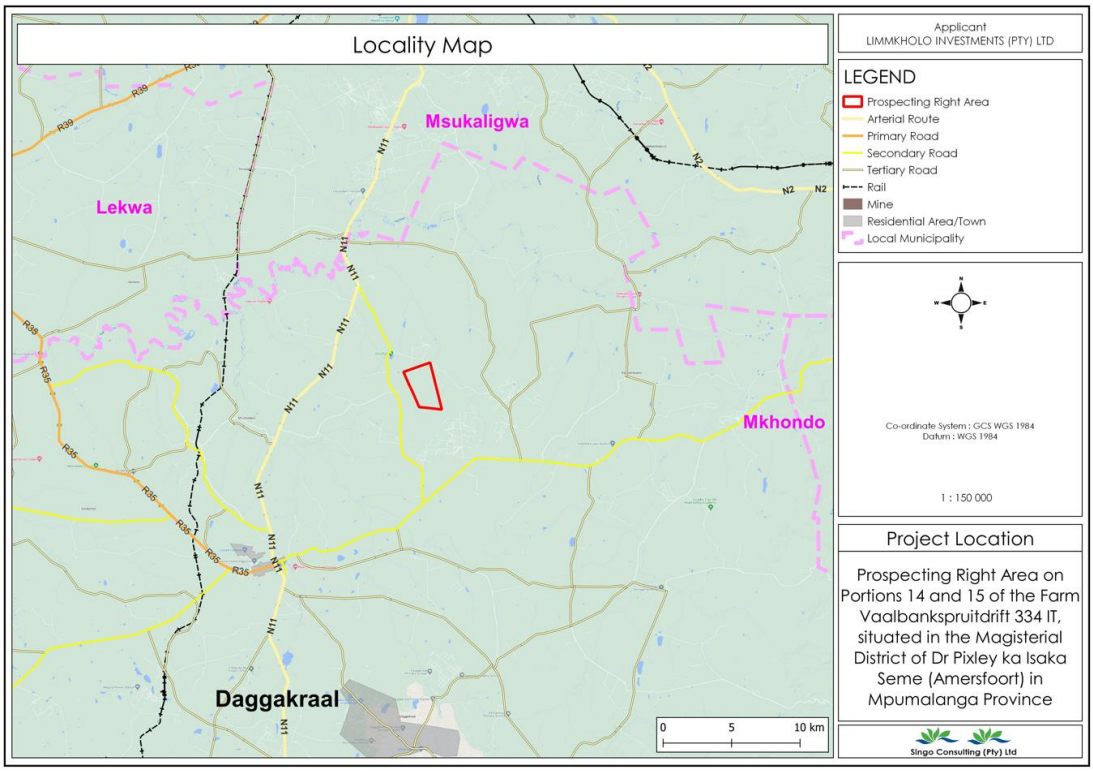
Name of company:

Date :

