SCOPING REPORT FOR INTEGRATED ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL AUTHORISATION, WASTE MANAGEMENT LICENCE, WATER USELICENSE APPLICATIONS FOR COAL ON FARM VLAKLAAGTE 107 IS; ON ALL PORTIONS , UNDER GOVAN MBEKI LOCAL MUNICIPALITY IN MPUMALANGA PROVINCE.

PREPARED FOR:

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mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

MPUMALANGA REGIONAL OFFICE

DMRE SAMRAD REF: MP 30/5/1/2/2/10342 MR

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

SCOPING REPORT

For listed activities associated with Mining Right

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

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IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment". Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment (EIA) and an Environmental Management Programme report (EMPr) in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment. In terms of section 16(3) (b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the Competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the Competent Authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused. It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVES OF THE SCOPING PROCESS

The objective of the scoping process through a consultative process is to:

a) Identify the relevant policies and legislation relevant to the activity.
b) Motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location.
c) Identify and confirm the preferred activity and technology alternatives through an impact and risk assessment and ranking process.
d) Identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment.
e) Identify the key issues to be addressed in the assessment phase.
f) Agree on the key issues addressed in the assessment phase; including the methodology to be applied, the expertise required as well as the extend of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site.
g) Identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

Executive summary

Lazalelihlokohlo Mining and Projects (Pty) Ltd (the applicant) has appointed Singo Consulting (Pty) Ltd (Consultant) to apply for a Waste Management License together with Water Use License Application and to undertake an Environmental Impact Assessment and Environmental Authorization processes for the proposed extraction of coal on All portions of the Farm Vlaklaagte 107 IS , situated in the Magisterial District of Bethal, Mpumalanga province. DMRE Ref: MP 30/5/1/2/2/10342MR.

The extent of the mining right involves the above-mentioned farm portion (2736.340 hectares) and the proposed project includes open-pit coal mining, which is a thirty-year mine lifespan. The open pit mining method is preferred because the target mineral is relatively close to the surface of the earth. The open-pit will be dug on benches that are between four and sixty meters in size, depending on the size of the machine used for the excavation. The walls of the pit will be dug at an angle and will include precautions to avoid avalanches from happening within the construction site.

In order to operate the proposed mine, the applicant is required to submit an application for a mining right to the Department of Mineral Resources and Energy (DMRE). In support of an application for mining rights, the applicant is required to apply for Environmental Authorization and a Water Use License and conduct NEMA (S&EIR) along with the NEMWA (S&EIR) for submission to the DMRE for adjudication. This assessment must include activities triggered by the Environmental Impact Assessment Regulations of 2014 (as amended) promulgated under the National Environmental Management Act, 1998 (Act 107 of 1998), activities triggered under the National Environmental Management Act: Waste Act, 2008 (NEM: WA) (Act 59 of 2008) and activities triggered under the National Water Act (1998).

Scoping and Environmental Impact Assessment process

A S&EIA is conducted in two phases: Scoping and EIA compilation. The scoping phase will commence with the following activities once the application has been submitted with the competent authority:

- Identify interested and affected parties (I&APs) and stakeholders
- Identify relevant policies and legislation
- Consider the need and desirability of the project
- Consider alternative technologies and sites
- Identify the potential environmental issues
- Determine the level of assessment and public participation process required for the EIA phase
- Identify preliminary measures to avoid, mitigate or manage potential impacts

The objectives of the EIA phase will be to assess the potential impacts associated with the preferred project alternatives as per the terms of reference for the assessment set out in the scoping report. The EIA/EMPr report will document the assessment findings and detail the measures required to avoid, mitigate and/or manage the potential impacts.

The S&EIA process requirements are contained in Chapter 4, Part 3 of the NEMA Reg No 326 (amended on 7 April 2017). The EIA process can take up to 300 days to complete (87 days for the scoping phase, 106 days for the EIA phase, 107 days for competent authority to review).

List of abbreviations

BID	Background Information Document
DEA	Department of Environmental Affairs
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EIAr	Environmental Impact Assessment Report
EMPr	Environmental Management Programme Report
GDARD	Gauteng Department of Agriculture and Rural Development
GIS	Geographic Information System
GN	Government Notice
HIA	Heritage Impact Assessment
I&AP	Interested & Affected Party
IBA	Important Bird Area
IWULA	Integrated Water Use Licence Application
ASAPA	Association of Southern African Professional Archaeologists
LoM	Life of Mine
MPRDA	Minerals and Petroleum Resources Development Act, 2002
Mtpa	Million tonnes per annum
NEM:WA	National Environmental Management: Waste Amendment Act, 2008
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PPP	Public Participation Process
RoM	Run of Mine
SAHRA	South African Heritage Resources Agency
SANS	South African National Standard
SCC	Species of Conservation Concern
S&EIA	Scoping and Environmental Impact Assessment
WMA	Water Management Area

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1 INTRODUCTION AND BACKGROUND

Lazalelihlokohlo Mining and Projects (Pty) Ltd (the applicant) has appointed Singo Consulting (Pty) Ltd (Consultant) to apply for a Waste Management License together with Water Use License Application and to undertake an environmental impact assessment and environmental authorization processes for the proposed extraction of coal on all portions of the farm Vlaklaagte 107 IS, situated in the magisterial district of Bethal, Mpumalanga province. The proposed mining right covers an exent of 2736.340 hectares (ha), DMRE Ref: MP 30/5/1/2/2/10342 MR.

The extent of the mining right covers the above-mentioned farm portion and the proposed project relate to the openpit coal mining which entails life of mine of thirty years. The Open pit method of mining is preferred because the desired mineral is relatively close to the surface of the earth. The Open-pit will be dug on benches that are between four and sixty-meters in size, this will depend on the size of the machinery used to excavate. The walls of the pit will be dug at an angle and will include steps to prevent avalanches from occurring inside the build site.

In order for the proposed mine to operate, the applicant is required to submit an application for a mining right with the Department of Mineral Resources & Energy (DMRE). In support of the application to obtain the mining right, the applicant is required to conduct a Scoping and Environmental Impact Assessment (S&EIA) for submission to the DMRE for adjudication. This assessment must include activities triggered under the Environmental Impact Assessment Regulations of 2014 (as amended) promulgated under the National Environmental Management Act, 1998 (Act 107 of 1998) and activities triggered under the National Environmental Management: Waste Act, 2008 (NEM: WA) (Act 59 of 2008).

The proposed mining method constitutes of various listed activities which have been listed within the scheduled activities in Government Notice Regulation No 517 (amended 11 June 2021) and therefore require a full Scoping and EIA process to be followed. Prior to any listed activity being approved by the DMRE, it is required that an environmental process is undertaken, and a report is submitted to the relevant environmental authority for consideration.

The proposed open-pit/ surface coal mining operations constitute various listed activities, as contained in the scheduled activities in Government Notice Regulation No 517 (amended 11 June 2021). As such, a full Scoping and EIA process must be followed. Prior to any listed activity being approved by the DMRE, an environmental process must be undertaken and a report submitted to the relevant environmental authority for consideration.

The purpose of the S&EIA process is to ensure that potential environmental, economic and social impacts associated with operation and closure/rehabilitation of a project are identified, assessed and appropriately managed. This is done in two primary phases: the scoping phase and the impact assessment phase, both of which are discussed in more detail in the following:

1.1 Scoping phase

The scoping phase is conducted as a precursor to the EIA process, during which:

- Project and baseline environmental information is collated. Baseline information for the scoping report is gathered through visual inspections during field visits to the proposed project area and surroundings, desktop studies (including GIS mapping), and review of existing reports, guidelines and legislation.
- Landowners, adjacent landowners, local authorities, environmental authorities, and other stakeholders who may be affected by/or have an interest in the environmental impacts of the project, are identified.
- Interested and affected parties (I&APs) are informed about the proposed project.
- Environmental authorities are consulted to confirm legal and administrative requirements.
- Environmental issues and impacts are identified and described.
- Development alternatives are identified and evaluated, and non-feasible development alternatives are eliminated.
- The nature and extent of further investigations and specialist input required in the EIA phase is identified.
- The draft and final scoping reports are submitted for review by authorities, relevant organs of state and I&APs.
- Key I&AP issues and concerns are collated into an issues and response section for consideration in the EIA phase.

1.2 Environmental Impact Assessment process

After the initial scoping phase, the following EIA activities are completed:

- Specialist investigations are undertaken in accordance with the terms of reference established in the scoping assessment (plan of study for EIA appended to the scoping report). The scope for specialist work is determined by the nature and scale of the project impacts.
- Evaluation of development alternatives and identification of a proposed option.
- Assessment of existing impacts (no-go development option), environmental impacts that may be associated with the proposed project option, and cumulative impacts using the impact assessment methodology.
- Identification of mitigation measures to address the environmental impacts and development of actions required to achieve the mitigation required.

- Consultation with I&APs.
- Incorporation of public comments received during scoping into the Environmental Impact Assessment (EIA) and Environmental Management Programme report (EMPr), and finalisation of the EIA report.
- Issuing of the final EIA report for review.
- The requirements for the S&EIA process are contained in Chapter 4, Part 3 of the NEMA Reg No 517 (amended on 11 June 2021). The EIA process can take up to 300 days to complete (87 days for the scoping phase, 106 days for the EIA phase, and 107 days for the competent authority review).

2 APPLICANT AND ENVIRONMENTAL ASSESSMENT PRACTITIONER DETAILS

2.1 Details of the applicant

The following person may be contacted regarding this project:

Table 1: Applicant's contact details

NAME OF APPLICANT:	Lazalelihlokohlo Mining and Projects (Pty) Ltd Reg. No. 2008/071887/23
TEL NO.:	+27 68 342 6983
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2.2 Details of the Environmental Assessment Practitioner

The applicant has appointed Singo Consulting as an independent EAP to conduct an S&EIA that is required to support the application for a mining right. Singo Consulting (Pty) Ltd has no vested interest in the proposed project and hereby declares its independence, as required by the EIA Regulations. Any queries regarding this S&EIA may be directed to the following EAPs at Singo Consulting:

Table 2: EAP's contact details

Environmental assessment practitioner	**Singo Consulting (Pty) Ltd**
Contact person(s)	Rudzani Shonisani (1st Reviewer) Dr Kenneth Singo (2nd Reviewer & Principal consultant) Abel Mojapelo (Environmental Technician)
Physical address	Office No.: 870, 5 Balalaika Street Tasbet Park Ext 2, eMalahleni (Witbank) 1040.
Postal address	P/Bag X7297, Postnet Suite 87, Benfleur, 1035
Contact number(s)	Rudzani Shonisani :078 Dr Kenneth Singo: 078 272 7839 / 072 081 6682 Abel Mojapelo : 071 362 7894
Telephone number	013 692 0041
Fax	086 5144 103
Email(s)	rudzani@singoconsulting.co.za kenneth@singoconsulting.co.za abel@singoconsulting.co.za

2.2.1 Expertise of Environmental Assessment Practitioner

See Appendix 2 for EAP CVs.

2.2.2 Specialist studies

Specialists were identified and appointed during the scoping period and will be doing the Environmental Impact Assessment to address issues requiring further investigation. These studies involve the gathering of data relevant to identifying and assessing impacts that may occur as a result of the proposed project. The specialists will recommend appropriate mitigation/control or optimisation measures to minimise potential negative impacts and enhance potential benefits. The relevant specialist assessments will be made available during the EIA phase.

2.3 Property description

The property description for the proposed coal mining right is provided in Table 3 below. The farm name applicable to this S&EIA is provided below.

Farm name	all portions of the Farm Vlaklaagte 107IS
Application area (ha)	Approximately 2736. 340 Hectares (ha)
Magisterial district:	Bethal
Local government municipalities	Local Municipality: Govan Mbeki Local Municipality District Municipality: Gert Sibande District Municipality
Distance and direction from nearest town	Approximately 11.48 km North of Bethal, enclosed by the R544 and R38
21-digit Surveyor General code for farm portion	T0IS00000000010700000
Locality map	Locality map at a scale not smaller than 1:250000 (see Figure 1 and Figure 2).

Table 3: Property descriptions of the proposed Lazalelihlokohlo Mining and Projects (Pty) Ltd Coal Mine.

2.4 Locality map

The proposed mining right area is located within the Gert SibandeDistrict Municipality under the Govan Mbekil ocal municipality. All portions of the farm Vlaklaagte 107 IS are located approximately 11.48 km North of Bethal, enclosed by the R544 and R38 . The proposed mine area is situated near two coal fired power stations namely the Kriel and Matla power stations. See Figure 1 and Figure 2 below.

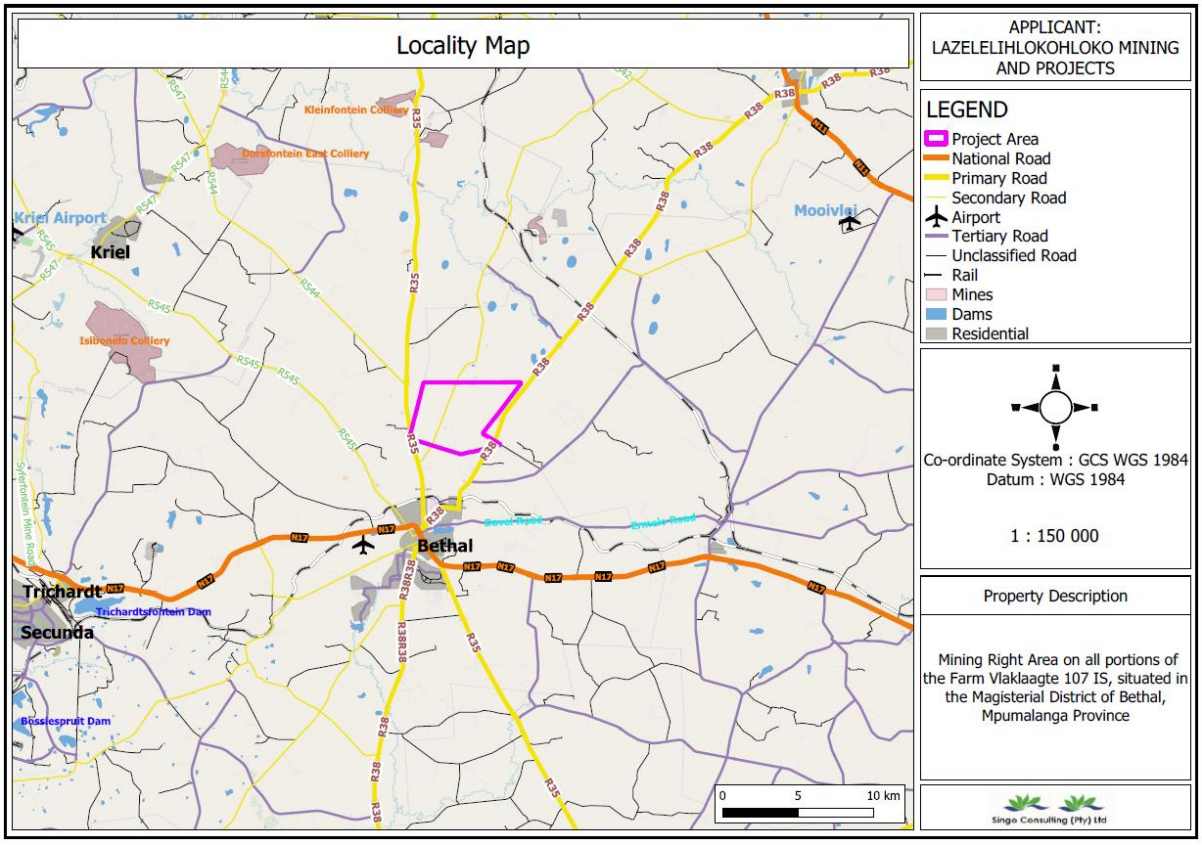

Figure 1: Project area locality

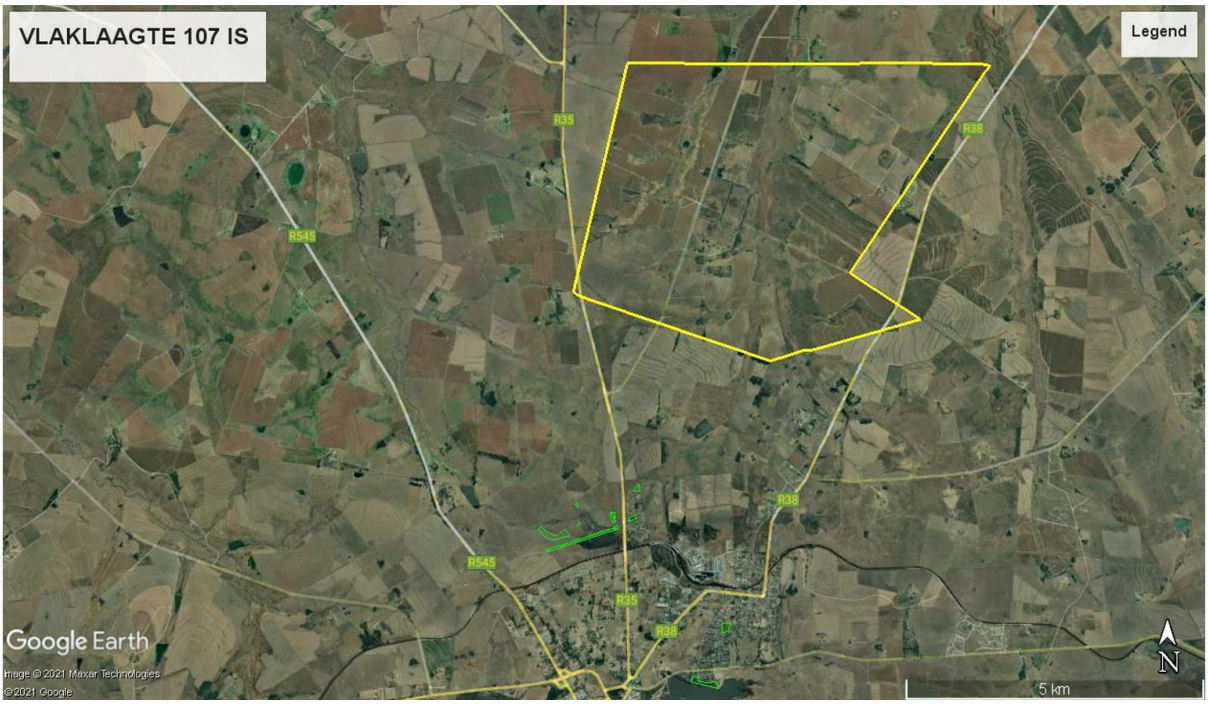

Figure 2: Google Earth view of the project area.

2.4.1 Landowner

The mining right is applicable for the All portions of the farm Vlaklaagte 107 IS. The attached Figure 3 below shows identified landowners using Windeed Search. The search shows the title deed of the owner in the proposed farm, however for this application it must be noted that some of the portions discovered via Deed Search are excluded from the proposed activity only the above-mentioned portion will be affected. As observed on the Windeed results below, the proposed properties belong to Morne Ferreira and Maria Jacomina (see Figure 3 for highlighted part).