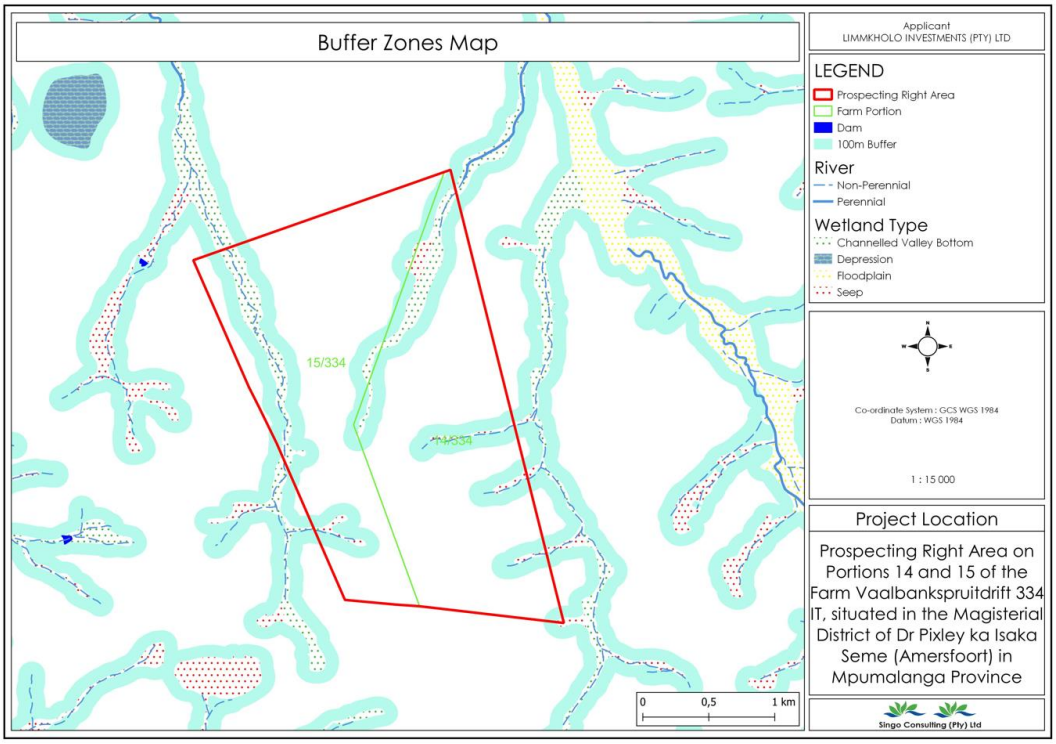
Appendix 1: Project Maps



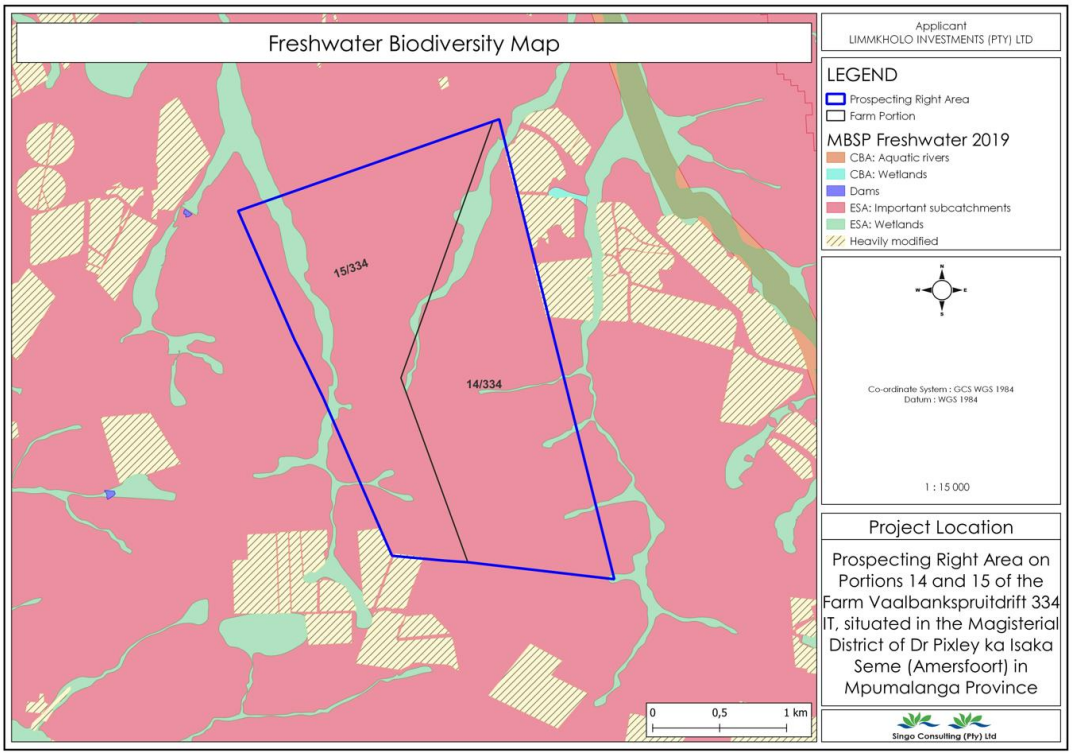
REG 2.2 MAP



Locality Map

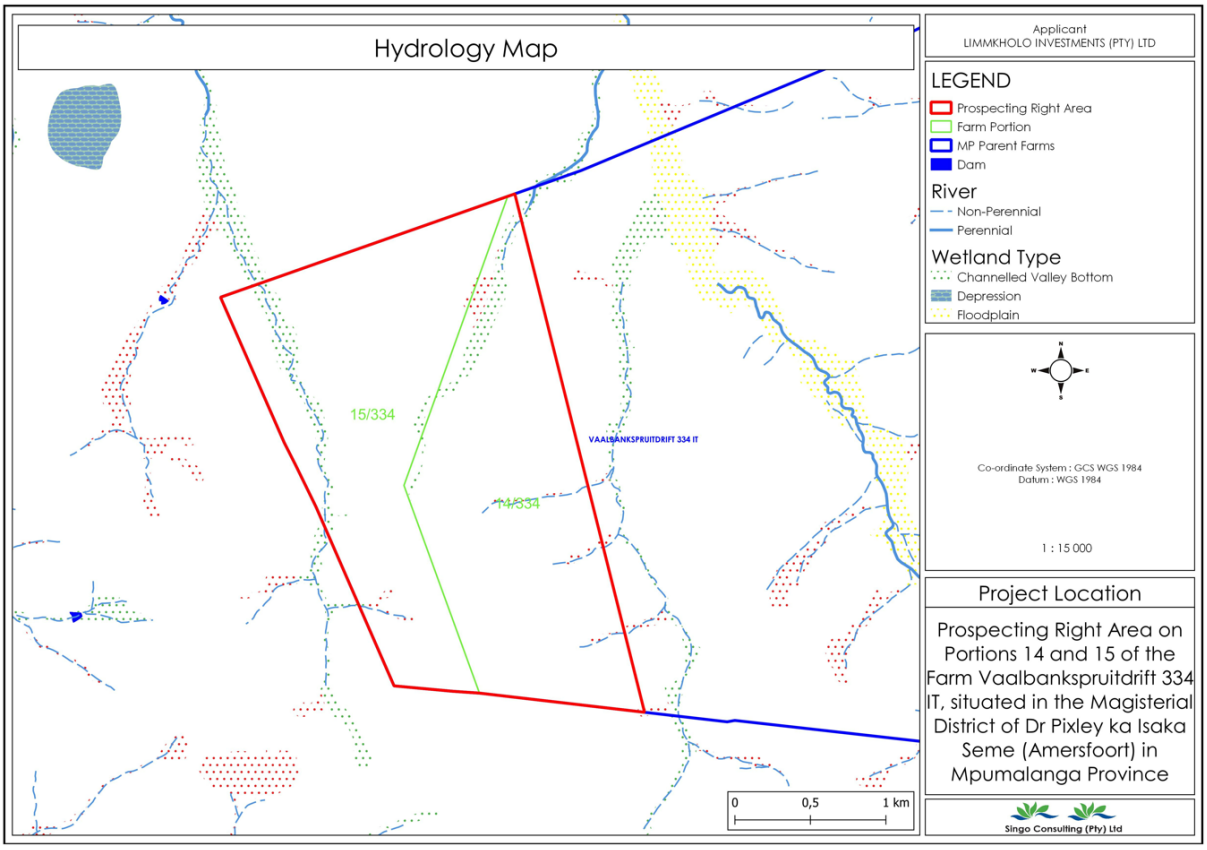


Buffer Map

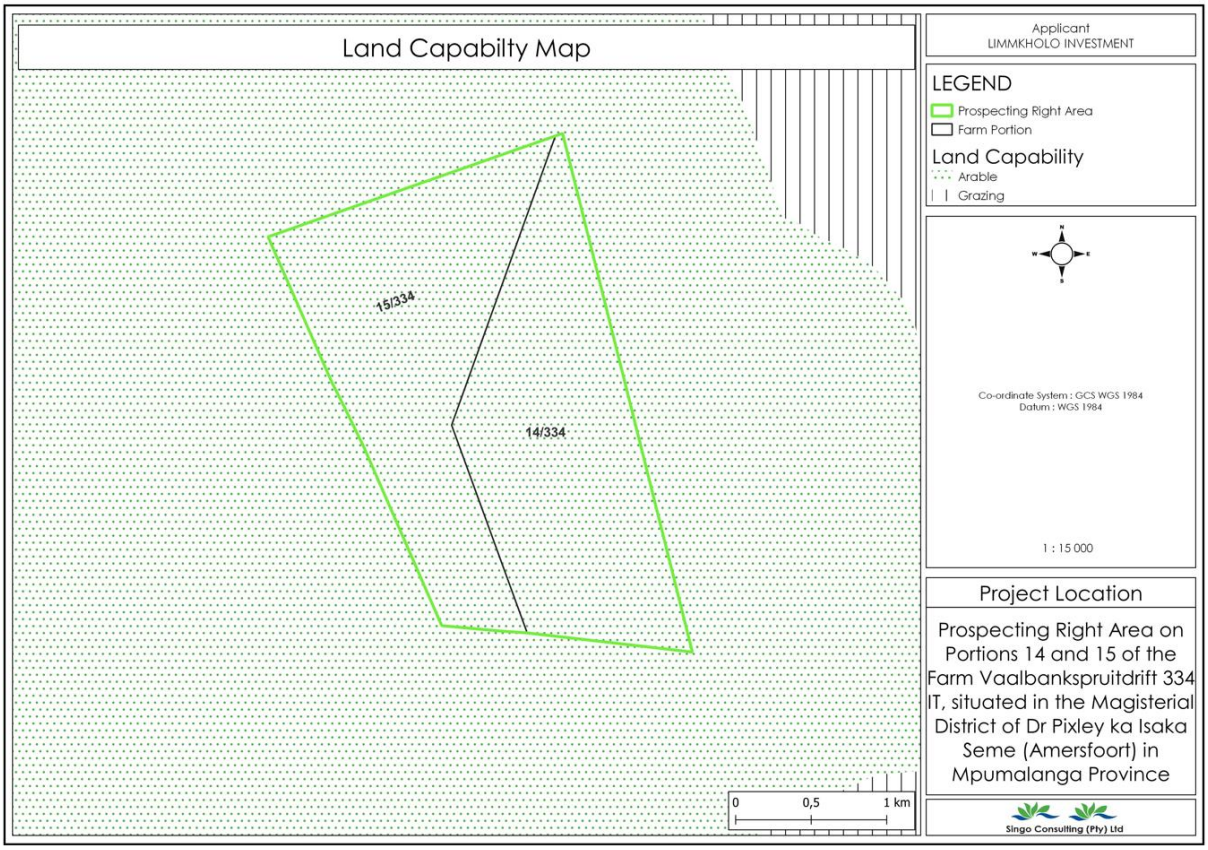


Freshwater Biodiversity Map

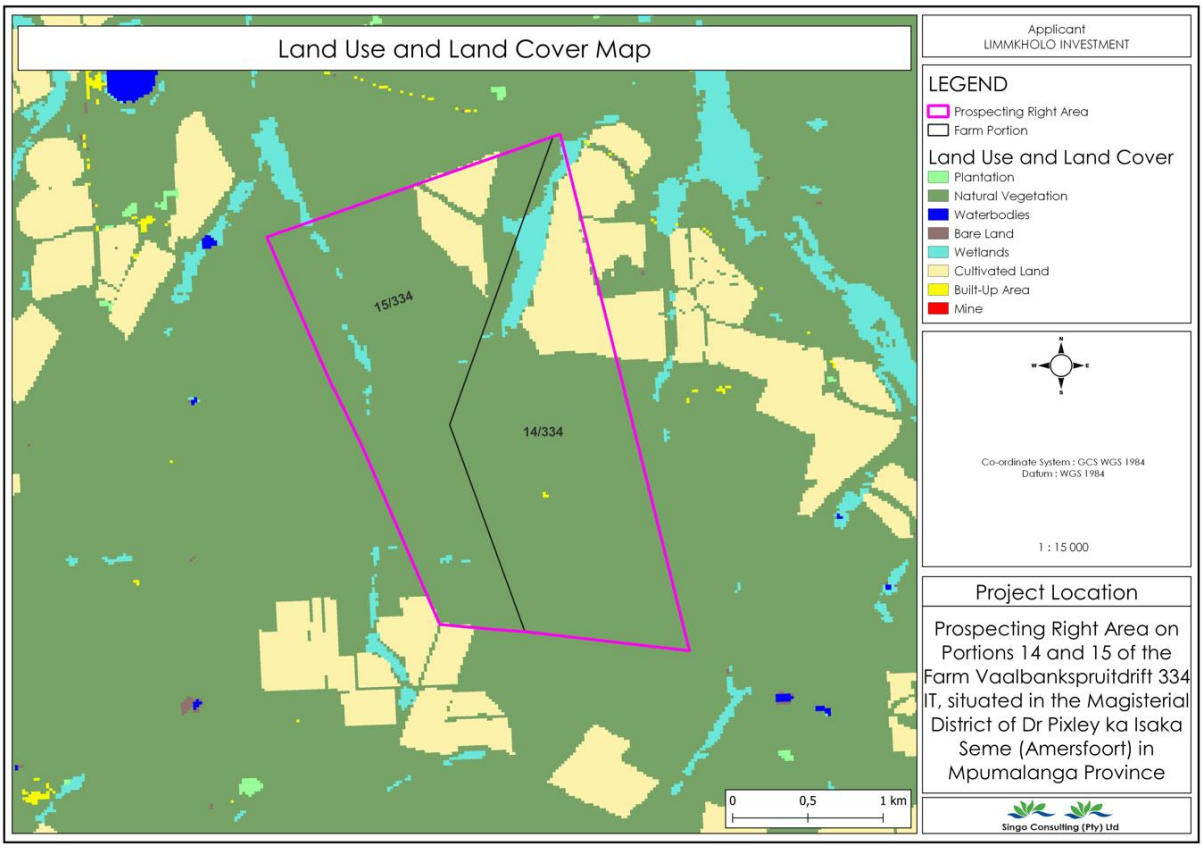
Google Earth Map



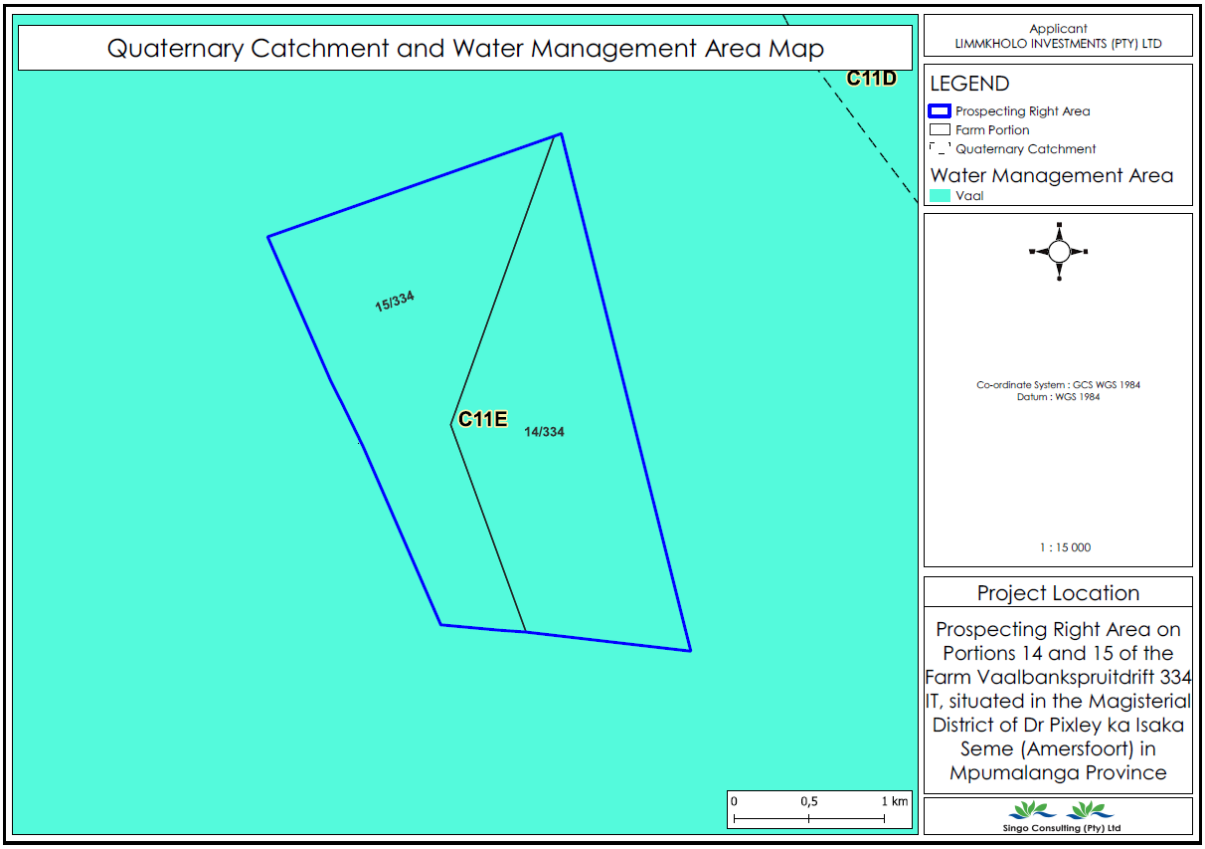
Hydrology Map



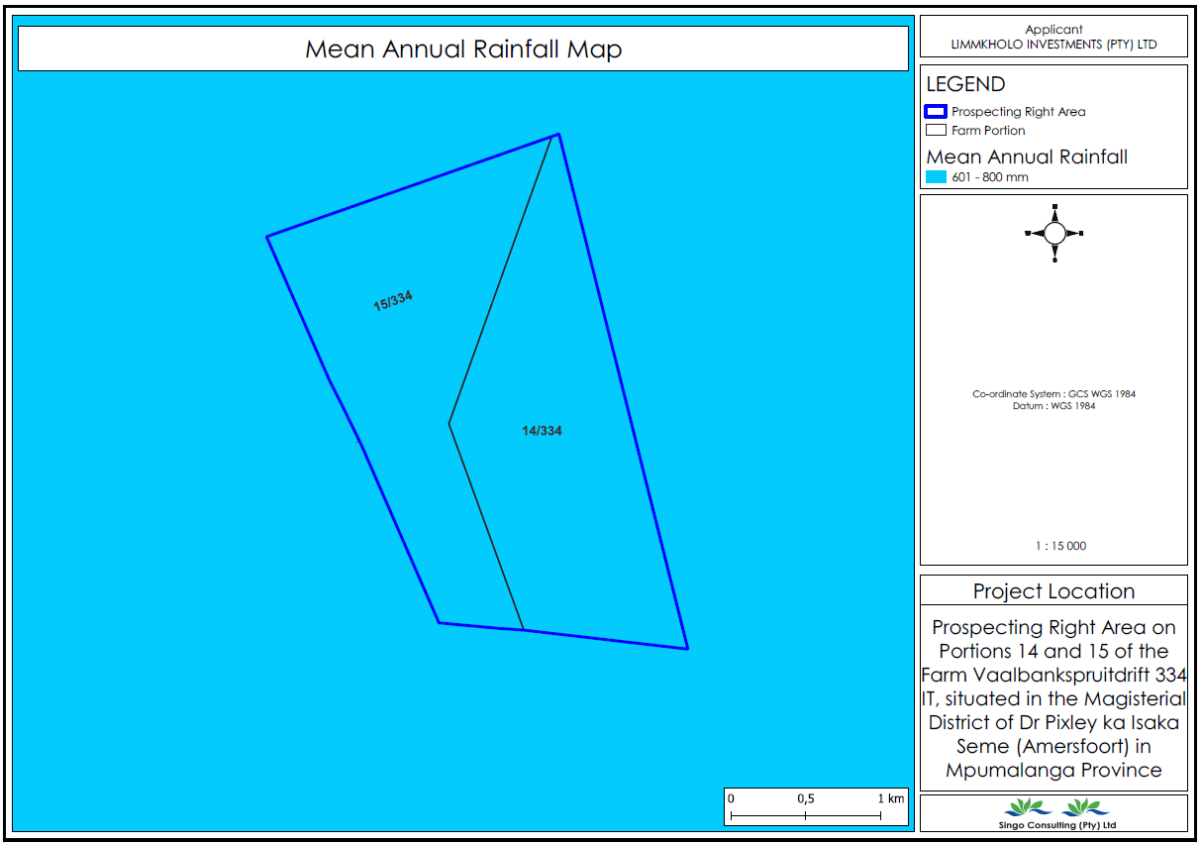