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windeed
A LexisNexis® Product

Farm List

Date Requested	2021/10/27 11:16
Deeds Office	MPUMALANGA
Registration Division	IS
Farm Name	-
Farm Number	107
Remaining Extent	NOT SELECTED

PORTION LIST

Portion	Owner
0	ANTON PELSER EIENDOMS TRUST
1	HOLDING 19 MOSTYN PARK CC
2	ZELPY 1100 PTY LTD
3	EDMAR FARMS CC
4	ANTON PELSER EIENDOMS TRUST
5	FRIEDMAN EDWIN PAUL

DISCLAIMER

This report contains information gathered from the WinDeed database and we do not make any representations about the accuracy of the data displayed nor do we accept responsibility for inaccurate data. LexisNexis will not be liable for any damage caused by reliance on this report and for legal purposes encourage validation on ownership details with the Deeds Office. This report is subject to the terms and conditions of the WinDeed End User Licence Agreement (EULA).

Figure 3: Windeed search results of farm Vlaklaagte 107 IS

2.4.2 Description of current land cover

Land cover information is a crucial reference dataset that informs a variety of activities, including environmental planning and protection, development planning, economic development, compliance monitoring, enforcement and strategic decision making.

The porposed project area is utilised for multiple land uses including:

- Plantation
- Natural vegetation
- Waterbodies
- Wetland
- Bare lands
- Cultivated Land

- Built up area
- Mine

During the EIA Phase it is recommended to conduct a detailed study on all the waterbodies occurring around the site.

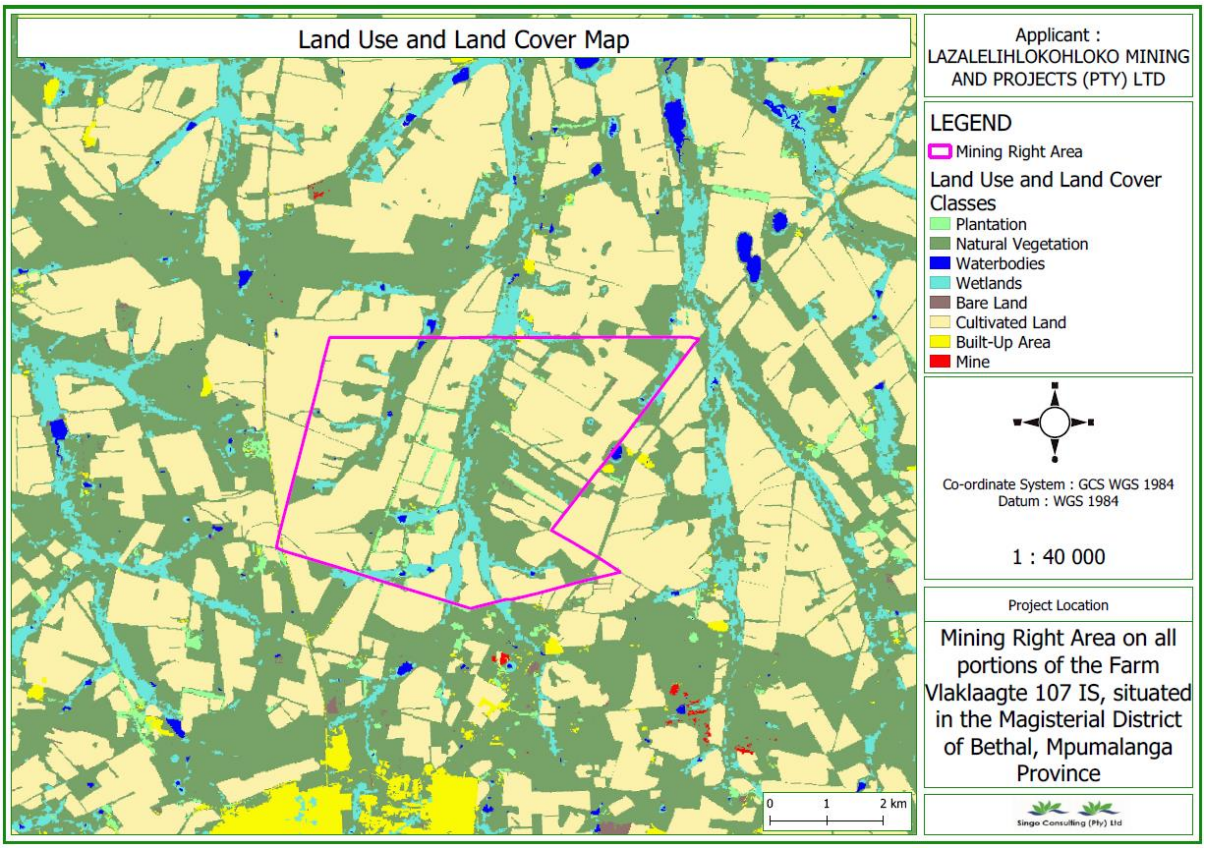


Figure 4: Land use map of the project area

3 POLICY AND LEGISLATIVE CONTEXT

This section provides an overview of the governing legislation relating to the proposed project.

3.1 Constitution of the Republic of South Africa

The Constitution of the Republic of South Africa, Act 108 of 1996 (as amended) Section 24 states that:

"Everyone has the right— (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that—

a) prevent pollution and ecological degradation;

b) Promote conservation; and

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

3.2 Mineral and Petroleum Resources Development Act

The Mineral and Petroleum Resources Development Act, 2002 (MPRDA), outlines the procedural requirements an applicant must follow to obtain a mining right before proceeding with a mining project. Applicants are required to obtain Environmental Authorisation (EA) in terms of the National Environmental Management Act 107 of 1998, as amended (NEMA).

The MPRDA is administered by the Department of Mineral Resources and Energy (DMRE) and governs the sustainable utilisation of South Africa's mineral resources. The MPRDA aims to "make provision for equitable access to, and sustainable development of, the nation's mineral and petroleum resources".

In the event that the proposed activities require material (e.g. sand, gravel, aggregate) for construction, the MPRDA provisions may apply. In support of the application to obtain the mining right, the applicant is required to conduct a Scoping Report, EIA/EMPr and I&AP consultation process, all of which must be submitted to the DMRE for adjudication.

3.3 National Environmental Management Act

The aim of the NEMA is to provide for co-operative governance by establishing decision-making principles on matters affecting the environment. In terms of the NEMA EIA regulations, the applicant is required to appoint an EAP to undertake the EIA, as well as conduct the public participation process (PPP). In South Africa, EIAs became a legal requirement in 1997 with the promulgation of regulations under the Environment Conservation Act (ECA). Subsequently, NEMA was passed in 1998. Section 24(2) of NEMA empowers the Minister and any MEC, with the concurrence of the Minister, to identify activities which must be considered, investigated, assessed and reported on to the competent authority responsible for granting the relevant environmental authorisation.

On 21 April 2006, the Minister of Environmental Affairs and Tourism promulgated regulations in terms of Chapter 5 of the NEMA. These regulations, in terms of the NEMA, were amended in June 2010 and December 2014. The December 2014 NEMA regulations apply to this project. Mining activities officially became governable under the NEMA EIA in December 2014. The objective of the

Regulations is to establish the procedures that must be followed in the consideration, investigation, assessment and reporting of the identified activities. The purpose of these procedures is to provide the competent authority with adequate information to refuse authorisation of activities which may impact negatively on the environment to an unacceptable degree. These procedures also aim to ensure that authorised activities are undertaken in a manner that responsibly manages environmental impacts.

In accordance with the provisions of Section 24 (5) and Section 44 of the NEMA, the Minister has published regulations (GN R. 982) pertaining to the required process for conducting EIAs in order to be considered for the issuing of EA. These regulations provide a detailed description of the EIA process to be followed when applying for EA for any listed activity.

The regulations differentiate between a simple Basic Assessment Process (required for activities listed in GN R. 983 and 985) and a more complete EIA process (activities listed in GN R. 984). In the case of this project, activities under GN R. 984 are triggered, requiring a full EIA process. On 7 April 2017, the NEMA 2014 regulations were amended, making activities triggered under GN R. 324, 325 and 327 applicable to this application.

A scoping and EIA process is reserved for activities with potentially significant impacts that are complex to assess. Scoping and EIA provides a mechanism for the comprehensive assessment of activities that are likely to have significant environmental impacts.

3.4 National Water Act

The National Water Act, 1998 (NWA) also has a role to play in regulating mining. Mining almost always uses water and/or has an impact on water resources, like streams, wetlands or rivers. The NWA is administered by the Department of Water and Sanitation (DWS).

The NWA Section 21 defines eleven water uses that require EA:

21 (a): taking water from a water resource

21 (b): storing water

21 (c): impeding or diverting the flow of water in a watercourse

21 (d): engaging in a stream flow reduction activity contemplated in section 36

21 (e): engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1)

21 (f): discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit

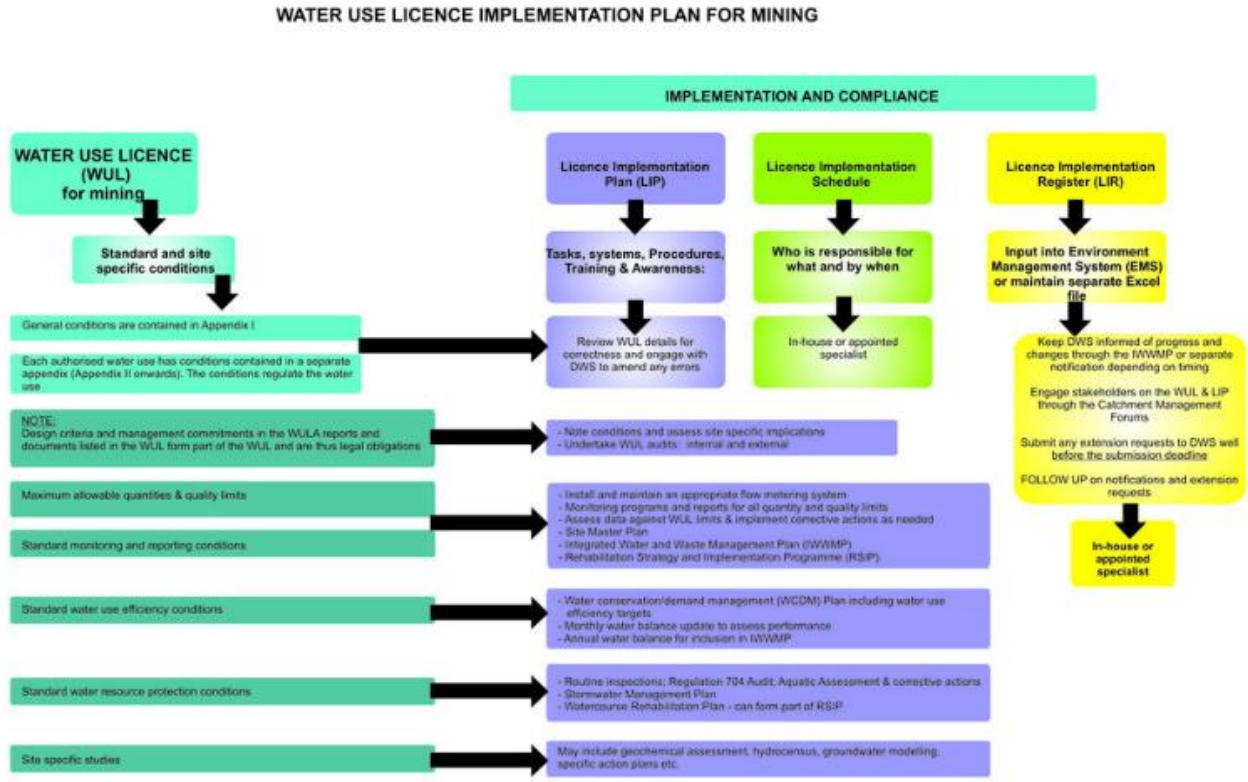
21 (g): disposing of waste in a manner which may detrimentally impact on a water resource

21 (h): disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process

21 (i): altering the bed, banks, course or characteristics of a watercourse

21 (j): removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people

21 (k): using water for recreational purposes. The proposed mine is in the process of applying for an Integrated Water Use Licence (IWUL) as per the water uses indicated.



3.5 National Environmental Management: Waste Act

The National Environmental Management: Waste Act, 2008 (NEM:WA) (Act 59 of 2008) lists mining activities that must be undertaken to manage waste generated by the project and prevent environmental pollution and littering. On 2 June 2014, the NEM:WA (amended) came into force. As per the amended Act, waste is longer governed by the MPRDA, but is subject to all the provisions of the NEM:WA). As per Section 16 of the NEM:WA, "a holder of waste must, within the holder's power, take all reasonable measures to:

- Avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated;

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

These general principles of responsible waste management will be incorporated into this project's EMPr requirements. The NEM:WA provides for specific waste management measures to be implemented and provides for the licensing and control of waste management activities. Waste management activities apply to Category A, B and C according to GN R 921 (Nov 2013) and the proposed residue stockpiles in terms of Category B, Activity 11 of GNR 921, and, therefore, form part of the application process (Table 3).

3.5.1 NEM:WA – Planning and Management of Residue Stockpiles and Residue Deposits Regulations, 2015 (GN R 632)

This regulates the planning and management of residue stockpiles and deposits from a prospecting, mining, exploration or production operation.

3.5.2 NEM:WA – National Norms and Standards for the Assessment of Waste for Landfill Disposal, 2013 (GN R 635)

These norms and standards prescribe the requirements for the assessment of waste prior to disposal to landfill. The aim of the waste assessment tests is to characterise the material to be deposited or stored in terms of the above-mentioned waste assessment guidelines set by the DEA.

3.5.3 NEM:WA – Waste Classification and Management Regulations, 2013 (GN R 634)

Chapter 9 of the NEM:WA stipulates the requirements for a motivation for and consideration of listed Waste Management Activities that do not require a Waste Management License. The motivation must:

- Demonstrate that the waste management activity can be implemented without unacceptable impacts on, or risk to, the environment or health
- Must provide a description of the waste
- Description of waste minimisation or waste management plans
- Description of potential impacts, etc.

- The transitional provisions under Chapter 6 of this Regulation prescribes timeframes in which all waste must be classified within 18 months from the date of commencement of these regulations (23 August 2013)

Waste streams generated from mine activities will, where applicable, be classified to determine their nature (i.e. general or hazardous), managed and disposed of in accordance with the relevant legislation.

3.6 National Environmental Management: Air Quality Act

The National Environmental Management: Air Quality Act (NEM:AQA) (Act No. 39 of 2004 as amended) is the main legislative tool for the management of air pollution and related activities.

The objectives of the Act are to protect the environment by providing reasonable measures for:

- The protection and enhancement of the quality of air in the republic
- The prevention of air pollution and ecological degradation
- Securing ecologically sustainable development while promoting justifiable economic and social development
- Generally, to give effect to Section 24(b) of the constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and wellbeing of people

The NEM:AQA mandates the Minister of Environmental Affairs to publish a list of activities that result in atmospheric emissions and consequently cause detrimental effects on the environment, human health and social welfare. The Listed Activities and Minimum National Emission Standards were published on 22 November 2013 (Government Gazette No. 37054).

According to NEM:AQA, air quality management control and enforcement is the responsibility of local government, with district and metropolitan municipalities being the licensing authorities. Provincial government is primarily responsible for ambient monitoring and ensuring municipalities fulfil their legal obligations, with national government primarily as policy maker and coordinator. Each sphere of government must appoint an Air Quality Officer responsible for coordinating matters pertaining to air quality management. Under the old Act, air quality management was the sole responsibility of national government, with local authorities only being responsible for smoke and vehicle emission control. The National Pollution Prevention Plan Regulations, which came into effect on 21 July 2017, tie in with The National Greenhouse Gas Emission Reporting Regulations, which took effect on 3 April 2017.

These regulations aim to prescribe the requirements that greenhouse gas (GHG) pollution prevention plans need to comply with (in terms of priority air pollutants), as per NEM:AQA. The regulations specify who needs to comply, and by when, and prescribes the content requirements. Mines do have an obligation to report on the GHG emissions under these regulations.

3.7 The National Heritage Resources Act

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

The NHRA informs the identification, evaluation and management of heritage resources and, in the case of Cultural Resource Management (CRM), affected by development (as stipulated in Section 38 of NHRA) and those developments administered through the NEMA, MPRDA and NEMWA legislation. In the latter cases, the feedback from the relevant heritage resources authority is required by the state and provincial departments managing these Acts before any authorizations are granted for development. The last few years have seen a significant change towards the inclusion of heritage assessments as a major component of EIAs required by NEMA and MPRDA. This change requires an evaluation of the section of these Acts relevant to heritage. The NEMA 23(2)(b) states that an integrated environmental management plan should, "…identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage".

Subsections (23) (2)(d), (29) (1)(d), (32) (2)(d) and (34) (b) require the (compulsory) inclusion of the identified cultural resources, the evaluation of the impacts of the proposed activity on these resources, the identification of alternatives and the management procedures for such cultural resources for each of the documents noted in the environmental regulations. Regulations under NEMA's regulations on the Specialist Report requirements must be considered when compiling such a report.

The MPRDA and NEMA have similar definitions of "environment". Both acknowledge cultural resources as part of the environment. Section 39(3)(b) of this Act specifically refers to the evaluation, assessment and identification of impacts on all heritage resources as identified in Section 3(2) of the NHRA. Section 40 of the same Act requires consultation with any state department administering any law relevant to such an application through Section 39 of the MPRDA. This implies the evaluation of Heritage Assessment Reports in Environmental Management Plans or Programmes by the relevant heritage authorities (Fourie, 2008b).

In accordance with the legislative requirements and EIA rating criteria, the regulations of the South African Heritage Resources Agency (SAHRA) and Association of Southern African Professional Archaeologists (ASAPA) have been incorporated to ensure that a comprehensive and legally compatible Heritage Impact Assessment (HIA) is compiled.

3.8 National Environmental Management: Biodiversity Act

The overarching aim of the National Environmental Management: Biodiversity Act (No 10 of 2004) (NEM:BA), within the framework of NEMA, is to provide for:

- The management and conservation of biological diversity in South Africa and of the components of such diversity.
- The use of indigenous biological resources in a sustainable manner.
- The fair and equitable sharing, among stakeholders, of benefits arising from bioprospecting involving indigenous biological resources.
- The South African National Biodiversity Institute (SANBI) was established on 1 September 2004 through the signing into force of the NEM:BA, its purpose being (*inter alia*) to report on the status of the country's biodiversity and the conservation status of all listed threatened or protected species and ecosystems.
- Other objectives include the identification, control and eradication of declared weeds and alien invaders in South Africa. These are categorised according to one of the following categories, and require control or removal:
    - Category 1a Listed Invasive Species: Category 1a Listed Invasive Species are those species listed as such by notice in terms of section 70(1)(a) of the Act as species which must be combated or eradicated.
    - Category 1b Listed Invasive Species: Category 1b Listed Invasive Species are those species listed as such by notice in terms of section 70(1)(a) of the Act as species which must be controlled.
    - Category 2 Listed Invasive Species: Category 2 Listed Invasive Species are those species listed by notice in terms of section 70(1)(a) of the Act as species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit, as the case may be.
    - Category 3 Listed Invasive Species: Category 3 Listed Invasive Species are species that are listed by notice in terms of section 70(1)(a) of the Act, as species which are subject to exemptions in terms of section 71(3) and prohibitions in terms of section 71A of Act, as specified in the Notice.
    - The provisions of this Act have been considered and, where relevant, incorporated into the proposed mitigation measures and requirements of the EMPr. It is also appropriate to undertake a Fauna and Flora Impact Assessment for developments in an area that is considered ecologically sensitive which require environmental authorisation in terms of NEMA, with such Assessment taking place during the EIA phase.