Land Capability Map



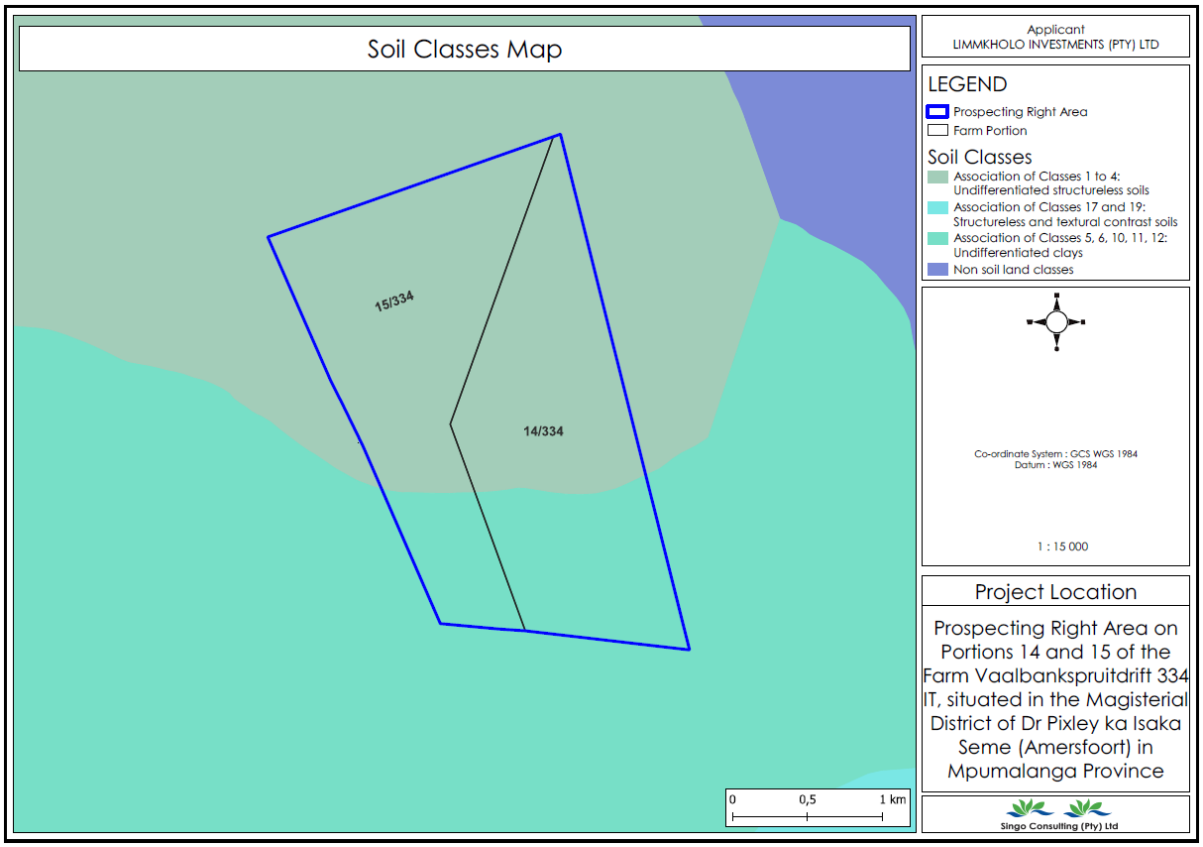
Land Use and Land Cover Map



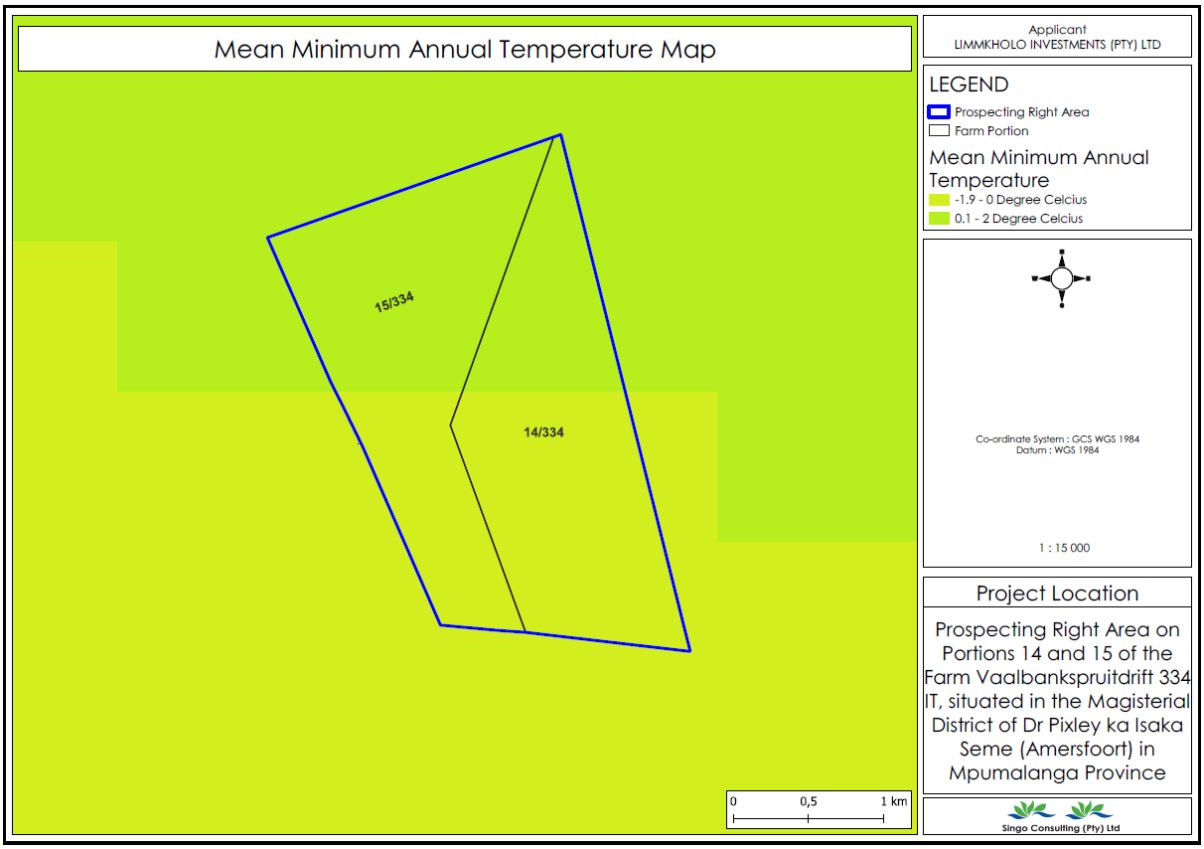
Quaternary Catchment and Water Management Area Map