3.9 The Conservation of Agricultural Resources Act

This Act informs the utilisation of the natural agricultural resources in South Africa to promote soil, water and vegetation conservation, as well as combat weeds and invader plants.

3.10 Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA)

The Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA) is a framework law, which means that the law provides broad principles for a set of provincial laws that will regulate planning for the country. The Act introduces provisions to cater for development principles; norms and standards; inter-governmental support; Spatial Development Frameworks (SDFs) across national, provincial, regional and municipal areas; Land Use Schemes (LUS); and municipal planning tribunals.

SPLUMA also provides clarity on how planning law interacts with other laws and policies. It is a uniform, recognisable and comprehensive system that addresses the past spatial and regulatory imbalances and promotes optimal exploitation of minerals and mineral resources. SPLUMA achieves this by strengthening the position of mining right holders when land needs to be rezoned for mining purposes. SPLUMA's impact on optimal exploitation is particularly evident where conflict exists between mining right holders and landowners. Economic and policy considerations, as well as practical necessities, often motivate the state to grant mining rights to entities other than landowners. SPLUMA is a new national framework Act that provides clear principles and standards for provincial and local governments to formulate their own new spatial planning and land use policies. The new provincial legislation can regulate, among other things, land development, land use management, spatial planning and municipal planning.

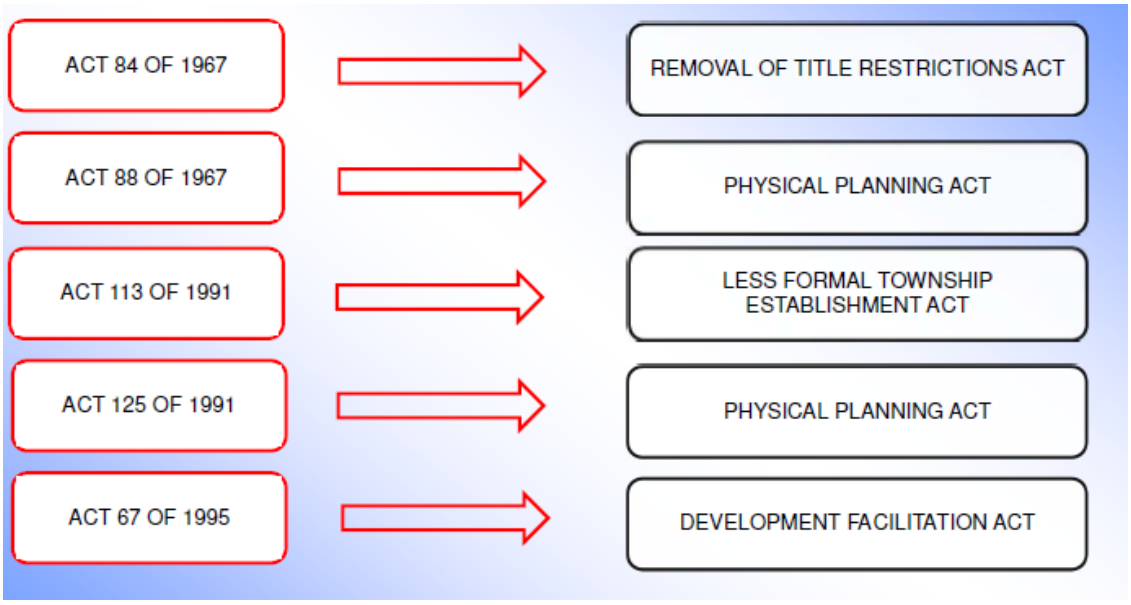


Figure 5: Repealed legislation as a result of SPLUMA

3.11 Environment Conservation Act, 1989 (Act 73 of 1989) – Noise control regulations

In terms of section 25 of the ECA, the national Noise Control Regulations (GN R154 in Government Gazette No. 13717 dated 10 January 1992) were promulgated. The NCRs were revised under GN R. 55

of 14 January 1994 to make it obligatory for all authorities to apply the regulations. The Gauteng Province promulgated provincial regulations: Noise Control Regulations of Gauteng 1999, (Provincial Gazette, Extraordinary no 75 of August 1999). The noise control regulations must be considered in relation to the potential noise that may be generated during the construction and decommissioning phases of the proposed project. The two key aspects of the noise control regulations relate to disturbing noise and noise nuisance.

Section 4 of the regulations prohibits a person from making, producing or causing a disturbing noise, or allowing it to be made produced or caused by any person, machine, device or apparatus or any combination thereof. A disturbing noise is defined in the regulations as "a noise level which exceeds the zone sound level or if no zone sound level has been designated, a noise level which exceeds the ambient sound level at the same measuring point by 7 dBA or more".

Section 5 of the noise control regulations prohibits the creation of a noise nuisance. A noise nuisance is defined as "any sound which disturbs or impairs or may disturb or impair the convenience or peace of any person". Noise nuisance is anticipated from the proposed project particularly to those residents that are situated near the project sites.

South African National Standard 10103 also applies to the measurement and consideration of environmental noise and should be considered in conjunction with these regulations. A noise specialist study is proposed for the EIA process.

3.12 Noise standards

The following South African Bureau of Standards (SABS) requirements relate to noise from mines, industry and roads:

- South African National Standard (SANS) 10103:2008. "The measurement and rating of environmental noise with respect to annoyance and to speech communication".
- SANS 10210:2004. "Calculating and predicting road traffic noise".
- SANS 10328:2008. "Methods for environmental noise impact assessments".
- SANS 10357:2004. "The calculation of sound propagation by the Concave method".
- SANS 10181:2003. "The Measurement of Noise Emitted by Road Vehicles when Stationary".
- SANS 10205:2003. "The Measurement of Noise Emitted by Motor Vehicles in Motion".

The relevant standards use the equivalent continuous rating level as a basis to determine what is acceptable. The levels may take single event noise into account, but single event noise by itself does

not determine whether noise levels are acceptable for land use purposes. With regards to SANS 10103:2008, the recommendations are likely to inform decisions by authorities, but non-compliance with the standard will not necessarily render an activity unlawful. The noise assessment will take these noise standards and impacts into consideration.

4 SCOPE OF THE PROPOSED OVERALL ACTIVITY

4.1 Mining operations

The mining right area is proposed to take place on all portions of the farm Vlaklaagte 107 IS with an extent area of 2736.340 ha. The mining method that will be employed for this application is Open-Pit mining method, this is because the desired mineral/ore is relatively close to the surface of the earth. The Open-pit will be dug on benches that are between four and sixty-meters in size, this will depend on the size of the machinery used to excavate. The walls of the pit will be dug at an angle and will include steps to prevent avalanches from occurring inside the build site. Blasting will be required to disintegrate the mineral or undesired material associated with the mineral. The overburden will be transported out of the pit and will be utilized for rehabilitation processes.

4.2 Mining methodology

Mining methods vary widely and depend on the location, type and size of mineral resources. Surface mining methods are most economical in situations where mineral deposits occur close to the surface (e.g. coal, salts and other evaporate deposits or road quarry material) or form part of surface deposits (e.g. alluvial gold and diamonds, and heavy mineral sands). For this specific project, the mining of coal by means of surface mining methods is viable due to the fact that the resource is situated close enough to the surface to make it economically mineable. Typical surface mining methods include open-pit mining, as well as dredge, placer and hydraulic mining in riverbeds, terraces and beaches. These activities always disrupt the surface and, in turn, affects soils, surface water and near-surface ground water, fauna, flora and all alternative types of land-use.

The generally low strip ratios and wide surface area of the project area make it ideal for the open-cast truck and shovel mining method. The mining method applicability is driven by technical applicability, economic viability, safety, equipment and infrastructure.

The proposed mining method and sequence comprise the following mining activities for waste and coal:

- Initial topsoil and soft overburden removal, which will be stockpiled to ensure it can be placed back in the initial box cut.
- The physical mining of the coal seam, which includes drilling of hard overburden material, charging and blasting.
- Loading coal onto trucks and hauling it to the crushing and screening facility.

- Discard coal will be extracted and replaced in the bottom of the open-pit, while the product will be taken to the weighbridge via trucks and then moved off-site.
- The overburden is placed back into the pit as mining progresses, leaving a minimum area open at a single time. Formally known as concurrent rehabilitation.
- The topsoil, which was stripped and stockpiled separately before mining commenced, is then replaced. The findings of the land capability study will determine the optimal composition to ensure pre-mining conditions for utilisation.

4.2.1 Infrastructure requirements

The project has the following infrastructure requirements:

- Access and haul roads (with necessary security), including upgrading the access point to the gravel road
- Offices with septic/chemical ablution facilities
- Weighbridge, workshop and stores (with septic/chemical ablution facilities)
- Diesel facilities and a hardstand
- Power lines and water pipelines
- Boxcut
- Stockpiles (topsoil, overburden, subsoil/softs, RoM)
- Surface water management measures (storm water diversion berms and trenches, pollution control dams, discard dump, etc.)
- Crushing and screening facilities

4.3 Listed and specified activities

The applicant has applied for a mining right and EA for the development of a mine and supporting infrastructure on the farm identified. The listed activities require EA in terms of the NEMA EIA Regulations GN R. 326/324/325/327 amended on 7 April 2017 and the Waste Management Activities listed in terms of the NEM:WA GN R. 921 (2013) and GN R. 633 (amended 2015). The water uses in terms of Section 21 are indicated in the following tables.

Table 4: Listed activities according to NEMA requiring environmental authorisation

Government notice	Activity number	Description
Listing Notice 1: R.324 on 7 April 2017	9	The development of infrastructure exceeding 1,000 m in length for the bulk transportation of water or storm water— (i) with an internal diameter of 0,36 m or more; or (ii) with a peak throughput of 120 l per second or more; excluding where— (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.
	10	The development of infrastructure exceeding 1,000 m in length for the bulk transportation of water or storm water – a) with an internal diameter of 0,36 m or more; or b) with a peak throughput of 120 l per second or more The internal reticulation of water still needs to be finalised.
	12	The development of— a) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 m^2; or b) infrastructure or structures with a physical footprint of 100 m^2 or more; where such development occurs – • within a watercourse; • in front of a development setback; or • if no development setback exists, within 32 m of a watercourse, measured from the edge of a watercourse This will be confirmed during the EIA.
	13	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50,000 m^3 or more. Pollution Control Dams to be confirmed during the EIA
	14	The development and related operation of facilities or infrastructure for the storage/storage and handling of dangerous good, where such storage occurs in containers with a combined capacity of 80 m^3 or more, but not exceeding 500 m^3.

		Storage of diesel and other hydrochemicals.
	19	The infilling or depositing of any material of more than 10 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 m^3 from a watercourse. Mining activities associated with the physical mining activities, construction of wetland and stream crossing or any other related mining activities that trigger this activity – will be confirmed during the EIA.
	24	The development of a road – a) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or b) with a reserve wider than 13,5 m, or where no reserve exists where the road is wider than 8 m Construction of mining road infrastructure, which will include service, access and haul roads as part of the proposed mining activities.
	25	The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2,000 m^3 but less than 15,000 m^3. Pollution control dams – confirm during the EIA.
	28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 1 April 1998 and where such development: a) will occur inside an urban area, where the total land to be developed is bigger than 5 ha; or b) will occur outside an urban area, where the total land to be developed is bigger than 1 ha.
	31	The decommissioning of existing facilities, structures or infrastructure for – a) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014 This will be applicable for existing infrastructure on the properties – will be confirmed during the EIA.

	56	The widening of a road by more than 6 m, or the lengthening of a road by more than 1 km – a) where the existing reserve is wider than 13,5 m; or b) where no reserve exists, where the existing road is wider than 8 m **Upgrades to existing roads – to be confirmed during the EIA.**
Listing Notice 2: R.325 on 7 April 2017	4	The development and related operation of facilities or infrastructure, for the storage/storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 m^3. **Storage of diesel and other hydrocarbons – will be confirmed during the EIA phase.**
	6	The development of facilities or infrastructure for any process or activity that requires a permit/licence/amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent. **Pollution control dams – will be confirmed during the EIA phase.**
	15	The clearance of an area of 20 ha or more of indigenous vegetation. **Needs to be confirmed from the ecological assessment.**
	17	Any activity (including the operation of that activity) which requires a mining right as contemplated in Section 22 of the MPRDA, including – a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.
	19	The removal and disposal of minerals contemplated in terms of section 20 of the MPRDA, including— a) NA; or b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing

		Relates to coal crushing, screening and washing on site.
	24	The extraction or removal of peat or peat soils, including the disturbance of vegetation or soils in anticipation of the extraction or removal of peat or peat soils, but excluding where such extraction or removal is for the rehabilitation of wetlands in accordance with a maintenance management plan. Needs to be confirmed by soil capability study and wetland specialist.
Listing Notice 3: R.327 on 7 April 2017	4	Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding disturbed areas; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (gg) Areas within 10 km from national parks or world heritage sites or 5 km from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.
	10	Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 km from national parks or world heritage sites or 5 km from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, where such areas comprise indigenous vegetation; or (hh) Areas within a watercourse or wetland, or within 100 metres of a watercourse or wetland; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial

		Development Frameworks adopted by the competent authority or zoned for a conservation purpose.
	12	Mpumalanga i. Within any critically endangered or endangered ecosystem listed in terms of Section 52 of the NEM:BA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.
	14	Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an international convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or (hh) Areas within 10 km from national parks or world heritage sites or 5 km from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose.
	16	Mpumalanga i. Within any critically endangered or endangered ecosystem listed in terms of Section 52 of the NEM:BA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.

Table 5: Waste management listed activities according to NEM:WA requiring environmental authorisation.

Government notice	Activity	Description
R.921: Category A	7	Treatment of hazardous waste using any form of treatment at a facility with the capacity to process between 10 and 100 tonnes.
	12	Construction of a facility for a waste management activity listed in Category A of this schedule.
R.921: Category B	1	Storage of hazardous waste in lagoons, excluding storage of effluent, wastewater or sewage.
	7	Disposal of any quantity of hazardous waste to land (Discard Dump).
	10	Construction of a facility for a waste management activity listed in Category B of this schedule.
R.633: Category B	11	Establishment/reclamation of a residue stockpile or deposit resulting from activities that require a mining, exploration or production right in terms of the MPRDA.
R.921: Category C	2	Storage of hazardous waste at a facility with the capacity to store more than 80m^3 of hazardous waste at any time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste

Table 6: Water uses according to NWA requiring environmental authorisation

Section 21 water use	Description
21 (a)	Abstraction of water
21 (b)	Storage of water
21 (c)	Impeding or diverting the flow of water in a watercourse
21 (g)	Disposing of waste in a manner that may detrimentally impact a water resource
21 (i)	Altering the bed, banks, course or characteristics of a watercourse

21 (j)	Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or the safety of people

5 NEED AND DESIRABILITY OF PROPOSED ACTIVITIES

This section examines the need and desirability of the proposed Coal Mine project, and the importance of coal as a resource and the desirability of coal mining operations at the proposed study area.

5.1 Project selection area

The site was selected due to the presence of an economically mineable coal resource. The Vlaklaagte project offers several economic benefits; mine revenue will facilitate fund allocation to local economic development through the implementation of projects identified on the Social and Labour Plan. Local contractors and businesses will benefit from supplying the mine with goods and services. The applicant is fully committed to implementing development plans and projects that will align with the provisions of the broad-based socio-economic empowerment charter of the South African mining industry.

Project development will contribute to the South African economy through exports that will leverage foreign income to the country. The National Government will obtain tax revenue from the project. The project will provide income for the mining company through profits and will provide wages for employees. Indirect income will also be increased through the mine's procurement of goods and services. More information regarding employment generated by this project will be included in the EIA report.

The Govan Mbeki spatial development framework GMLM, 2020) identifies mining as a strategic objective for economic development and job creation. Mining will enable community members to gain skills in mine construction and operation. Although mining is a large contributor to the local economy, the primary objective should be to prevent mining activities from encroaching onto high-potential agricultural land and areas of high biodiversity, and to ensure that the mining area is properly rehabilitated and the agricultural value of the land use are restored once the mineral resource is fully depleted. The location of the coal resource to be mined is a phenomena natural resource that cannot be moved, but the mine infrastructure can be located with due consideration to known environmental and social sensitivities, while still considering engineering feasibility and financial factors.

TheVlaklaagte project will:

- Enable the applicant to commence coal mining and produce coal
- Enable the applicant to stay in operation and earn profit

- Enable the applicant to produce a sufficient quality of coal to satisfy its clients' requirements
- Facilitate the employment and economic development opportunities created by the project

More details relating to the need and desirability of the proposed project will be contained in the EIA and EMP reports.

5.2 Coal as an important resource

Coal is a hard rock which can be burned as a solid fossil fuel. It is mostly carbon but also contains hydrogen, sulphur, oxygen and nitrogen. It is a sedimentary rock formed from peat, by the pressure of rocks laid down later on top. Coal has many important uses worldwide. The most significant uses of coal are in electricity generation, steel production, cement manufacturing and as a liquid fuel. Steam coal - also known as thermal coal - is mainly used in power generation.

Eskom is a South African electricity public utility, established in 1923 by the government of South Africa in terms of the Electricity Act (1922) which uses coal the most. The utility is the largest electricity producer in Africa, among the top seven globally in terms of generation capacity and among the top nine in terms of sales. The company is divided into Generation, Transmission and Distribution divisions and generates approximately 95% of electricity used in South Africa. Currently, Eskom has 24 power stations in commission, of which thirteen are coal-fired stations.

South Africa's energy is predominately coal-fuelled, with limited renewable energy alternatives. South Africa consumes approximately 175 Mtpa of coal daily, with Eskom consuming approximately 110 Mtpa (Eskom, 2017). The importance of coal and coal supply is detailed in the Eskom Transmission Ten Year Development Plan 2018 to 2027 (Eskom, 2017). Eskom's coal-fired power stations are critical to electricity production and meeting South Africa's energy needs. Without a steady, secure coal supply, Eskom is unlikely to meet these needs. Coal mining, beneficiation and supply is critical in ensuring continued electricity generation in the short, medium and long-term.

Coal is a good energy source: Cheapest source of energy. Unlike other forms of energy (nuclear, natural gas, oil, hydroelectric), coal provides many jobs in removing coal from the earth, transporting it to the utility, burning it, and properly disposing of coal ash. Eskom has voiced concern over medium and long-term future supply security to its coal-fired electricity generating power stations. If Eskom's needs are not met, it might have severe economical impacts. As such, coal is one of the five minerals selected by the DMRE for local beneficiation as it is considered critical to South Africa's on-going development (DMRE, 2011).

5.3 Vlaklaagte proposed open-pit mining operations

Mining in South Africa contributed to the establishment of the Johannesburg Stock Exchange (JSE) in the late 19th century and today it accounts for a large portion of its market capitalisation. Mining in South Africa has shaped the country politically, culturally and economically, and has provided critical mass to several industries that are either Supplier to the mining industry, or users of its products. These include, but are not limited to energy, financial services, water and engineering services, and specialist seismic geological and metallurgical services. The proposed Vlaklaagte coal mine will contribute directly to the South African economy and the development and growth of industries supporting the mining sector.