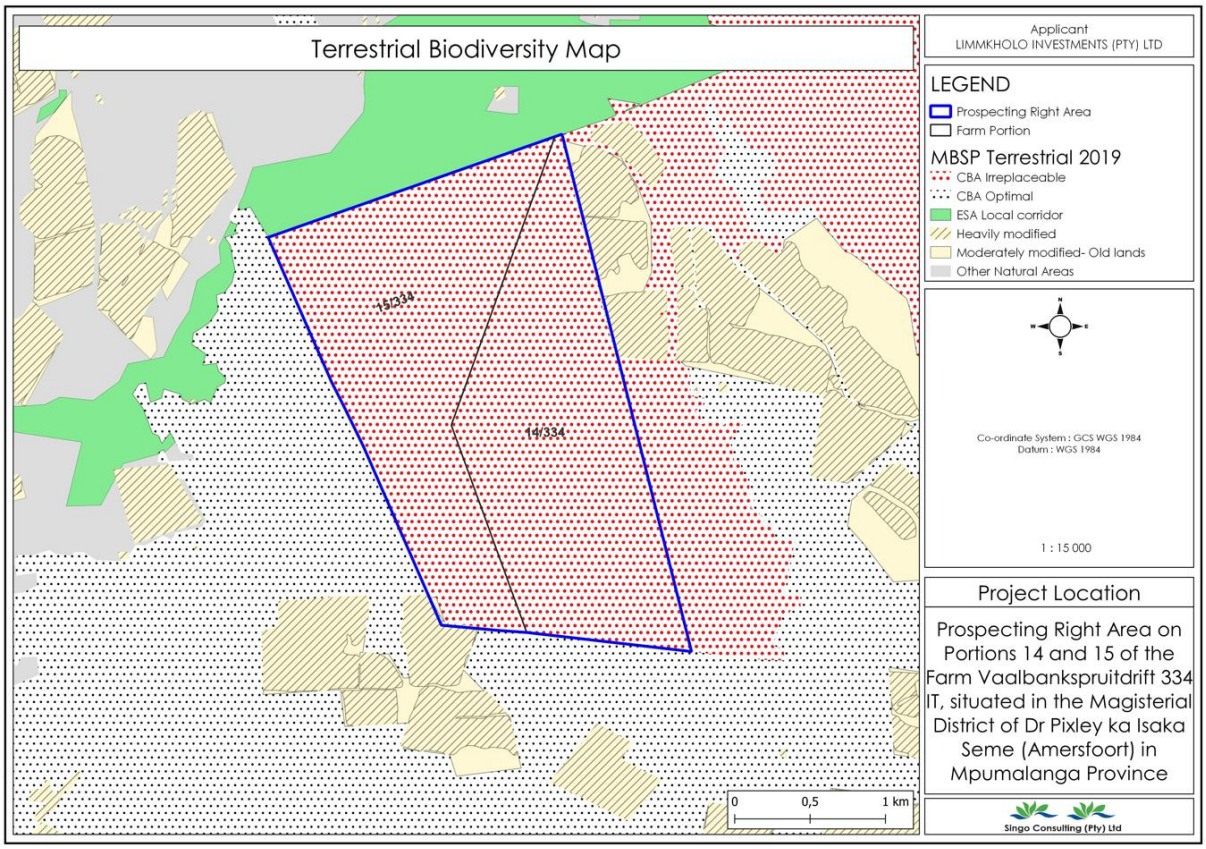
Mean Annual Rainfall Map



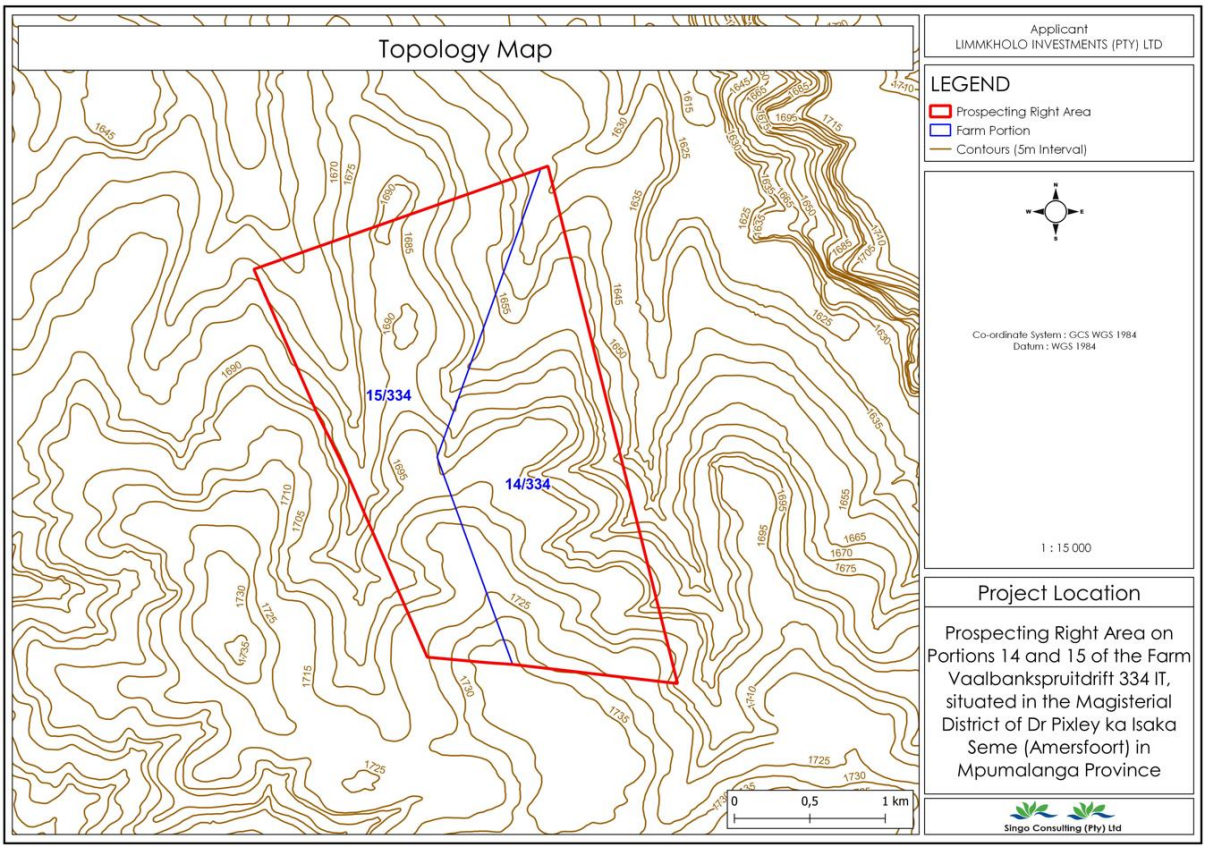
Soil Classes Map



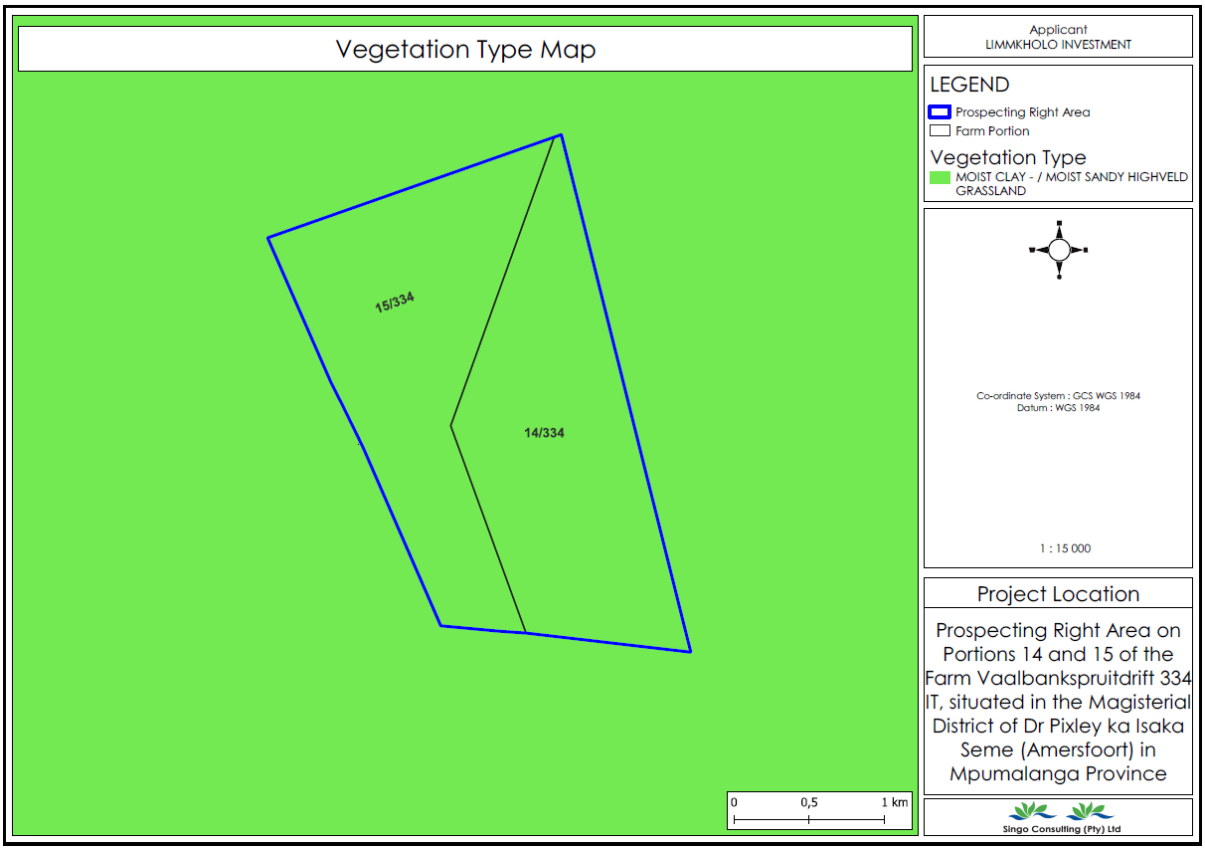
Mean Minimum Annual Temperature Map



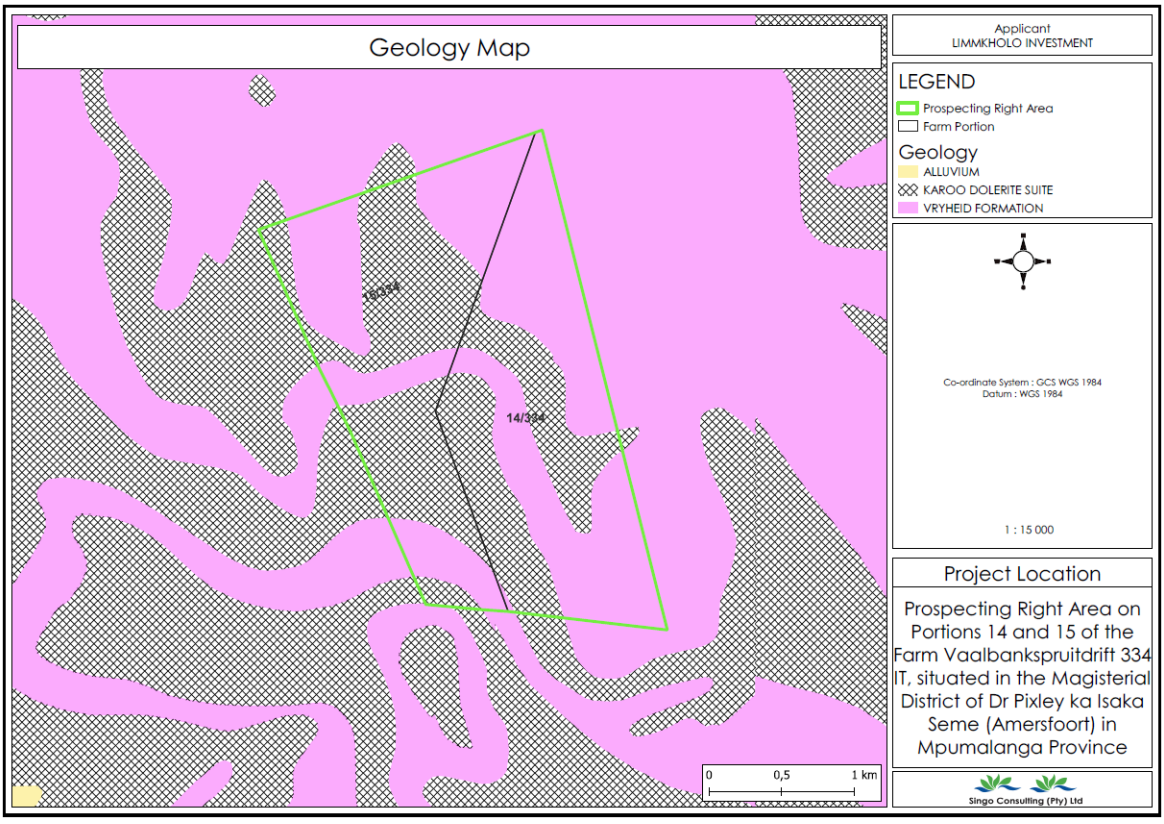
Terrestrial Biodiversity Map



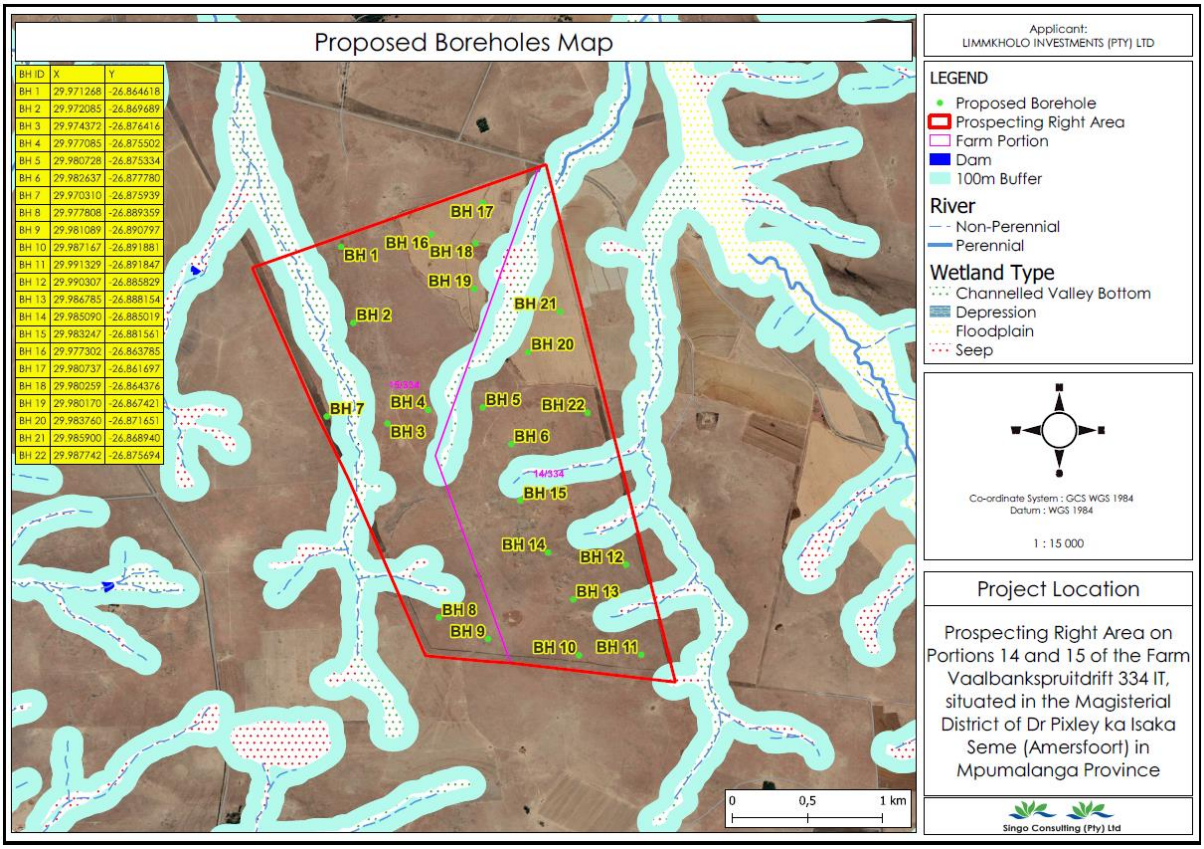
Topology Map



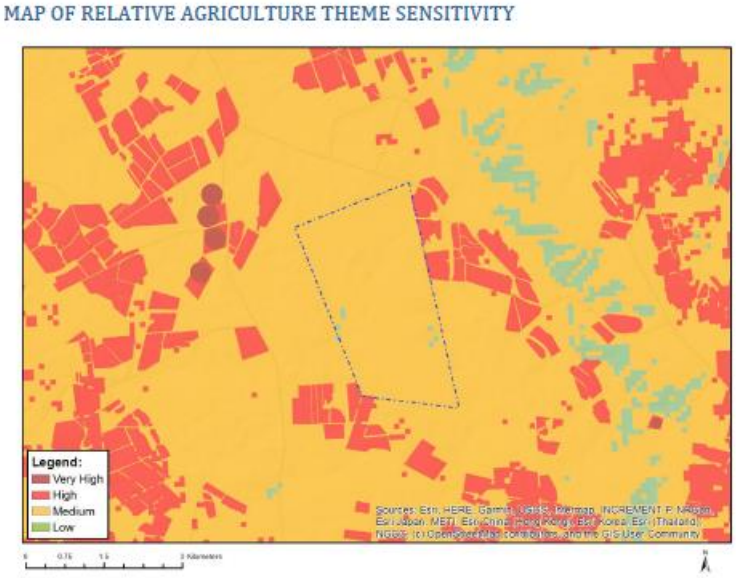
Vegetation Map



Geology Map



Proposed Boreholes Map



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Map of Relative Agricultural Theme Sensitivity