The proposed open-pit mining operations of the Vlaklaagte coal mine project will have positive economic impacts on a local, regional and national scale. It will result in additional coal, job creation and skills development opportunities. There is coal firing power station operating near the project area (namely Kriel power stations) and the proposed mining activities will fit in with these neighbouring developments and the outcomes will be transported to the neighbour power stations to ensure electricity shortage is minimal. The mine will act as a job gap closer in the Bethal area. If the applicant does not proceed with the proposed application, another application in terms of the MPRDA, Act 28 of 2002 can be submitted by another company. Unless the government declares these areas “NO-GO” for mining and/or the demand for coal subsides, mining houses will continue to attempt to mine these coal reserves.

5.4 Period for which EA is required

The estimated period for which EA is required, is thirty years. This includes construction, mining and closure, and rehabilitation. A period for post-closure management risks will be investigated during the EIA phase.

6 PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED SITE

All reasonable and feasible alternatives must be identified and assessed during the S&EIA for consideration and assessment during the EIA phase. There are significant constraints that have to be taken into account when identifying alternatives for a project of this scope. Such constraints include social, financial and environmental constraints, which will be discussed in the evaluation of the alternatives. The preferred option must be highlighted and presented to the authorities. Alternatives

can typically be identified according to location, process, technology and activity (including the no-go option).

For any alternative to be considered feasible (from a technical and environmental perspective), it must meet the need of the development proposal without presenting significantly high associated impacts. Such alternatives must be described, and the advantages and disadvantages must be indicated. Incremental alternatives typically arise during the EIA process and are usually suggested as a means of addressing identified impacts. These alternatives are closely linked to the identification of mitigation measures and are not specifically identified as distinct alternatives.

The following sub-sections details the development footprint, properties and activity type alternatives to be considered, which are;

6.1 Location alternatives

The study area was considered based on No.5 seam mining at Bethal colliery open cast journal paper compiled by M.D Raganya paper written on project work carried out in partial fulfilment of Bsc Mining Engineering. In assessing the status of classiable coal resources, Lazalelihlokohlo Mining and Projects (Pty) Ltd has concluded to proceed to the mining right straight without Prospecting Right.

6.2 Land use alternatives

The first alternative is coal mining due to the desktop studies on the proposed farm area, while the second alternative is using the area for its agricultural potential (as per the current land use).

Alternative 1: Coal mine

Based on the land cover map, the area to the Northern side of the proposed mining area has already being mined by Bethal colliery. According to the land use map, the area is dominated by cultivated and natural land use, rezoning the area from agriculture to mining. The coal is of very high grade and the economic injection to the local and regional economy if the mine is to be opened as detailed in section 4.2, compared to the agricultural sector which must be investigated in the EIA phase.

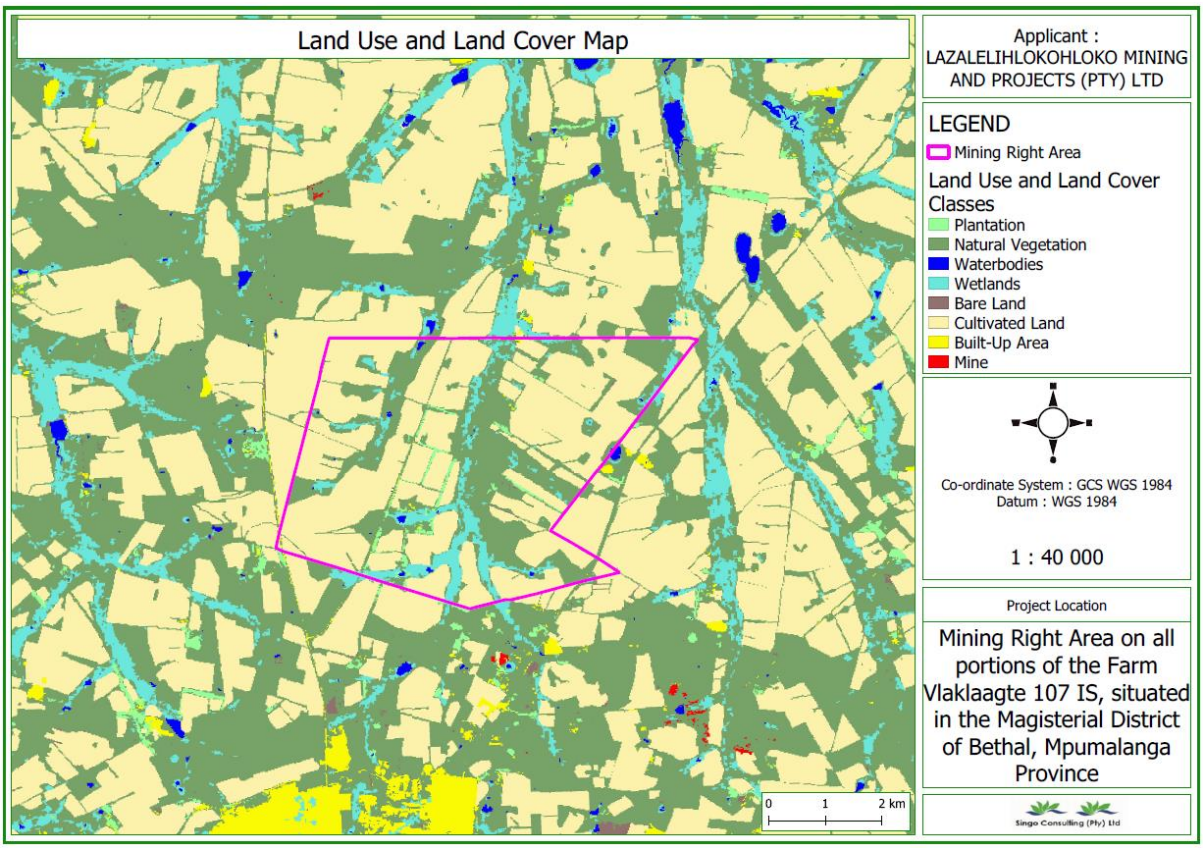


Figure 6: Land use and activity maps around the proposed area

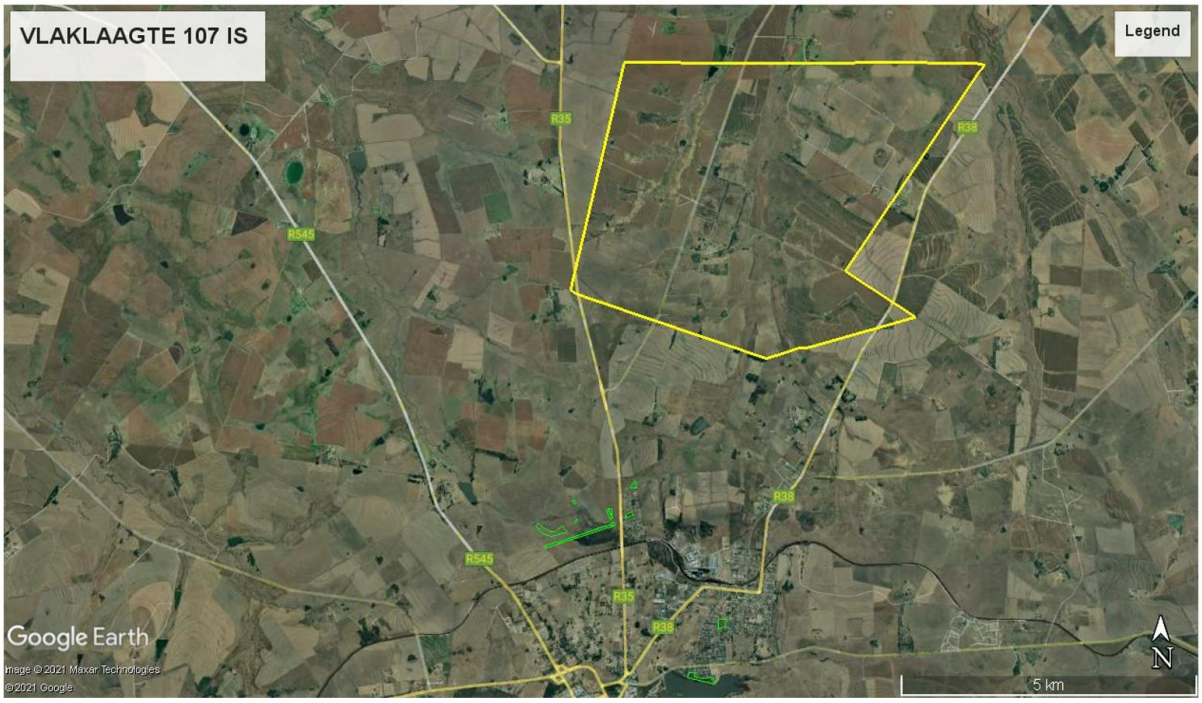


Figure 7: Google earth map showing activities near the project area

Alternative 2: Agricultural land

The current land use of the study area (See Figure 6). The area is mainly compromised of cultivated and natural lands. The area falls under heavily modified, moderately modified, CBA optimal and other natural areas as according to the biodiversity map below, see Figure 8. Moderately modified area can be described as the area that is modified within the last 80 years but now anandoned, including old mines and old cultivated lands. This type of land stabilises and manages to restore the ecological functionality in particular, the soil carbon and water related functionality. Another biodiversity category as contained within the project area is the heavily modified area, this area can be described as transformed area, where biodiversity and ecological function have been lost to the point that they are not worth considering for consideration at all. This type of area manages the land-use in a biodiversity friendly manner aiming to maximise ecological functionality. Minor natural area category is observed on the mining right area boundary; it can be described as the area natural area which is not identified as CBAs or ESAs but which provide a range of ecosystem services from their ecological infrastructure. This area minimises habitat and species loss through strategic landscape planning and ensure basic ecosystem functionality.

Water bodies including Channeled valley-bottom wetland, Depression,Flood plain and Seep have been observed within and around the project area which also falls within the Quaternary Catchment B11A (Olifants Water Management Area) of which activities of WUL that are triggered have been applied, see Table 7. The land use alternatives must be investigated in more detail once specialist investigations have been completed in the EIA phase.

The mining right area includes agricultural activities (livestock farming, i.e. cattle farming) and no graves were observed within the mining right boundary. The mine area falls within the Olifants Quatenary Catchment area. Powerlines supplying electricity were observed on the farm portion.

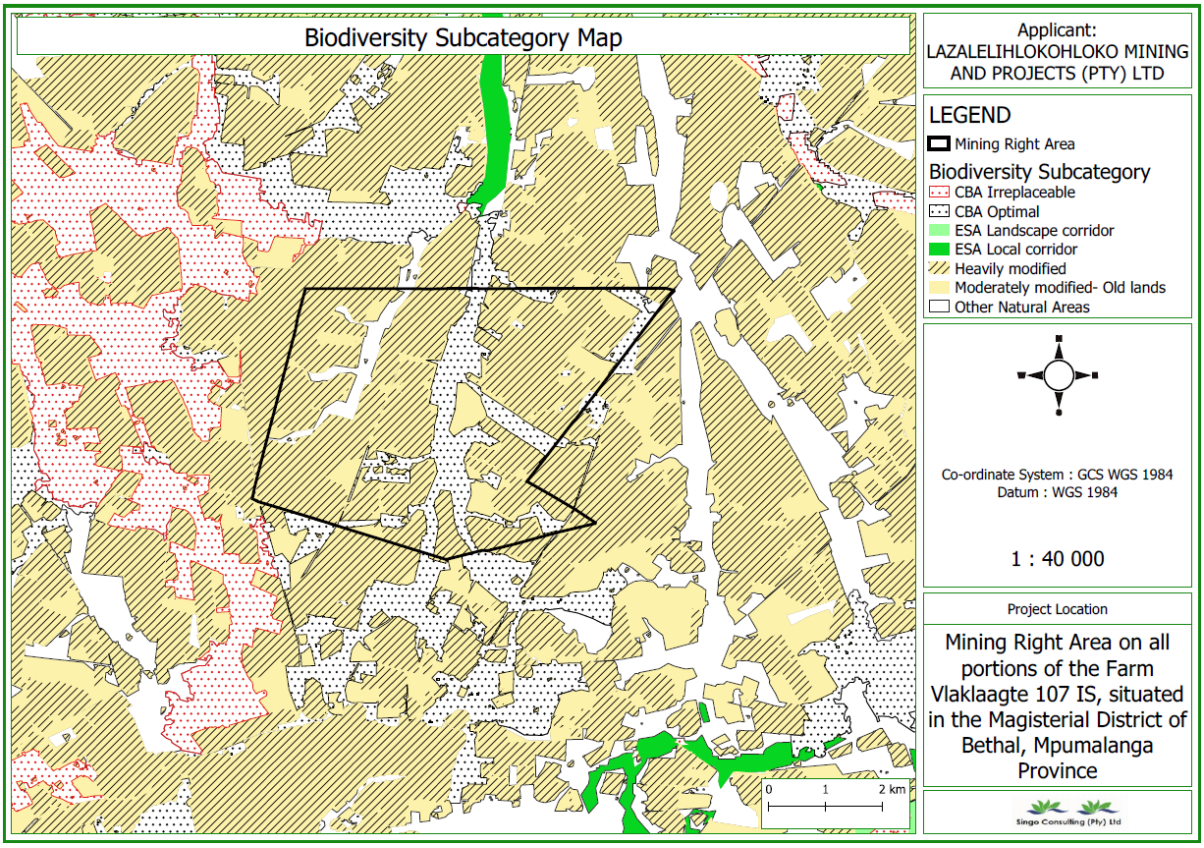


Figure 8: The critical biodiversity map of the area.

6.3 Process alternatives

6.3.1 Mine technology

The preferred alternative for mining and extracting the target mineral resource is open-pit surface mining.

6.3.2 Mine operational

Operations and associated infrastructure, including a crushing and screening plant, will be available for the duration of the LOM.

6.3.3 Water supply

Two alternative water-supply options have been identified, namely:

- Water obtained from drilled boreholes. This activity will trigger section (21a) of the NWA, which is included in the IWUL application.
- Water obtained from dirty water containment facilities, e.g. the Pollution Control Dams (PCD) will be used for dust suppression and this triggers section (21g & 21j) of the NWA, which is included in the IWUL application.

6.3.4 Waste disposal

The following waste disposal options have been identified:

- Stockpile for use as non-select product. This option involves temporarily stockpiling on-site and selling it off at a later stage.
- Disposal: This option involves disposal of discard to a surface disposal site or into the pit. The disposal of waste will be further investigated and discussed during the EIA phase.

6.4 No-go alternative

The no-go alternative would entail not mining the coal reserve and leaving the area as cultivated land. In accordance with the NEMA, no-go options must be investigated and assessed. No-go options would mean that the Onverwacht project is not undertaken, thus anticipated negative impacts associated with the environment and social will not take place. This alternative will need to be weighed against the findings of the EIA and the potential socio-economic benefits of the project. The results of the assessment will be presented in the EIA report.

Coal is a strategic resource in South Africa and coal resources are essential in ensuring economic growth in South Africa. By not implementing this project, more than approximately fifty- two permanent jobs and approximately twenty unskilled jobs will not be created to begin off with. In addition, a resource with high seam quality and a calorific value of up to 25.61Mj/kg as raw coal will become sterilised. The environmental, social and economic impacts will be assessed in detail during the EIA phase to identify and address all negative impacts.

The no-go alternative's viability cannot be addressed at this time and will be discussed in more detail during the EIA phase once specialist inputs have been received. The brief overview of the no-go alternative is not an in-depth assessment and the impacts will be assessed and discussed in detail in the EIA report.

7 PUBLIC PARTICIPATION PROCESS

7.1 Objectives of public participation

Public participation aims to:

- Provide I&APs with an opportunity to voice their support, concerns and questions regarding the project, application or decision.
- Provide an opportunity for I&APs, EAPs and the Competent Authority (CA) to obtain clear, accurate and understandable information about the environmental, social and economic impacts of the proposed activity or implications of a decision.
- Provide I&APs with the opportunity to suggest ways to reduce or mitigate an activity's negative impacts and enhance the positive impacts.
- Enable the applicant to incorporate the needs, preferences and values of the I&APs into the application.

7.2 Legislation

The PPP must comply with several important sets of legislation that require public participation as part of an application for authorisation or approval, namely the MPRDA, NEMA, NEM:WA and NWA. Adherence to the requirements of these acts will allow for an integrated PPP, satisfying the requirement for public participation referenced in the Acts. The details of the integrated PPP are provided in the following sections (7.3-7.7) respectively.

7.3 Identification of I&APs

Potential I&APs were identified based on the definition of I&APs in the EIA regulations. The I&APs database includes authorities and landowners. The PPP and consultation have been conducted in adherence to the relevant legislation.

People and/or organisations were registered as I&APs for the project if they:

- Are landowners or tenants adjacent to the proposed study area.
- Are the local municipality/ward councillors with jurisdiction in the area or represent the ratepayers' association.
- Are an authority or organ of state with jurisdiction in respect of any aspect of the activity.
- Responded to the Background Information Document (BID), advertisements and site posters.

- Attended a public meeting.

The PPP commenced on 23rd October 2020 with the publishing of the newspaper in the Witbank news with an initial notification and call to register as Interested and Affected, ending on 01st December 2020. The notification procedure included the following;

- Newspaper advertisement
- Site notices plugging
- Stakeholder identification
- Landowner indetification through winded search
- Draft Scoping report sent to all stakeholders as well as Interested and Affected parties.
- Compilation of comments received from stakeholders and Interested and Affected Parties.

7.4 Background information document

Included in the I&AP notification letters and e-mails with a BID, which includes:

- Locality map and description
- Project description and background
- Legal framework
- Explanation of the scoping and EIA process to be followed
- An invitation to get involved and comment on the proposed project
- Time frames of the scoping report

7.5 Notification of availability of scoping report

This draft scoping report was made available for public review for a period of 30 calendar days in accordance with Section 40 (3) of the 2014 EIA regulations. The report was placed for review at the Bethal public library and soft copies obtainable from Mr Abel Mojapelo(abel@singoconsulting.co.za) at Singo Consulting (Pty) Ltd. All incoming comments received from stakeholders and I&APs will be included in the Issues and Comments register. Comments being received from stakeholders includes; Department of Agriculture, SANRAL (South African National Roads Agency Limited), Department of Water and Sanitation (DWS) together with community members, other departments are anticipated to comment like; DRDLR (Department of Rural Development and Land Reform), Olifants Catchment, MTPA (Mpumalanga Tourism & Parks Agency), SANBI (South African National Biodiversity Institute) , Eskom, Anglo American, DARDLEA(Mpumalanga Department: Agriculture, Rural Development, Land

and Environmental Affairs) ,DEA(Department of Environmental Affairs), DMRE(Department of Mineral and Resources and Ennergy) and Govan MbekiLocal Municipality and Gert SibandeDistrict. The DMRE has forty-three days from report submission to review and make decision for the application.

7.6 Summary of issues raised by I&APs

Compile the table summarising comments and issues raised, and reaction to those responses.

Table 7: Summary of issues raised by I&APs and stakeholders.

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	Issues 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					
Landowner/s					
	X				
Lawful occupier/s of the land					

Landowners or lawful occupiers on adjacent properties					
	X				
Municipal councillor					
Municipality					
	X				
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
	X		.		
	X				
	X				
	X				
Communities					

Dept. Land Affairs					
	X				
Traditional Leaders					
Dept. Environmental Affairs					
	X				
Other Competent Authorities affected					
	X				
	X				
	X				
Interested & Affected Parties					
	X				

8 ENVIRONMENTAL ATTRIBUTES AND DESCRIPTION OF THE BASELINE RECEIVING ENVIRONMENT

8.1 Geology

8.1.1 Regional geology

The coal bearing Vryheid Formation of the Ecca Group has been extensively investigated during the twentieth century by various authors of which some are Le Blanc Smith (1980), Falcon (1981,1988), Winter (1985), Cadle (1986) and Cairncross (1986). The Pietermaritzburg Formation shales, the basal part of the Ecca Group, are absent in the Witbank Coalfield thus the Vryheid Formation either conformably overlies the glaciogenic Dwyka Formation or unconformably overlies the pre-Karoo basement (Cairncross, 1987). This background discussion focuses primarily on the palaeo depositional environments and stratigraphy of the Vryheid Formation in the Witbank Coalfield. However, broad similarities and contrasts between the latter and the adjacent Highveld Coalfield have been found and comparatively compiled by Jeffrey (2001).

A generalised stratigraphic column of the Vryheid Formation in the Witbank with lithologies, coal seams and interpreted depositional environments. In the Witbank Coalfield the pre-Karoo rocks pre-dominantly consist of Rooiberg felsites of the Proterozoic Bushveld Complex forming palaeo topographic ridges and valleys. The pre-Karoo basement owes its rugged topographical character to the scouring effect of the PermoCarboniferous Dwyka glaciers and continental ice sheets prior to the deposition of the coal bearing Vryheid Formation sediments (Snyman, 1998). According to the work of Cairncross (1989), the sediment dispersal and distribution of the coal seams was largely controlled by the undulating preKaroo topography.

Extensive deposits of glacial moraines and glaciolucastrine varved sediments are evidence of glaciation dominated sedimentary processes. Subsequently to those a reworked glaciofluvial outwash plain emanated from the northward retreating ice sheets as a consequence of climatic amelioration. Immediately after this active sedimentation took place, peat accumulated on the glaciofluvial sedimentary platform (Cadle et al., 1990).

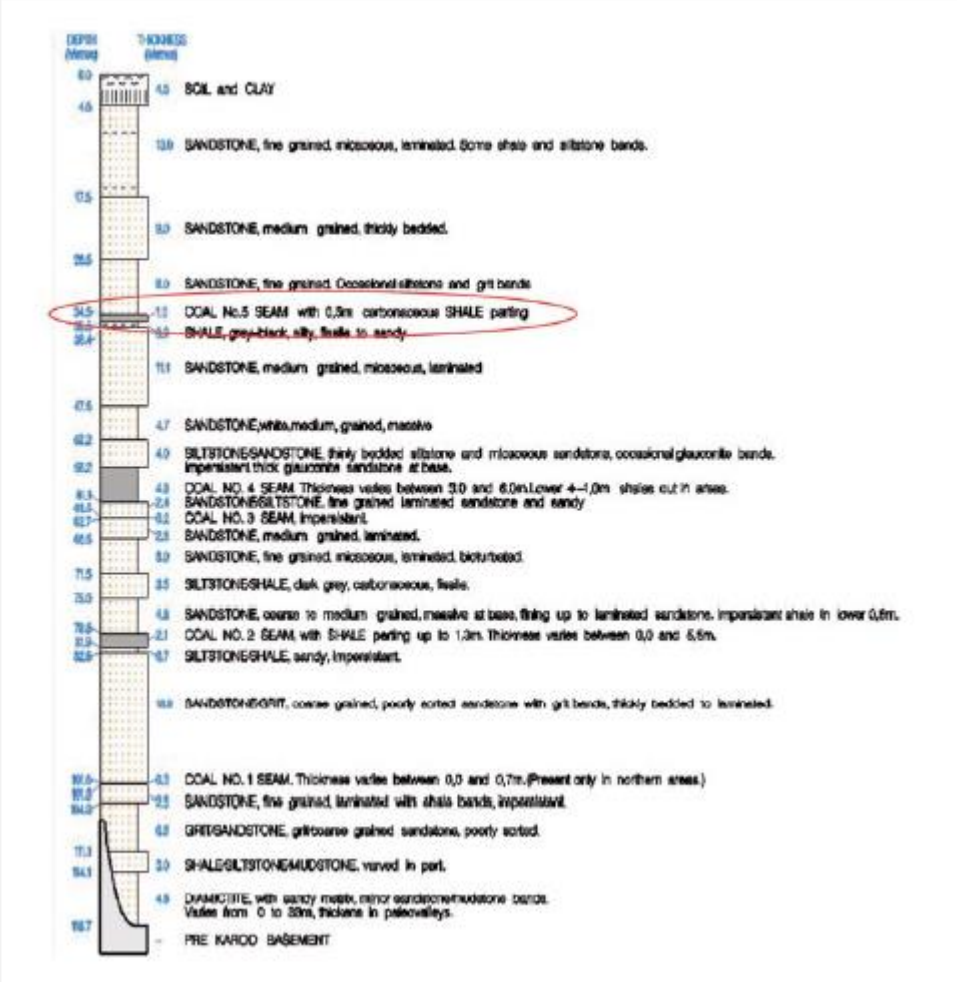


Figure 9: The stratigraphic column of the coalfield

8.1.2 Vryheid formation

The Main Karoo Basin consists of a retro-arc foreland basin filled with a lithological succession ranging in age from the Late Carboniferous to the Middle Jurassic (Johnson et al., 2006). The basin-fill sequence wedges out northwards over the adjacent Kaapvaal Craton. In the Main Karoo Basin of South Africa, the Vryheid Formation is a sandstone and coal-rich stratigraphic unit that interfingers with (i.e., is transitional with and partially time equivalent to) the overlying Volksrust and underlying Pietermaritzburg Formations, both of which are both are predominantly argillaceous (Figure 10). In terms of environment of deposition, the formation can be divided into lower fluvial-dominated deltaic interval, a middle fluvial interval (the coal-bearing zone) and an upper fluvial-dominated deltaic interval (Johnson et al., 2006). The thickness and frequency of the sandstone units increases from the base of the formation, reaching their maximum in the middle fluvial interval and then decrease again towards the overlying Volksrust Formation. To the south and south-east, the Vryheid Formation grades laterally into undifferentiated, deep-water argillites of the Ecca Group (Figure 10 The Volksrust and Pietermaritzburg Formations can only be recognised when the Vryheid Formation forms part of the vertical sequence. In the north and north-western portions of the

basin, the Pietermaritzburg Formation was not deposited and the coal-bearing strata of the Vryheid Formation rest directly upon the basement.

The Vryheid Formation is one of sixteen recognised stratigraphic units that constitute the Permian Ecca Group. During the deposition of the Ecca Group the basin was dominated by a large sea (the salinity levels of this water body remain unresolved). The exception to this model was the deposition of the coal-bearing strata of the Vryheid Formation along the northern margin during an episode of deltaic progradation into the basin. Deposition of the Vryheid Formation was terminated by a basin-wide transgression that drowned the Vryheid deltas and their coal swamps, resulting in the deposition of the deep-water sediments of the Volksrust Formation. The investigation of the project area did not identify any outcrops of bedrock; the entire area being covered by Cenozoic Regolith.

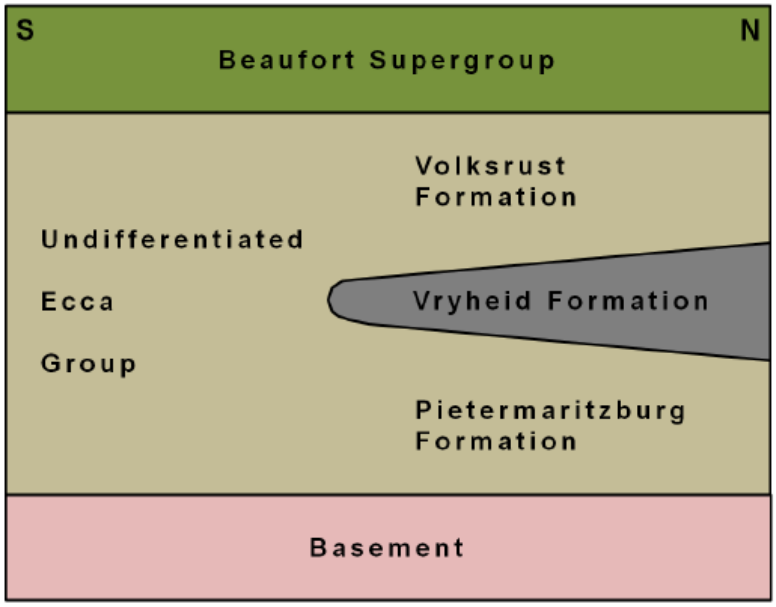


Figure 10: Schematic north-south oriented stratigraphic section of the Ecca Group in the northeast corner of the Karoo Basin.

8.1.3 Local geology and coal seams

The project falls under the Vryheid formation and the rocks of the Permian Vryheid Formation and Jurassic aged dolerites dominate the surface exposures of the coalfield. The Vryheid Formation is underlain by the Dwyka Group and is gradually overlain by mudstones (and shale) and sandstones of the Volksrust Formation. The typical colours for the Vryheid Formation are grey and yellow for the sediments and black for the coal seam. The thickness of the grey shale can vary, and this is interlayered with variable yellow sandstone and coal seams, see Figure 11.

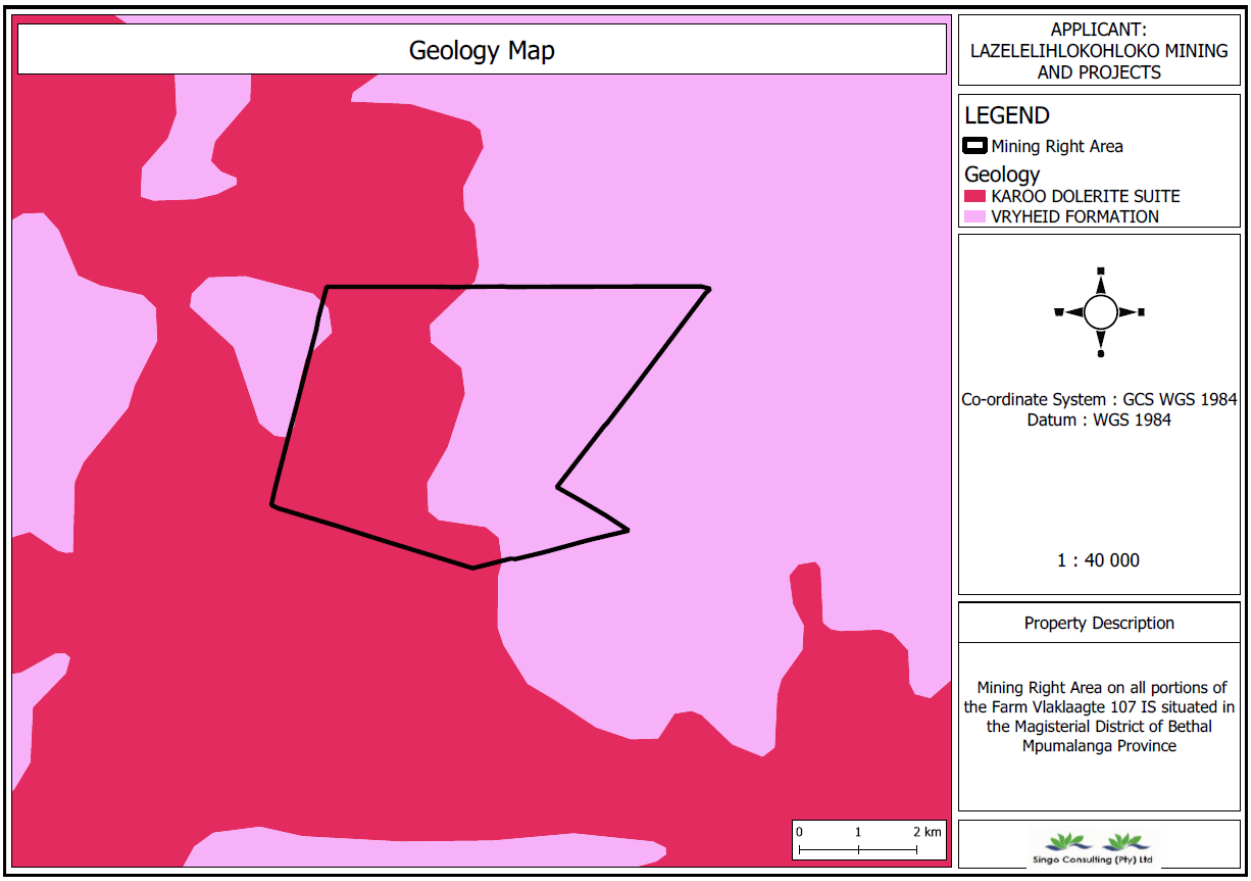


Figure 11: The lithology of the area

8.1.3.1 Coal seams

The proposed project area falls within the Highveld coalfield. Sediments of Vryheid and Dwyka formations underlay the area which was deposited on a glaciated Pre-Karoo basement consisting of Rooiberg felsites. The Vryheid formation is essentially an interbedded succession of sandstone with lesser gritstone, siltstone and mudstone, which contains five coal seams of the Highveld coalfield, as shown in Figure 9 above.

The red mark surrounds No. 5 seam which is the seam under investigation. The No. 4 seam below No. 5 seam generally has a flat to gently undulating topography. In areas where a dolerite sill has cut through, the seam encounters faults and some areas slightly tilted along the margins of the fault. The coal is generally burnt in those areas. The intrusions caused vertical throw on the faults which vary from 6 to 25m. Few dykes have been located on the surface. It is probably so because they are not numerous and the thick soil covers them. Weathering of the sandstone from surface has taken place on certain parts of the mine. The depth of the weathering varies and leaves behind soft overburden. Below the soft overburden is nonweathered sandstone which overlies the whole No. 5 seam and is regarded as hard overburden.

No 4 seam:

The No. 4 seam is found in most of the area and it is unmined in areas that have undergone weathering or been burnt by dolerite. The seam has thicknesses that vary from 3 to 6 m, but is remarkably consistent at approximately 4.9 m in thickness. The coal is commonly dull-lustrous, with a few bright bands, and has an average calorific value of 21 MJ/Kg. The top third of the seam contains inferior coal interbedded with bands of shale, carbonaceous shale and coaly shale.

No 5 seam:

The No. 5 seam is found on certain parts of Bethal Colliery. Figure 12 shows the No. 5 seam which is of interest to mine. The whole seam (No. 5 seam upper and lower) has an average thickness of 1.8 m. It contains a parting of carbonaceous shale which divides the seam into two parts. The parting has an average thickness of 0.2 m. No. 5 seam upper is sporadically developed and generally has less thickness of approximately 0.5 m. No. 5 seam lower is more consistently developed and has a thickness of approximately 1.1 m. No. 5 seam upper is overlain by non-weathered sandstone with fine particles of siltstone and underlain by the parting. No. 5 seam lower is overlain by the parting and underlain by shale. The neighbouring Matla coal has the same No. 5 seam but with much more thickness and they mine the coal in a longwall mining method. During the visit at the opencast, No. 5 seam lower was observed from the side of a highwall in cut no.23. No. 5 seam upper was absent in that area of No. 5 seam. The shale rock can be observed to be below the No. 5 seam at that area. The thickness of the seam in that area is approximately 0.5 m.

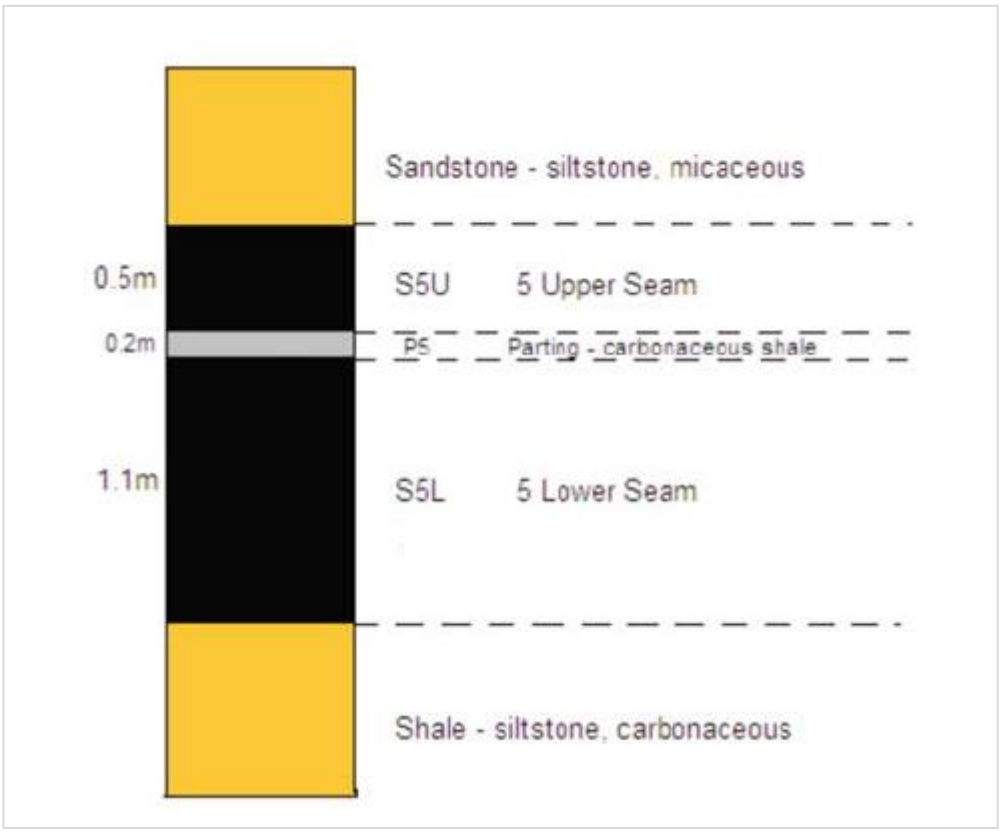


Figure 12: Seam 5 stratigraphy

8.1.4 Soil

A soil specialist has been appointed that will assess the soils, land uses and capability of the land to determine baseline conditions prior to mining. The specialist report will be made available during the EIA phase. Desktop studies currently depicts that the area is comprised of soils with an Association of classes 5,6,10,11,12 : Undifferentiated clays, red or yellow structureless soils with a plinthic horizon (see Figure 13 below).

Figure 13: Soil classes map encountered

9 CLIMATE

Climate, topography, soil and other biotic factors are considered as potentially restrictive factors in plant growth. Of the above factors, climate is considered as the most restrictive as vegetation is directly or indirectly dependent on climatic factors for the availability of minerals, growth and reproduction. These climatic factors are radiation, temperature and precipitation. Although the united effect of these factors exerts influence on vegetation, each may vary on macro-, meso- and micro-scale.

9.1 Temperature

Air temperature is essential, both for determining the effect of plume buoyancy (the larger the temperature difference between the plume and the ambient air, the higher the plume can rise), and determining the development of the mixing and inversion layers. The temperature in the vicinity of the mine is warm to hot during summer and cold in the winter. Mean Temperatures vary from 29˚C in the summer to 15˚C in the winter. The region is coldest in June with minimum temperature 3˚ and maximum temperature reaching 19˚ see Error! Reference source not found. below.