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

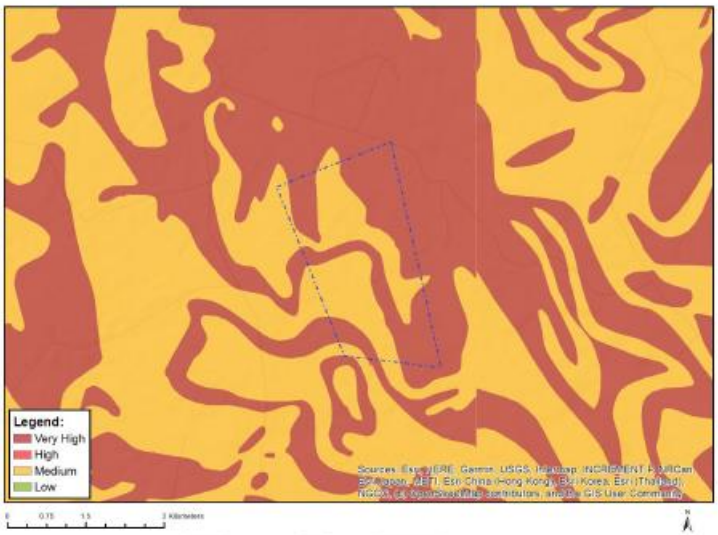
Map of relative Aquatic Biodiversity Theme Sensitivity

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Map of Relative Archeological & Cultural Heritage Theme Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Map of Relative Paleontology Theme Sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY

Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Map of Relative Plant Species Theme Sensitivity

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Map of Relative Terrestrial Biodiversity Theme Sensitivity

Appendix 2: Screening Report

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: 15309 PR

Project name: Prospecting Right application on portion 14 & 15 of the farm Vaalbankspruitdrift 334 IT

Project title: Prospecting Right application on portion 14 & 15 of the farm Vaalbankspruitdrift 334 IT

Date screening report generated: 21/07/2022 10:49:18

Applicant: Limmkholo Investment (Pty) Ltd

Compiler: Singo Consulting (Pty) Ltd

Compiler signature: .....

Application Category: Mining|Prospecting rights

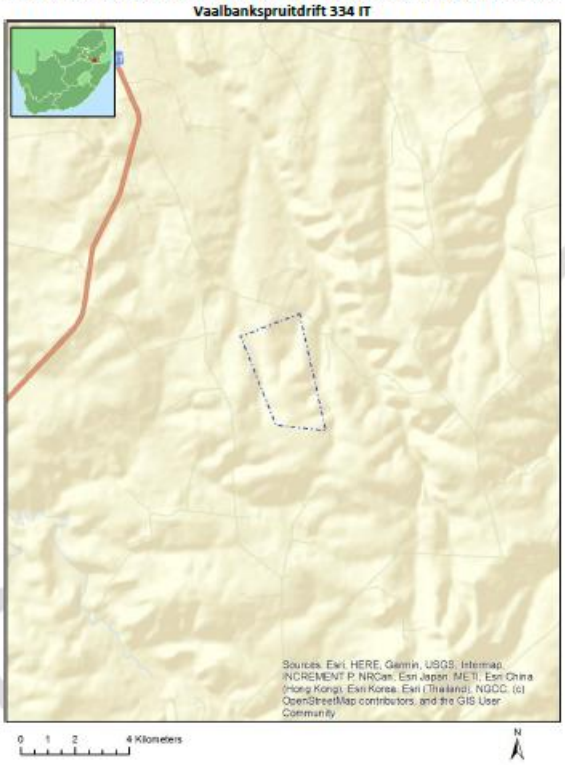
Singo Consulting (Pty) Ltd

Table of Contents

Proposed Project Location

Orientation map 1: General location

General Orientation: Prospecting Right application on portion 14 & 15 of the farm Vaalbankspruitdrift 334 IT



Map of proposed site and relevant area(s)

Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	VAALBANKSPRUITDRIFT IS	334	0	26°52'27.07S	30°0'37.82E	Farm
2	KNELPOORT	368	0	26°54'46.44S	30°0'30.08E	Farm
3	STRYDFONTEIN	500	0	26°51'45.67S	29°56'30.32E	Farm
4	BLOEMFONTEIN	503	0	26°54'7.52S	29°57'10.25E	Farm
5	BLOEMFONTEIN	503	0	26°53'20.66S	29°57'12.86E	Farm Portion
6	STRYDFONTEIN	500	0	26°52'10.66S	29°57'28.64E	Farm Portion
7	VAALBANKSPRUITDRIFT IS	334	14	26°52'47.14S	29°59'6.5E	Farm Portion
8	KNELPOORT	368	8	26°53'56.18S	29°59'18.14E	Farm Portion
9	KNELPOORT	368	5	26°54'20.32S	29°58'41.85E	Farm Portion
10	VAALBANKSPRUITDRIFT IS	334	15	26°52'25.8S	29°58'31.68E	Farm Portion

Development footprint[1] vertices:
No development footprint(s) specified.

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: Mining|Prospecting rights.

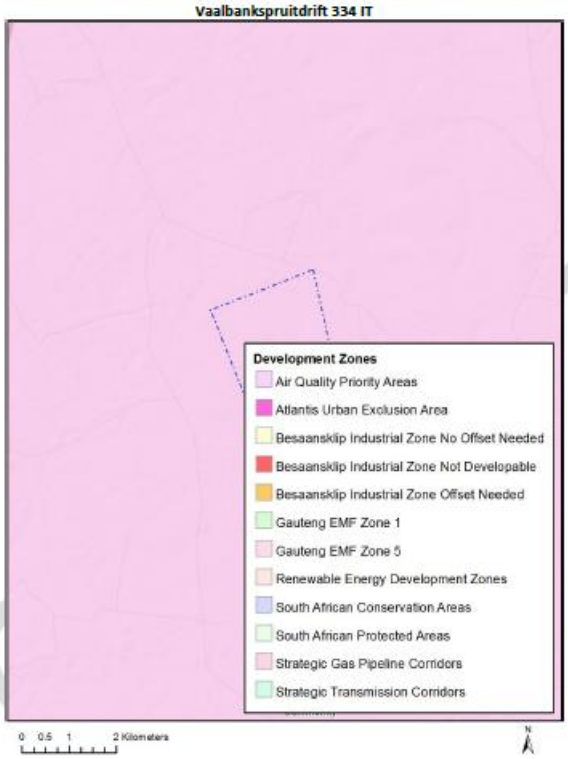
Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Air Quality-Highveld Priority Area	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/HIGHVELD_PRIORITY_AREA_AQMP.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones

Project Location: Prospecting Right application on portion 14 & 15 of the farm Vaalbankspruitdrift 334 IT



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity

Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme			X	
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

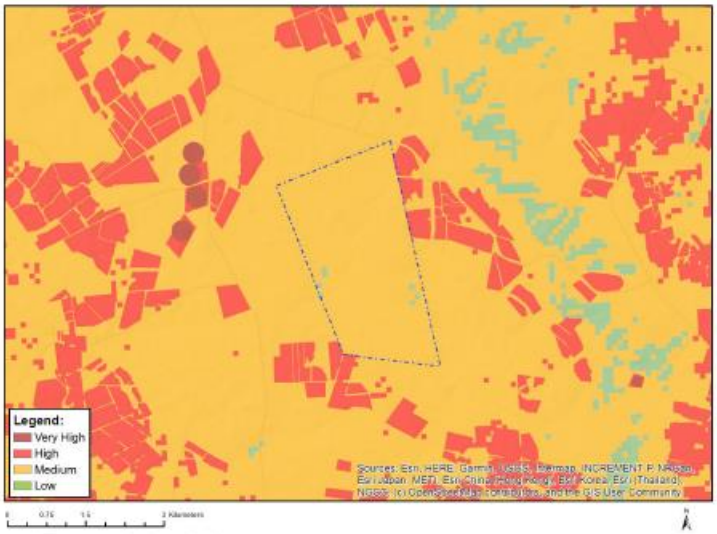
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf

6	Noise Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf
7	Radioactivity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
9	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