Bethal is a slightly moist area. Less rainfall occurs in the area, as shown in Figure 14.

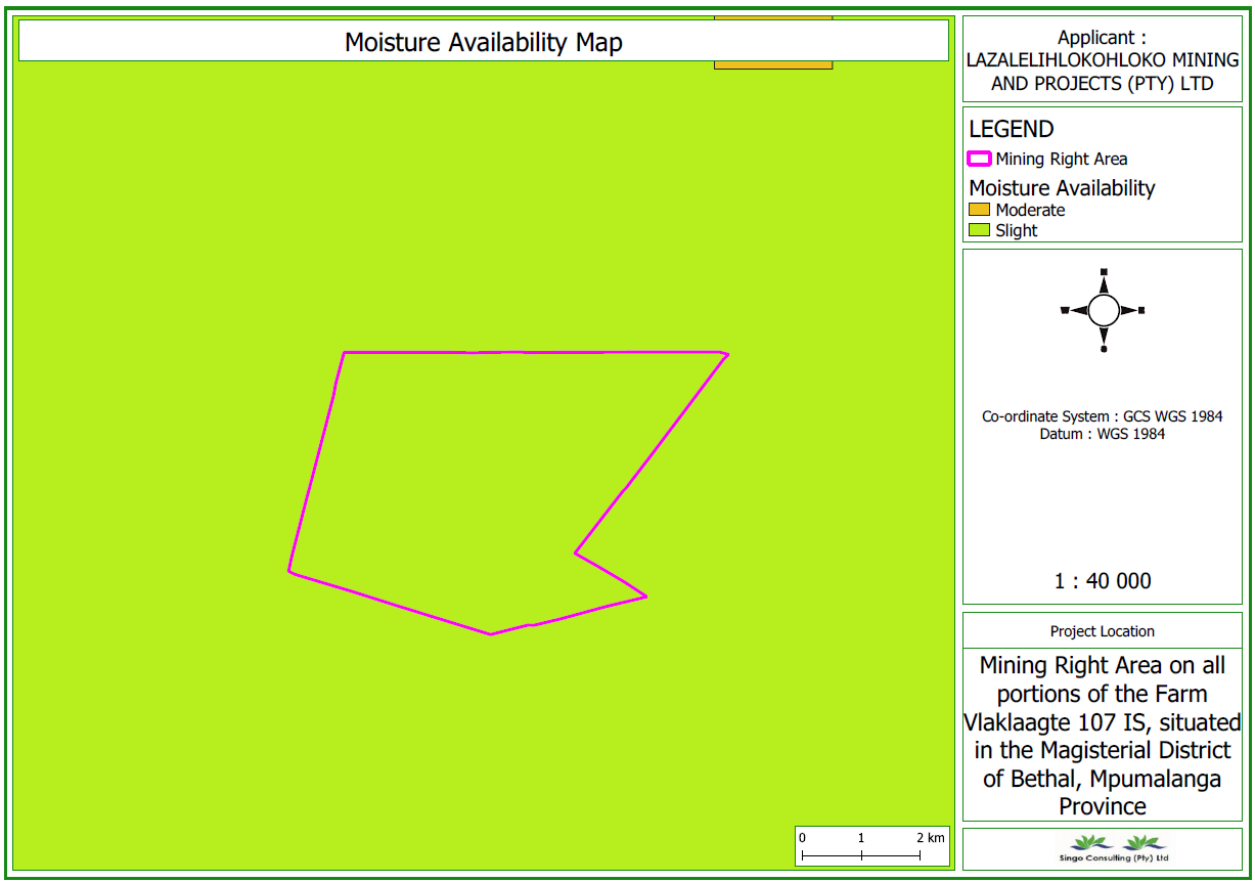


Figure 14: Moisture content

9.2 Rainfall

The daily rainfall extraction utility contains daily patched rainfall data for all official South African Weather Services stations. The rainfall stations considered were close to the site had a reasonable length of record and a relatively complete and reliable data set. The annual rainfall within the mining area ranges from 601mm-800mm as seen on Figure 15 below.

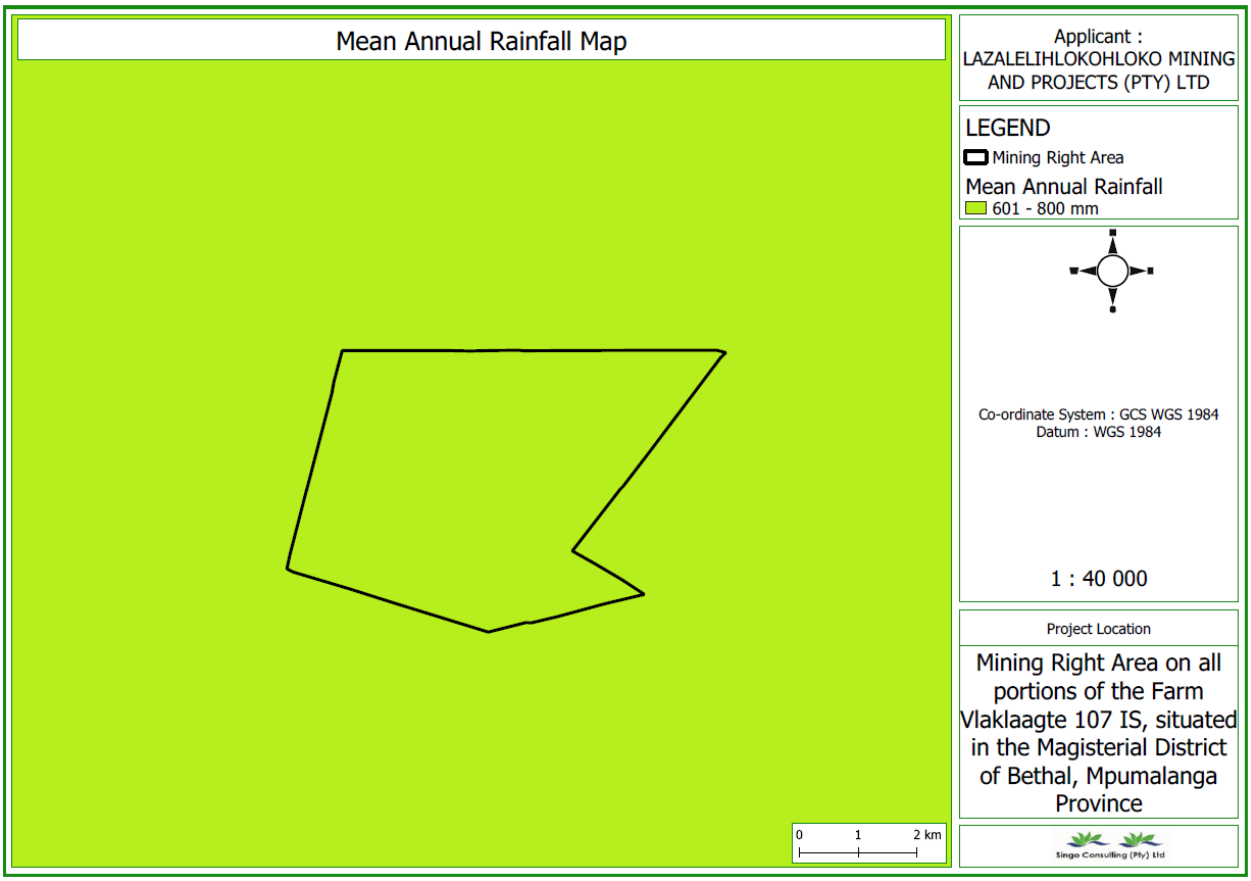


Figure 15: Mean Annual Rainfall map of the project area

10 TOPOGRAPHY

The topology of the area is illustrated in Figure 16 below. The topography on site is generally flat to gentle dipping. The elevation ranges from 1545 m to 1585m above sea level, with the mining right at 1,660m. The contour lines are far apart which indicate flatness on the southern site of the mine area and closer to each other on the north western side, indicating the elevation increasing.

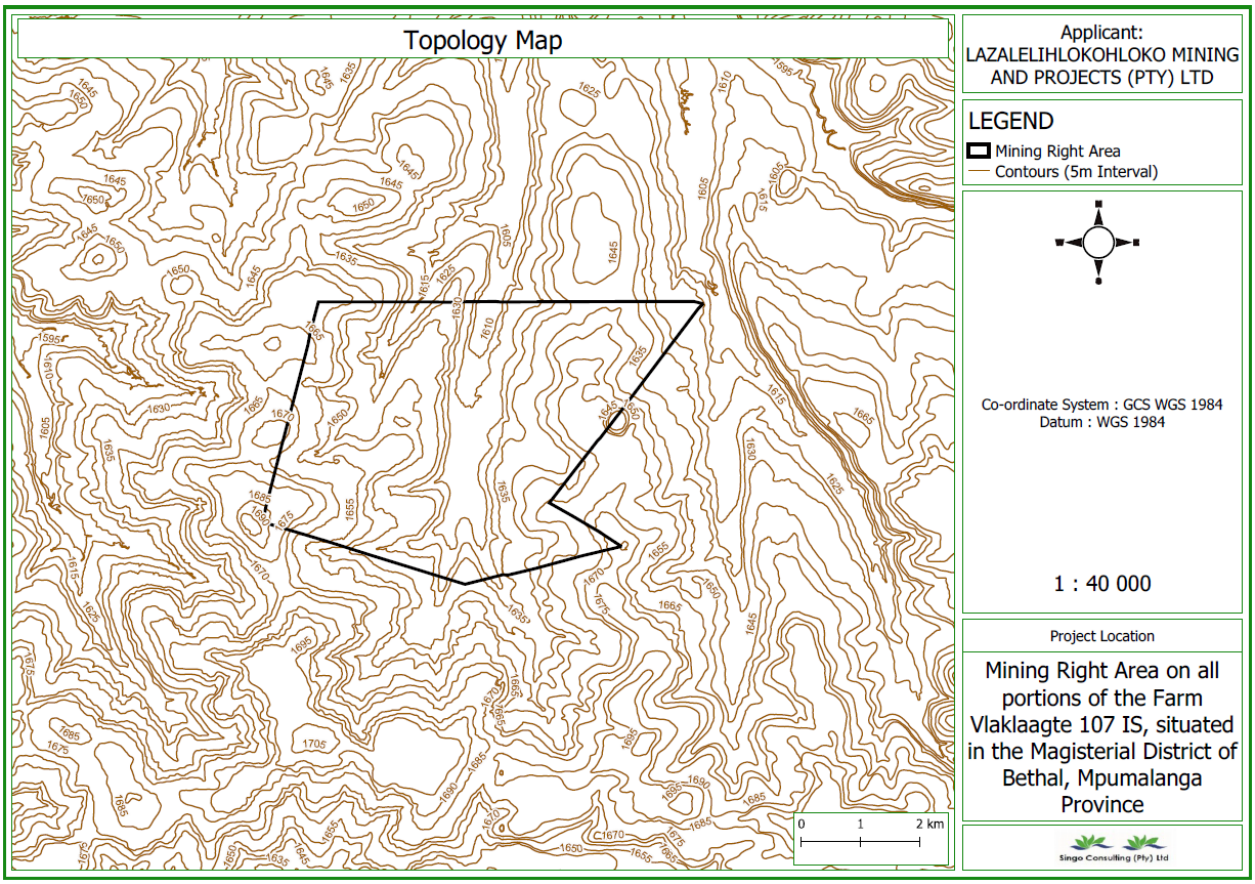


Figure 16: Topology map of the project area

11 AIR QUALITY

The assessment of the ambient air quality is based on available ambient air quality information identified in the literature review and data supplied by the DEA and the South African Weather Service (SAWS). Mpumalanga experiences a wide range of natural and anthropogenic sources of air pollution ranging from veld fires to industrial processes, agriculture, mining activities, power generation, paper and pulp processing, vehicle use and domestic use of fossil fuels. Different pollutants are associated with each of the above activities, ranging from volatile organic compounds and heavy metals to dust and odours.

The area is situated 41.8 km south west of Kriel power station. These power stations result a significant negative impact on air quality in the area and have specific air quality management actions rectifying the situation. The impacts of the proposed mine activities will be investigated during impact assessment by an air quality specialist.

12 NOISE

In summary the results of the noise baseline indicated that existing sources of noise in the

Project area area:

• Noise of existing mining activities near to the site; and

• Noise from roads (incl. domestic traffic as well as trucks driving through).

Noise and vibration are not monitored at the proposed site as it is not currently being mined and used for agricultural activities. As with air quality, the surrounding mines and industries impact on noise levels from vehicular and mechanical equipment. The current ambient noise levels are generally comparable with the levels associated with farming activities. Due to numerous daytime sources including traffic on the adjacent national roads, haul roads and mining related blasting activities, the noise and vibration levels are most prominent during the daytime and the noise emitted during these activities is occasionally intrusive to the wellbeing of the community. In the proposed coal mining area, the noise will be coming from vehicles moving to and from the site, the R544 route and blasting that will occur when extracting deeper resource.

13 WATER RESOURCES

Surface water

As according to the hydrology map of the proposed mine area (Figure 17), there is a channelled valley bottom wetland that exists within the mine area as well as the depression and the unchanneled valley bottom wetland. A perennial river exists less than 100 m away from the mine area. The proposed mine area falls within the Quaternary catchment B11A within the Olifants Water Management Area as shown on Figure 18 below. A hydrologist has been appointed to conduct surface water studies and results, of such will be made available during the EIA phase.

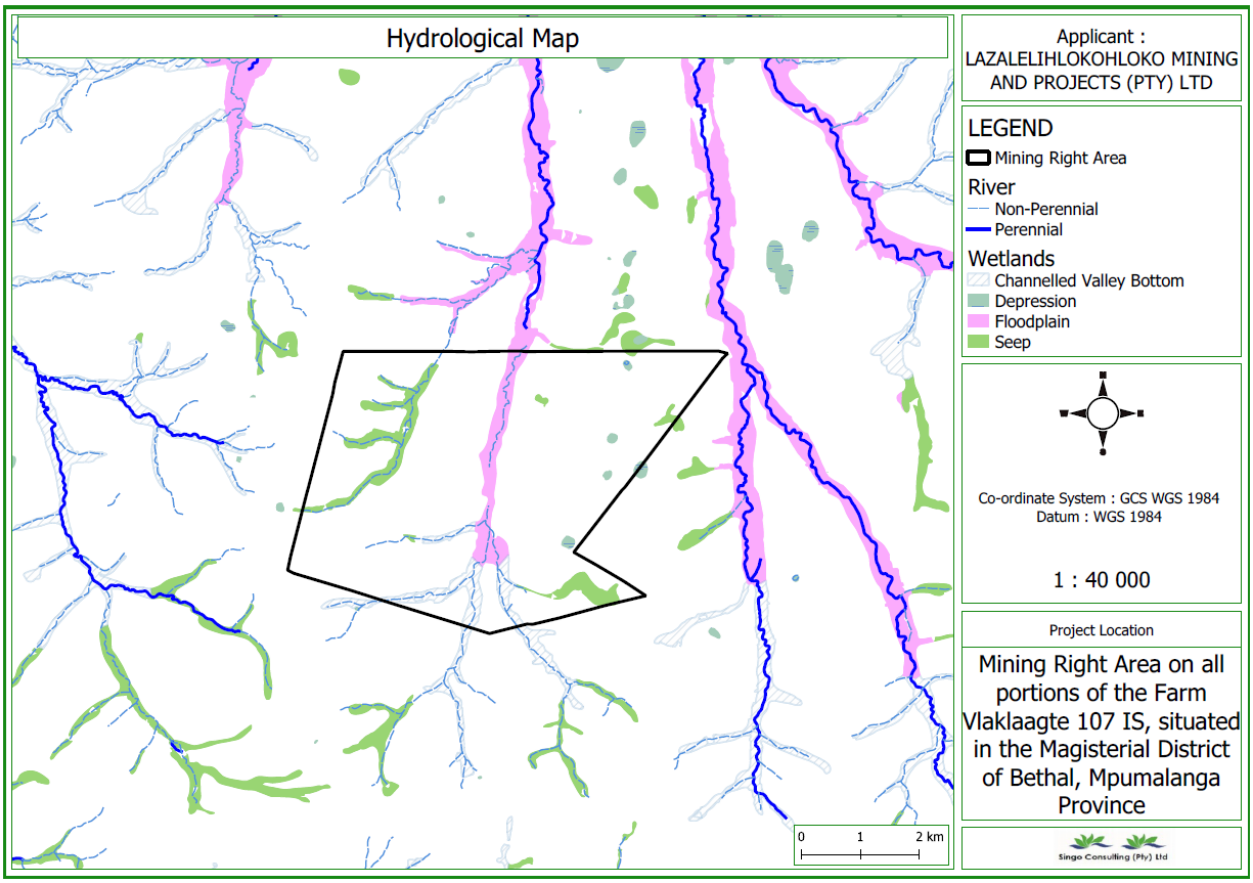


Figure 17: Hydrology map of the area

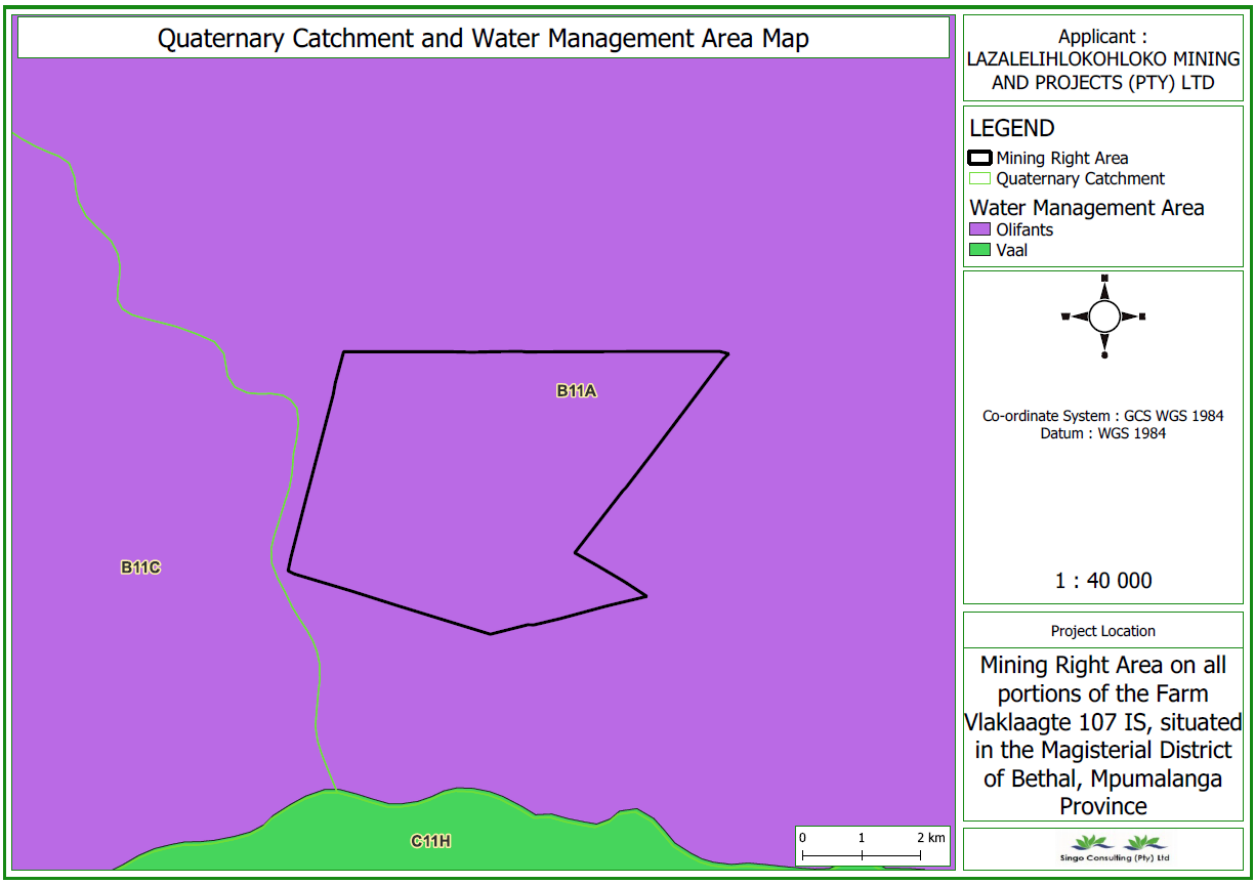


Figure 18: Quatenary Catchment & Water Management Area of the proposed mine area

Ground water

Since mining activities can potentially impact on the groundwater, a description of the current groundwater conditions is required. A geohydrologist has been appointed to investigate the prevailing groundwater conditions. This will serve as a reference baseline for quantifying potential mining impacts on the existing groundwater regime.

The geohydrological specialist investigation will include:

❖ Aquifer characteristics;

❖ Hydro census;

14 TERRESTRIAL ECOLOGY

14.1 Regional vegetation

14.1.1 Overview of the biome type

Singo Consulting (Pty) Ltd will appoint a specialist to conduct a thoroughgoing study for ecology, however as per the desktop study conducted in the premises of Singo consulting in reference to Mucina and Rutherford (2006) it was noted that the project area falls in the Grassland biome. The grassland biome is the second largest biome in South Africa, covering 28.4% of the country or more than 360 000 km^2. The grassland biome is found in summer rainfall areas, from sea level to above 2,000 m. The grassland biome is rich in plants, with nearly 3,800 plant species recorded. Because fires are frequent, there are very few woody plants like trees (they occur mainly in river courses and on rocky slopes.

In the past, grasslands housed large herds of animals like the black wildebeest, blesbok and eland. Today, these animals mainly survive in nature reserves and on game farms. Grasslands are rich in birds, many of which eat seeds, e.g. black korhaan, blue crane and helmeted guinea fowl. Nearly half of the original grassland biome has been ploughed to plant maize, sunflowers, sorghum and wheat. Grassland supports livestock farming, including cattle and sheep. Most of Gauteng and the Mpumalanga Highveld, which have been developed for mining, industry and urban development, forms part of the grassland biome.

The grassland biome has extremely high biodiversity, second only to the fynbos biome. Rare plants are often found in the grasslands, especially in the escarpment area. These rare species are often endangered, and mainly comprise endemic geophytes or dicotyledonous herbaceous plants. Very few grasses are rare or endangered. The scenic splendour of the escarpment region attracts many tourists.

14.1.2 Broad vegetation classification

According to Mucina and Rutherford, 2006, the proposed area is located in the Moist clay -/ Moist cool Highveld Grassland. This vegetation is distributed in Mpumalanga and Gauteng on plains between Belfast (in the east) and the eastern side of Johannesburg (in the west) and extends to Bethal and Ermelo (in the south) and west of Piet Retief. Altitude averages between 1,520 and 1,780 m, but is as low as 1,300 m.

The climatic conditions of the vegetation unit are strongly seasonal summer rainfall, with very dry winters. The MAP (650-900 mm, averaging 726 mm) is relatively uniform across most of the unit, but increases significantly in the extreme south-east. The coefficient of variation in MAP is 25% across most of the unit

but drops to 21% in the east and south-east. Frost occurs about thirteen to forty-two days, but longer at higher elevations.

The vegetation is considered vulnerable with a conservation target of 24%. Only very small fraction is conserved in statutory. Some 44% transformed primarily by cultivation, plantations, mines, urbanisation and dam building. Cultivation may have had a more extensive impact, indicated by land-cover data (Mucina and Rutherford, 2006).

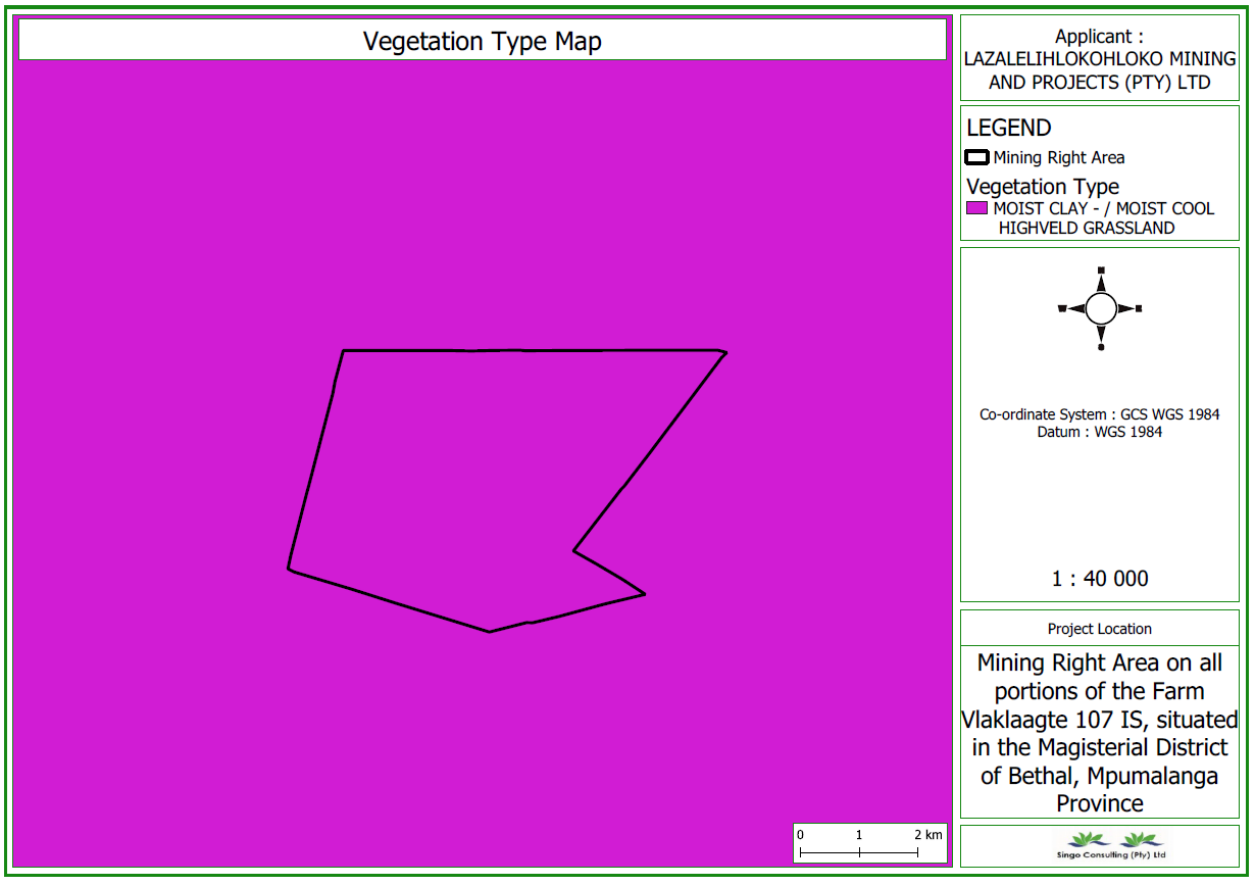


Figure 19: Broad vegetation classification for the site

14.2 Terrestrial threatened ecosystem

The South African National Biodiversity Institute (SANBI), in conjunction with the DEA, released a draft report in 2009 entitled *Threatened Ecosystems in South Africa: Descriptions and Maps*, to provide background information on the list of threatened ecosystems (SANBI, 2009). The purpose of this report was to present a detailed description of each of South Africa's ecosystems and to determine their status using a credible and practical set of criteria. The following criteria were used to determine the status of threatened ecosystems:

- Irreversible loss of natural habitat

- Ecosystem degradation and loss of integrity
- Limited extent and imminent threat
- Threatened plant species associations
- Threatened animal species associations
- Priority areas for meeting explicit biodiversity targets as defined in a systematic conservation plan

In terms of Section 52 (1) (a) of the NEM:BA, a new national list of ecosystems that are threatened and in need of protection was gazetted on 9 December 2012 (Government Notice 1002 (Driver et. al., 2004)). The list classified all threatened or protected ecosystems in South Africa in four categories: Critically Endangered (CR), Endangered (EN), Vulnerable (VU), or Protected. The purpose of categorising these ecosystems is to prioritise conservation areas in order to reduce the rates of ecosystem and species extinction, and prevent further degradation and loss of structure, function, and composition of these ecosystems. It is estimated that 9.5% of South African ecosystems are threatened, with CR and EN ecosystems accounting for 2.7%, and VU ecosystems 6.8% of the land area. It is vital that Threatened Terrestrial Ecosystems inform proactive and reactive conservation and planning tools, such as Biodiversity Sector Plans, municipal Strategic Environmental Assessments (SEAs), Environmental Management Frameworks (EMFs), EIAs and other environmental applications (Mucina et al., 2006). According to data sourced from SANBI, the proposed project is situated in a VU ecosystem (Eastern Highveld Grassland).

14.3 Methodology and reporting

The information provided in this terrestrial biodiversity report is based on observations made during the field survey and a review of the available reports containing known and predicted biodiversity and information on the study area. Various spatial data sets were analysed and relevant information was extracted for the study area. The various approaches and aspects considered are detailed in the following.

14.3.1 General

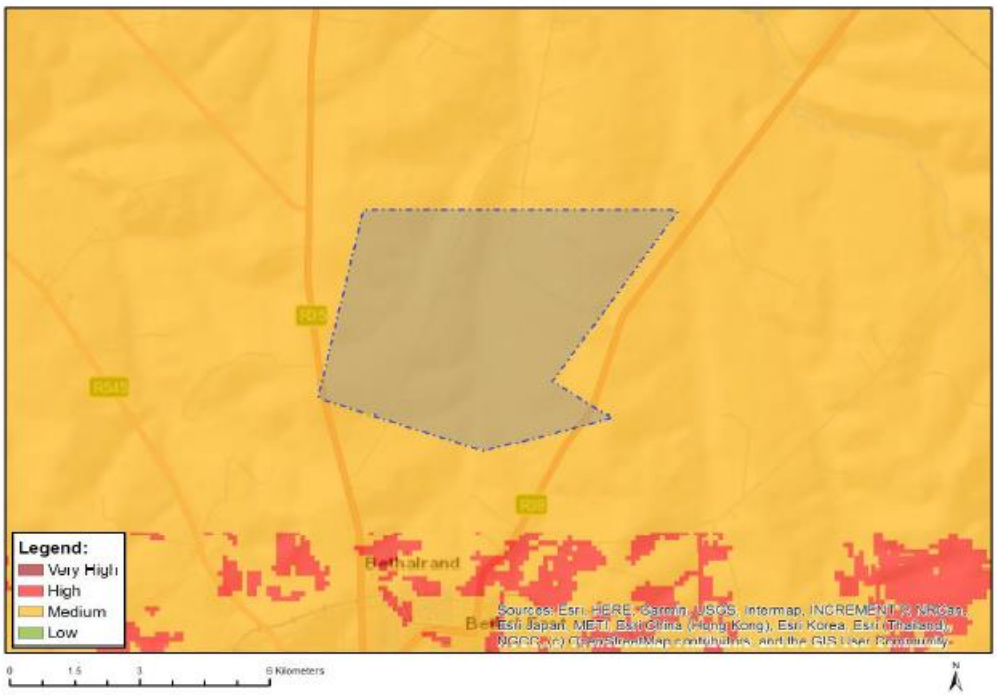
A desktop survey utilising aerial images and photography was undertaken to assemble background information on the different features and vegetation types in the proposed project footprint.

14.3.2 Fauna

Most mammals and reptiles are either very secretive, nocturnal, hibernate (reptiles), migrate (birds) or prefer specific habitats, which made sampling and identification difficult. Part of the proposed mine area is ulitised for livestock farming as shown in Figure 20 below. According to the screening report developed in the Singo Consulting's offices, the mine area has high environmental sensitivity with features including

the Aves-Tyto capensis , Mammalia-Crocidura maquassiensis , Mammalia-Hydrictis maculicollis and Mammalia-Ourebia ourebi ourebi.

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)
Medium	Aves-Tyto capensis
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi

Figure 20: Map relative to animal species theme sensitivity (Screening report)

14.3.3 Flora

According to the vegetation map of the proposed mine area, the area is dominanted by the moist clay/ moist sandy cool Highveld grassland and the moist sandy Highveld grassland. The screening report showed the project area to contain the sensitive species 647 and Pachycarpus suaveolens which are both

of low environmental sensitivity. For vegetation clearing activities, the contractor will be inducted by the Environmental Control Officer on site during the operation.

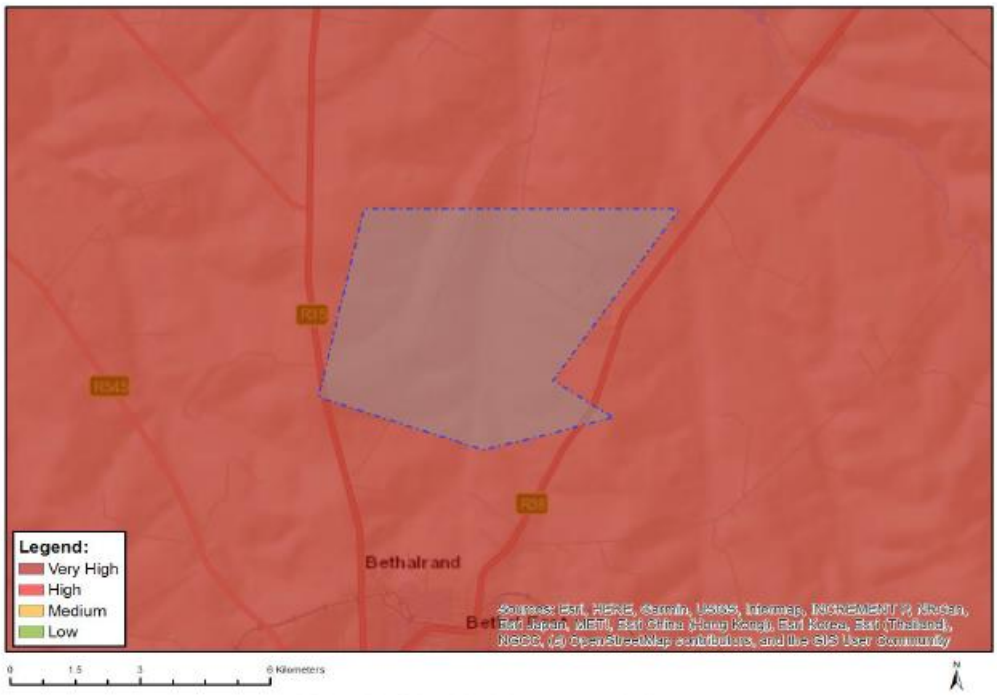
14.3.4 Sensitivity map

Following the site visit, an ecological sensitivity map of the site was generated by integrating the information collected on-site with the available biodiversity information available in the aforementioned literature and various spatial databases. The ecological sensitivity of the different units identified in the mapping procedure was rated according to the following scale:

- ***Low***. Units with a low sensitivity is likely to have a negligible impact on ecological processes and terrestrial biodiversity. This category is reserved for areas where the natural vegetation has already been transformed, usually for intensive agricultural purposes like cropping. Most types of development can proceed in these areas with little ecological impact.
- ***Medium***. Includes areas of natural or previously transformed land where the impacts are likely to be largely local and the risk of secondary impact (like erosion) is low. Development in these areas can proceed with relatively little ecological impact if appropriate mitigation measures are taken.
- ***High***. Includes areas of natural or transformed land where a high impact is anticipated due to the high biodiversity value, sensitivity or important ecological role of the area. Development in these areas is highly undesirable and should only proceed with caution as it may not be possible to mitigate all impacts appropriately.
- ***Very high***. Includes critical and unique habitats that house rare/endangered species or perform critical ecological roles. These areas are no-go areas from a developmental perspective and should be avoided at all costs.

The project area has very high environmental sensitivity, as according to the screening report generated. With features including Critical Biodiversity Area 2 and vulnerable ecosystem. The Critical Biodiverity Area 2 can be described as the area that is kept to meet the biodiversity targets, in the smallest area, while avoiding conflict with no other land uses. See Figure 21 below.

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 2
Very High	Vulnerable ecosystem
Very High	Protected Areas Expansion Strategy

Figure 21: Map of relative terrestrial biodiversity sensitivity (screening report)

14.4 Impact assessment methodology

The significance of the impacts will be assessed using the following impact assessment guideline:

Table 8: Impact assessment

Nature of the impact		
Positive	+	Impact will be beneficial to the environment (a benefit).
Negative	-	Impact will not be beneficial to the environment (a cost).
Neutral	0	Where a negative impact is offset by a positive impact, or mitigation measures, to have no overall effect.
Magnitude		

Minor	2	Negligible effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been altered significantly and have little to no conservation importance (negligible sensitivity*).
Low	4	Minimal effects on biophysical or social functions/processes. Includes areas/ environmental aspects which have been largely modified, and/or have a low conservation importance (low sensitivity*).
Moderate	6	Notable effects on biophysical or social functions/processes. Includes areas/ environmental aspects which have already been moderately modified and have a medium conservation importance (medium sensitivity*).
High	8	Considerable effects on biophysical or social functions/processes. Includes areas / environmental aspects which have been slightly modified and have a high conservation importance (high sensitivity*).
Very high	10	Severe effects on biophysical or social functions/processes. Includes areas/ environmental aspects which have not previously been impacted upon and are pristine, thus of very high conservation importance (very high sensitivity*).
Extent		
Site only	1	Effect limited to the site and its immediate surroundings.
Local	2	Effect limited to within 3-5 km of the site.
Regional	3	Activity will have an impact on a regional scale.
National	4	Activity will have an impact on a national scale.
International	5	Activity will have an impact on an international scale.
Duration		
Immediate	1	Effect occurs periodically throughout the life of the activity.
Short term	2	Effect lasts for a period 0 to 5 years.
Medium term	3	Effect continues for a period between 5 and 15 years.
Long term	4	Effect will cease after the operational life of the activity either because of natural process or by human intervention.
Permanent	5	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
Probability of occurrence		
Improbable	1	Less than 30% chance of occurrence.
Low	2	Between 30 and 50% chance of occurrence.
Medium	3	Between 50 and 70% chance of occurrence.
High	4	Greater than 70% chance of occurrence.
Definite	5	Will occur, or where applicable has occurred, regardless or in spite of any mitigation measures.

Once the impact criteria have been ranked for each impact, the significance of the impacts will be calculated using the following formula:

Significance Points (SP) = (Magnitude + Duration + Extent) x Probability

The significance of the ecological impact is calculated by multiplying the severity rating with the probability rating. The maximum value that can be reached through this impact evaluation process is 100 SP (points). The significance for each impact is rated as High (SP≥60), Medium (SP=31-60) and Low (SP<30) significance (see Table 9).