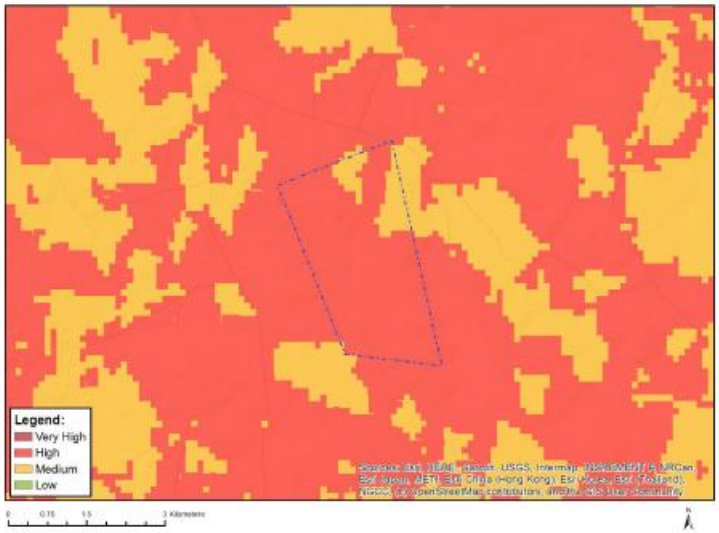


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



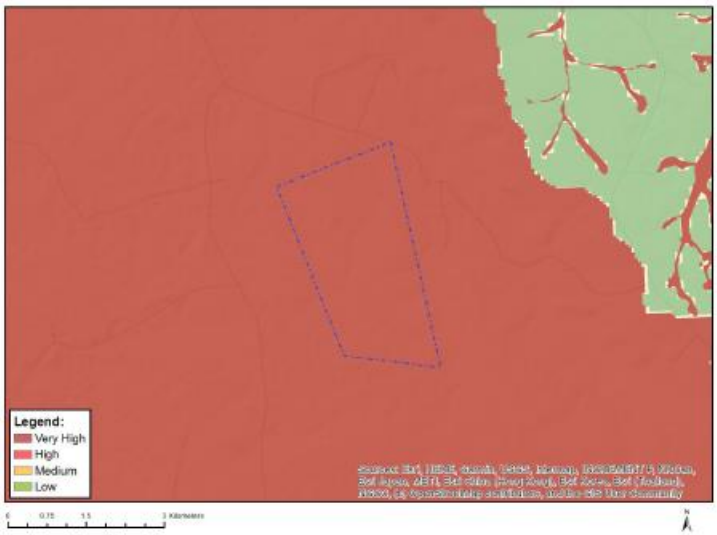
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Balearica regulorum
High	Aves-Geronticus calvus
Medium	Aves-Eupodotis senegalensis
Medium	Aves-Sagittarius serpentarius
Medium	Aves-Tyto capensis
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Ourebia ourebi ourebi

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Wetlands and Estuaries
Very High	Freshwater ecosystem priority area quinary catchments

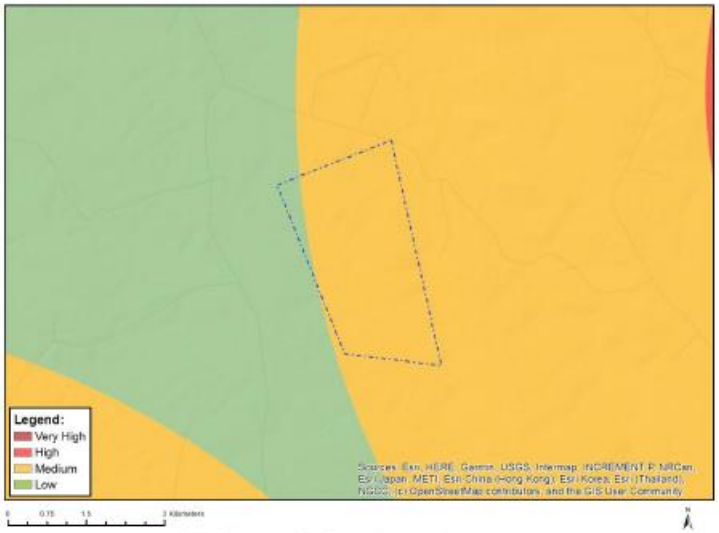
MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Medium	Between 8 and 15 km of other civil aviation aerodrome

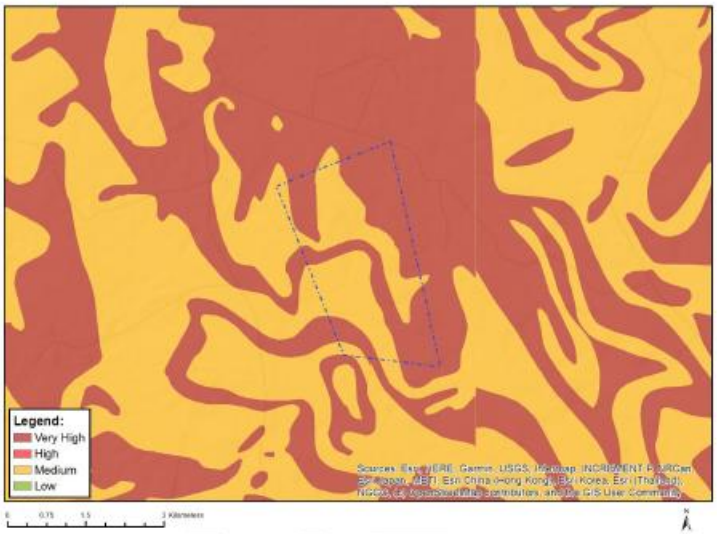
MAP OF RELATIVE DEFENCE THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity
Very High	Features with a Very High paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY

Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 851

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Critical biodiveristy area 1
Very High	Critical biodiveristy area 2
Very High	Ecological support area: local corridor
Very High	FEPA Subcatchments
Very High	Protected Areas Expansion Strategy

Appendix 3: EAP CV

(Due to POPI Act sensitive information will not be disclosed to the public

Appendix 4: Financial Provision

CALCULATION OF THE QUANTUM

Applicant: Limmkholo Investment (Pty) Ltd
Evaluator: Abel Mojapelo

Ref No.: MP30/5/1/1/2/ 15309 PR
Date: 18-Aug-22

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	3913,79	49	0,08	1	15342,0568
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0	284292	1	1	0
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	189528	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	L
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	685612	1	1	0
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	1,32	150138	0,08	1	15854,5728
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0	57087	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		31196,6296

1	Preliminary and General	3743,595552	weighting factor 2 1	3743,595552
2	Contingencies	3119,66296		3119,66296
			Subtotal 2	38059,89
			VAT (15%)	5708,98
			Grand Total	43769

Singed: Abel Mojapelo
Date: 18/08/2022

Appendix 5: Impact Management Outcomes.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Whether listed or not, e.g. excavations, blasting stockpiles, discard dumps/dams, loading, hauling, transport, water supply dams/boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control berms, roads, pipelines, power lines, conveyors, etc.	Including the potential impacts for cumulative impacts, e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.		In which impact is anticipated e.g. construction, commissioning, operational, decommissioning, closure, post-closure.	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. E.g. modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation.	Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Planning and Project Management	EMPr	Project Management	Planning	A finalized EMPr must address all authorization conditions stipulated by the DEA (and other commenting authorities). EMPr must encompass all environmental impact mitigation measures as identified in the final BAR.	MPRDA & NEMA
	Appointment of Environmental Officer	Project Management	Planning	The Limmkholo Investment environmental geologist will serve as the Environmental Officer during construction, given the short duration of construction and the low Limmkholo Investment environmental geologist will be responsible for monitoring	MPRDA & NEMA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				the compliance of the construction workers and employees on site with the EMPr and ensure their co-operation.	
	Permits and Permissions		Planning	Pixley Ka seme Local Municipality must ensure that all licensing, permits or certificates required for the project are obtained and in place prior to the commencing of any construction activities on site.	MPRDA & NEMA
	Emergency Response Planning	Safety and health personnel on site	Planning	Plan all emergency responses including: • Response procedures to fires, explosions, or any accidents that will require rapid medical responses; and • Responses to community and stakeholder concerns and communication procedures with potentially affected parties (I&AP).	MPRDA & NEMA
	Project Schedule	Undertaking the project in a timeous manner	Planning	Plan and develop a construction sequence to alleviate noise generation during the construction phase.	N/A
	Method statement	Project Management	Planning	Ensure that a method statement has been compiled and submitted to the Site/Construction manager.	N/A
	Grievances	Project Management	Planning	Develop grievance mechanisms for the recording and management of complaints and grievances specifically including (but	N/A

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				not limited to) grievances from those living in the area.	
	Records and Administration	Project Management	Planning	Ensure the following are up to date and available on site: • A complaint registers. • •An approved method statements. • Copies of the EMPr. • Environmental Permits and authorizations. • Copies of weekly checklists, compliance reports, incidence reports and corrective action reports. • •Photographs of areas of concern (photos of non-compliance areas as well corrective action). • Attendance registers of environmental awareness training.	
	Recruitment of Labour	Project Management	Planning	• Where possible, the contractor must make use of local labour in support of the local economy. • Advertise employment opportunities adequately, so as not to limit application opportunities. • Implement a transparent process of recruiting construction staff, following pre-established and accepted criteria.	Basic Conditions of Employment Act, No. 75 of 1997 (as amended)
PRE-DRILLING/EXPLORATION					
	Site establishment	Project	Planning	• The Contractor must, in agreement with the Construction Manager, decide upon an area	

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		Management		for the location of a construction camp. The construction camp should be properly demarcated and fenced, and be adequately sized, with enough space for site offices, construction vehicles, equipment, material and waste storage areas • The construction camp must be located in an area with minimal damage or disturbance to the environment. • Establish 'NO-GO' areas- where no construction personnel, equipment/machinery or vehicles are permitted. Any identified Environmental Sensitive or important areas should be designated as 'NO-GO' areas.	
	Site Housekeeping	Project Management	Planning	• The construction camp should always be kept clean and orderly.	
	Ablution Facilities	Project Management	Planning	• Enough toilet facilities should be provided near construction camp. The toilets should be properly covered and ventilated and should contain hand washing facilities. • Portable toilets should be properly secured to the grounds to avoid toppling in the case of a wind/storm event. • Ensure that all toilets function properly and are in a hygienic state. The toilets should be cleaned and emptied regularly. • Ensure that there are no spillages when toilets get cleaned and emptied. • Urination on site should be strictly prohibited.	

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Site establishment activities (-ve): • Vegetation clearance • Topsoil stripping & stockpiling • Drill pad compaction • Erection of office, toilets, fuel storage (if not by road tanker), water tanker, core storage • Vehicle movements Waste management	Cultural and heritage	Destruction or loss of Cultural and Heritage Resources: No cultural/heritage artefacts have been identified on site	Construction/ set-up	• Environmental Permits and authorizations. • Copies of weekly checklists, compliance reports, incidence reports and corrective action reports.	Heritage Act
	Noise	Noise Generation	Construction/ set-up	• Photographs of areas of concern (photos of non-compliance areas as well corrective action).	SANS 10103
	Visual	Visual intrusion	Construction/ set-up	• Attendance registers of environmental awareness training.	N/A
	Traffic	Increase in traffic volumes near the drilling site	Construction/ set-up	• Traffic signs to be put around the site to notify motorist of the activities • Construction vehicles to make trips on/off site only when necessary • Construction vehicles to adhere to local speed limits as far as possible when driving in around site	National Traffic Act Regulations
	Signage	Traffic volumes, safety	Construction/ set-up	• The construction management needs to communicate the commencement and duration of construction activities to the community.	National Traffic Act Regulations

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				• Clear signage needs to be put up to make and keep the community awareness of construction activities to prevent any hazardous occurrences. • Provide adequate safety warning signage on the roads.	
	Dust fall	Dust fall and nuisance from activities	Construction/ set-up	• Wet suppression should be applied to ensure that no visible dust is raised by any of the prospecting operations; • Separation of distance of minimum 500m, to be maintained between drill sites and dwellings; and • Low vehicle speeds will be enforced on unpaved surfaces.	GN R. 827 (NEMAQA
	Soil and vegetation	The potential impact of the proposed prospecting on the vegetation would occur at proposed drilling sites and the access routes used to get to these sites.	Construction/ set-up	• The soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required; No clear scraping (dozing) be carried out unless necessary to establish a level drill pad. • Rather that surface vegetation is cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow; and • Disturbed areas will be re-vegetated with locally indigenous species as soon as possible.	NEMBA
	Animal life	Animal life will be affected in	Construction/ set-up	• Environmental awareness training sessions should be part of the workers' induction and	NEMBA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep the animal life away from the site while the prospecting is ongoing.		site workshops; and • If any animals are encountered they must not be killed or injured, but should rather be removed or chased away from the site with the assistance of an animal specialist	
	Social	Friction between local residents/land owners and construction personnel	Construction/ set-up	• All operations will be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution; • All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some of the residents may not welcome the • prospecting activities in the area; • There will always be a strict requirement to treat residents with respect and courtesy.	NEMA
	Job creation	Employment will be created for the clearing of the land	Construction/ set-up	• No mitigation measures required.	NEMA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		and establishing the drilling site.			
	Storage and Disposal of Waste	Safety and aesthetic/ visual aspects of the property, as well as waste disposal practices	Construction/ set-up	• Litter generated by construction workers must be collected in containers that are clearly labelled and disposed of weekly at registered waste disposal sites. • Enough weather- and vermin- proof bins should be placed on site for the disposal of solid waste. Littering on site should be strictly prohibited. The burning of waste on site should also be prohibited. • All waste generated from construction activities (building rubble, solid and liquid waste etc.), should be disposed of as frequently at an appropriately licensed refuse facility. • Minimize waste generation, e.g. by providing re-usable items and refillable containers (e.g. for drinking water) and adopt a 'cradle to grave' responsibility for wastes. • Comply with legal requirements for waste management and pollution control and employ "good housekeeping" and monitoring practices.	National Waste Act
	Hazardous Waste	Safety and aesthetic/ visual aspects of the	Construction/ set-up	• Any hazardous waste that may be generated should be separated from general waste and stored in clearly marked and properly sealed secondary containers. • Any hazardous waste generated should be	National Waste Act

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		property, as well as waste disposal practices.		disposed of accordance with the Hazardous Chemical Substances Regulations, 1995 (Regulation 15).	
	Spills and Leaks	Safety and aesthetic/ visual aspects of the property, as well as waste disposal practices.	Construction/ set-up & Operation	• Any equipment that is leaking should be temporarily decommissioned and removed from the construction site to a surface with an impermeable surface and waste water collection system. • Spill response kits must be readily available and accessible to all personnel on site.	National Waste Act
	PPE			• Always Ensure that all persons on site use Personal Protective Equipment (PPE) , this including safety boots, safety vests, protective masks etc.	Employment Act
	Illegal Fires			• Ensure that no fires are ignited on site unless required for construction purposes, in which case the EC should designate areas for the fires. The designated areas should be as far as possible from vegetation.	NEMA
	Erosion	The properties of the receiving environment and ensuring that the	Construction/ set-up & Operation	• Ensure that erosion management and sediment controls are strictly implemented from the beginning of site clearing activities. • All topsoil stockpiles (if any) must be protected against wind, erosion and seeds, i.e. by use of shade cloth or netting. • Topsoil stockpiles should not exceed 2 m in	NEMA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		ground is not susceptible to erosion beyond that which can be rehabilitated.		height.	
PRE-DRILLING/EXPLORATION					
Exploration drilling (ve) • Drilling • Drill maintenance and refueling • Core sample collection and storage • Vehicle movements Waste generation and management	Noise	Noise generation	Operations	• Construction/setup, operational and decommissioning activities will be limited to daylight hours on Mondays to Saturdays from 08h00 – 17h00 and no activities on Sundays and public holidays. • Separation of distance of minimum 500m, but preferably 1000m to be maintained between drill sites and dwellings; Noise abatement equipment, such as mufflers on diesel engines, will be maintained in good condition. • If intrusive noise levels are experienced by any person at any point, the source of the noise will be moved if practical, or it will be placed in an acoustic enclosure, or an acoustic barrier will be erected between the source and the recipient.	Heritage Act
	Visual	Visual intrusions	Operations	• The drilling rig and other visually prominent items on the site will be in consultation with the landowner; • Make use of existing vegetation as far as possible to screen the prospecting operations from view; and	SANS 10103

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
				• If necessary, the operations can be screened from view by erecting a shade cloth barrier.	
	Traffic	Increase in traffic volumes near the drilling site	Operations	• Traffic signs to be put around the site to notify motorist of the activities • Construction vehicles to make trips on/off site only when necessary • Construction vehicles to adhere to local speed limits as far as possible when driving in around site	N/A
	Dust fall	Dust fall and nuisance from activities	Operations	• Wet suppression will be applied to ensure that no visible dust is raised by any of the prospecting operations; • Separation of distance of minimum 500m, to be maintained between drill sites and 100m from dwellings; and • Low vehicle speeds will be enforced on unpaved surfaces.	National Traffic Act Regulations
	Soil and vegetation	Soil and vegetation disturbance from drill pad preparation	Operations	• The soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required; No clear scraping (dozing) be carried out unless necessary to establish a level drill pad. Rather that surface vegetation be cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow; and • Disturbed areas will be re vegetated with locally indigenous species as soon as possible.	GN R. 827 (NEMAQA)
	Animal life	Animal life will be affected in	Operations	• Measures implemented during site establishment should apply in this phase as	NEMBA

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		the immediate vicinity of the drilling rig. It is anticipated that the noise and general activity will keep the animal life away from the site while the prospecting is ongoing.		well.	
	Social	Friction between residents/land owners and construction personnel	Operations	• All operations will be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution; • All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact that some of the residents may not welcome the prospecting activities in the area; • There will always be a strict requirement to treat residents with respect and courtesy.	NEMBA
	Job creation	Employment will be created for the clearing of the land	Operations	• No mitigation measures required.	Basic Conditions of

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		and establishing the drilling site.			Employment Act, No. 75 of 1997 (as amended)
DECOMMISSIONING AND REHABILITATION					
Rehabilitation of the drill sites and surroundings	Removal of construction structures	Ensuring the receiving environment is not impacted on any further, by dismantling machinery and equipment appropriately.	Rehabilitation	• Clear and completely remove from site all construction plant equipment, storage containers, signage, temporary fencing, temporary services, fixtures and any other temporary works; and • Ensure that all access roads utilized during construction (which are not earmarked for closure and rehabilitation) are returned (as far as possible) to their state prior to construction.	NEMA
	Waste and Rubble Removal	Visual aspects by preventing any further pollution.	Rehabilitation	• Clear the site of all inert waste and rubble, including surplus rock, foundations and batching plant aggregates. • Load and haul excess spoil and inert rubble to fill in borrow pits / dongas or to dump sites indicated / approved by an environmental control specialist • Remove from site all domestic waste and dispose of in the approved manner at a registered waste disposal site.	National Waste Act
	Solid and Hazardous			• Store hazardous waste as indicated in the	National

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	Waste			approved Environmental Management Programme Report. • Dispose of all hazardous waste not earmarked for reuse, recycling or resale at a registered hazardous waste disposal site. • Remove from site all temporary fuel stores, hazardous substance stores, hazardous waste stores and pollution control sumps. Dispose of hazardous waste in the approved manner. • Do not hose oil or fuel spills into a storm water drain or sewer, or into the surrounding natural environment. • Dispose of all visible remains of excess material when exiting the site.	Waste Act
	Erosion protection		Rehabilitation	• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction site. • Retain shrubbery and grass species wherever possible. • Perform regular monitoring and maintenance of erosion control measures.	NEMA