Table 9: Definition of significance rating

Significance of predicted NEGATIVE impacts		
Low	0-30	Where the impact will have a relatively small effect on the environment and will require minimum or no mitigation and as such have a limited influence on the decision.
Medium	31-60	Where the impact can have an influence on the environment and should be mitigated and as such could have an influence on the decision unless it is mitigated.
High	61-100	Where the impact will definitely have an influence on the environment and must be mitigated, where possible. This impact will influence the decision regardless of any possible mitigation.
Significance of predicted POSITIVE impacts		
Low	0-30	Where the impact will have a relatively small positive effect on the environment.
Medium	31-60	Where the positive impact will counteract an existing negative impact and result in an overall neutral effect on the environment.
High	61-100	Where the positive impact will improve the environment relative to baseline conditions.

14.5 Assessment results

14.5.1 Habitant Found on Site

A large percentage of the project area has been transformed through mining activities. Though other parts of the area are currently used for grain farming. There are a number of water resources found on site. These natural areas are potential habitat for rare and threatened species.

14.5.2 Vegetation on site

The proposed mine area is dominated by the Moist clay-/Moist cool Highveld grassland. The Highveld grassland has its agriculture severely fragmenting due to the anthropogenic changes. From all the grasslands all over the world, the Highveld grassland now provides the last remaining stronghold of several species that have suffered major reductions in abundance in the grassland biome, and which are consequently threatened with extinction.

The dominant vegetation comprises of grasses, with geophytes and herbs also being well represented. Dominant and diagnostic grass species are Hyparrhenia hirta and Sporobolus pyramidalis. Non-grassy forbs include Acacia sieberiana, Rhus rehmanniana, Walafrida densiflora, Spermacoce natalensis, Kohautia cynanchica, and Phyllanthus glaucophyllus (Bredenkamp et al. 1989; Coetzee et al. 1993; Eckhardt et al. 1993; Fuls et al. 1993; Cowling et al. 1997).

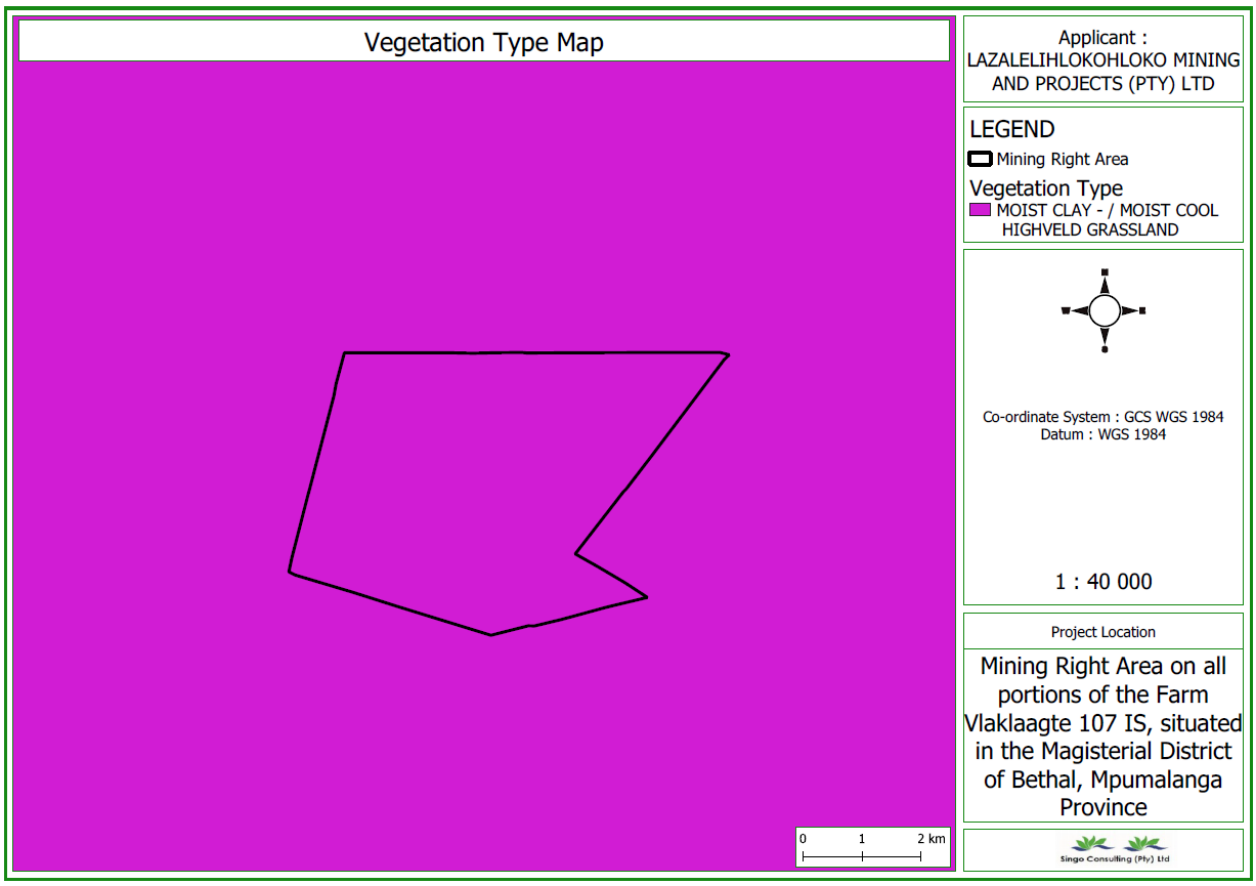


Figure 22: Onsite vegetation

14.5.3 Description of the CBAs

According to the biodiversity map of the project area, the proposed mine falls within the CBA optimal, Heavily modified area, moderately modified area and other natural areas. See Figure 23 below.

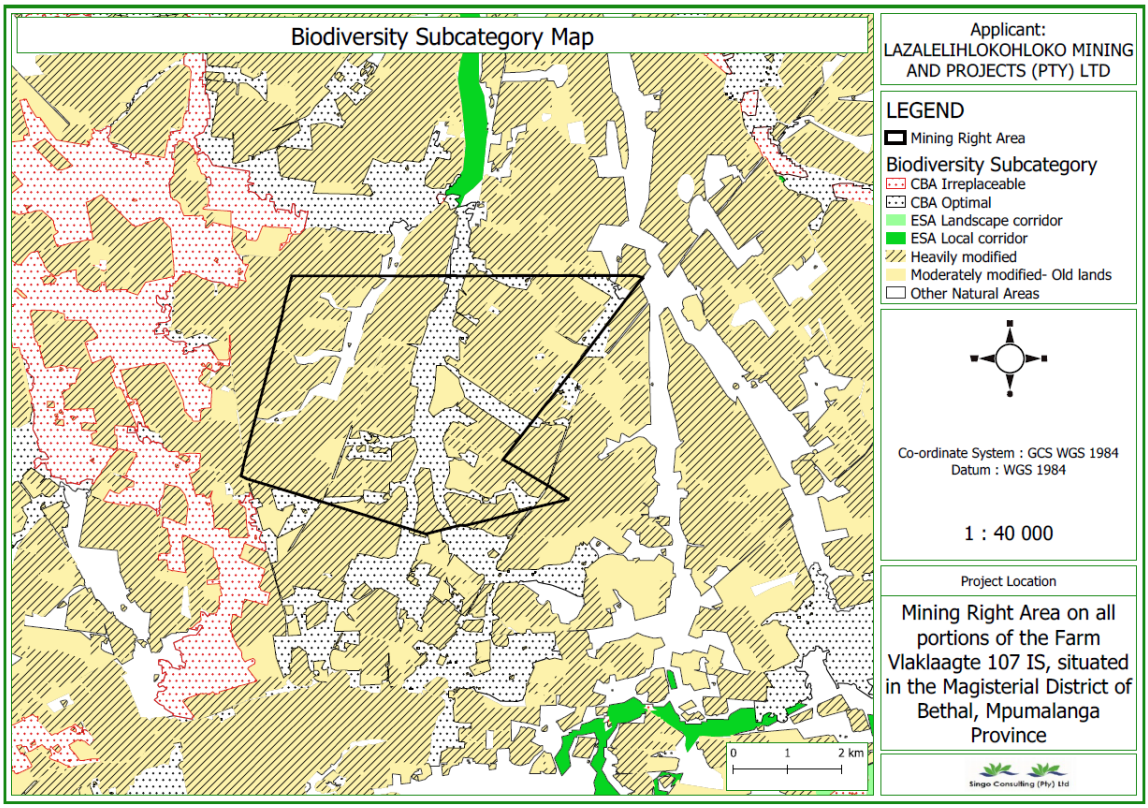


Figure 23: Sensitivity map

15 SOILS, LAND USE AND LAND CAPABILITY

The project falls under soil type or association with soils with a plinthic horizon as stated on the soil classification map. The dominating land use on site includes the cultivated lands, natural lands as well as mines and water bodies. The land is capable of agricultural activities, particularly grains farming as shown in Figure 24 below. A specialist has been appointed that will assess the soils, land uses and capability of the land to determine baseline conditions prior to mining. The specialist report will be made available during the EIA phase.

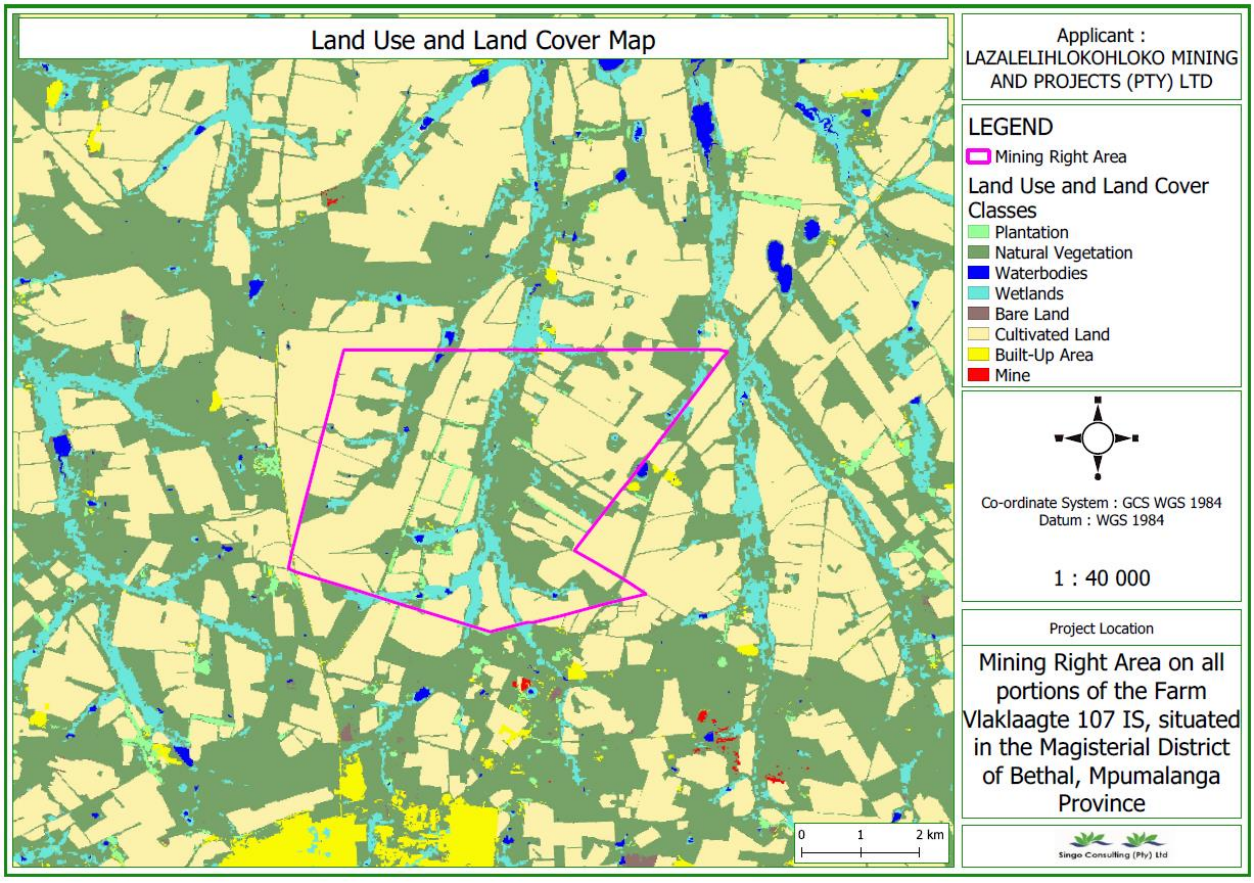


Figure 24: Land use and Land Cover map.

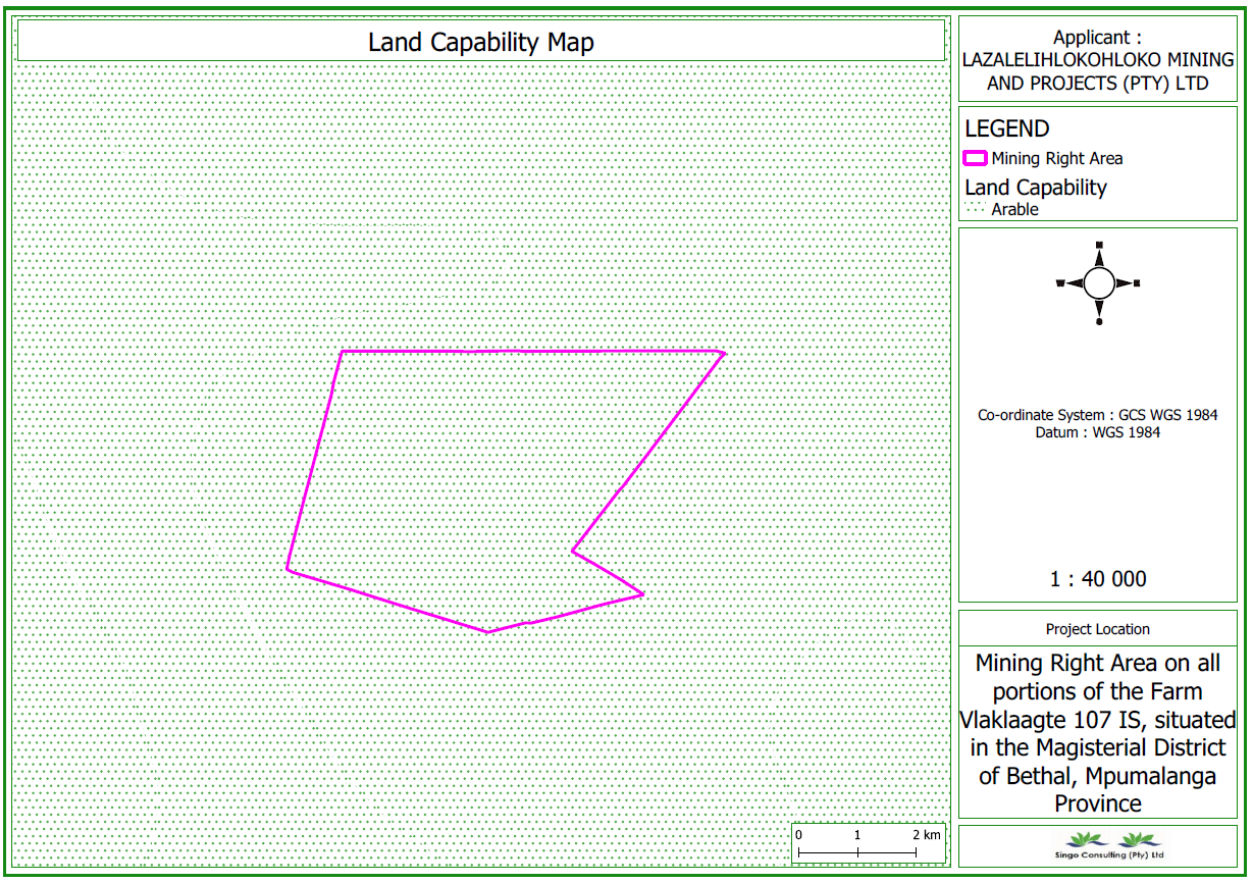


Figure 25: Land use and capability on site

16 HERITAGE STUDY

A Phase I Heritage Impact Assessment (HIA) including a Paleontological Desktop Assessment will be done as part of the specialist investigations.

The objectives for the cultural and archaeological study will be:

- To obtain a good understanding of the overall archaeological and cultural heritage conditions of the area through a brief desktop study;
- To locate, identify, record, photograph and describe sites of archaeological and cultural importance;
- Should any sites be identified to propose a study method forward;
- Ensure that all requirements of the local South African Heritage Resources Agency (SAHRA) are met; and
- Report on the results of the archaeological and cultural heritage survey adhering to minimum standards as prescribed by the SAHRA and approved by the Association for Southern African Professional Archaeologist (ASAPA).

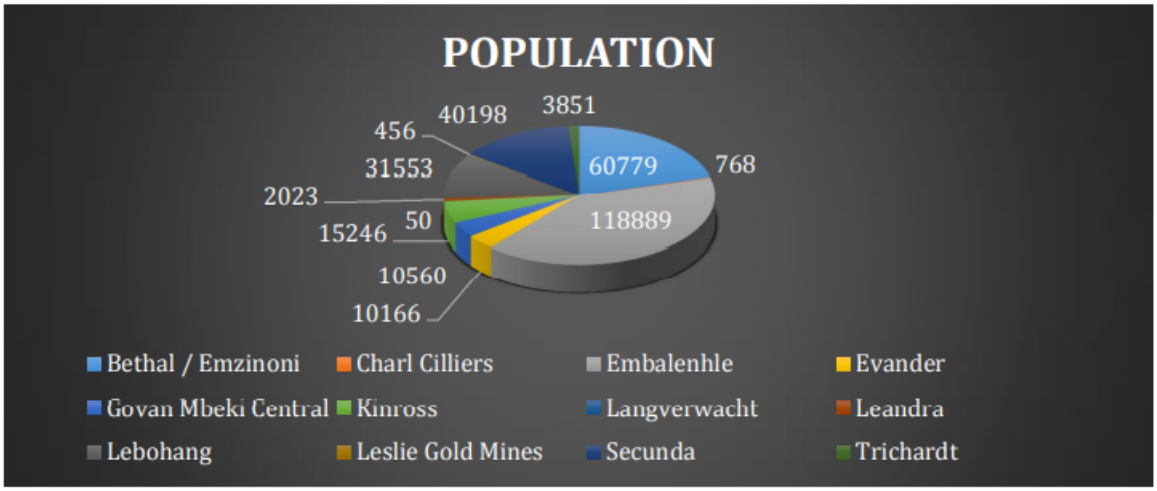
According to the environmental screening tool, the area of interest lies in the high sensitivity environmental development footprint for archeological and cultural heritage theme sensitivity. The report

showed that the proposed mine raea is within 100 m of an important river and an important wetland. The HIA specialist assessment will be available during the EIA phase for further assessments. Possible impacts and mitigation measures must be outlined during the EIA phase.

A case has been created on the South African Heritage Resources Information System, further correspondence will be incorporated in the EIA report. The figure below depicts the proof of the case created online.

17 SOCIAL ASPECTS

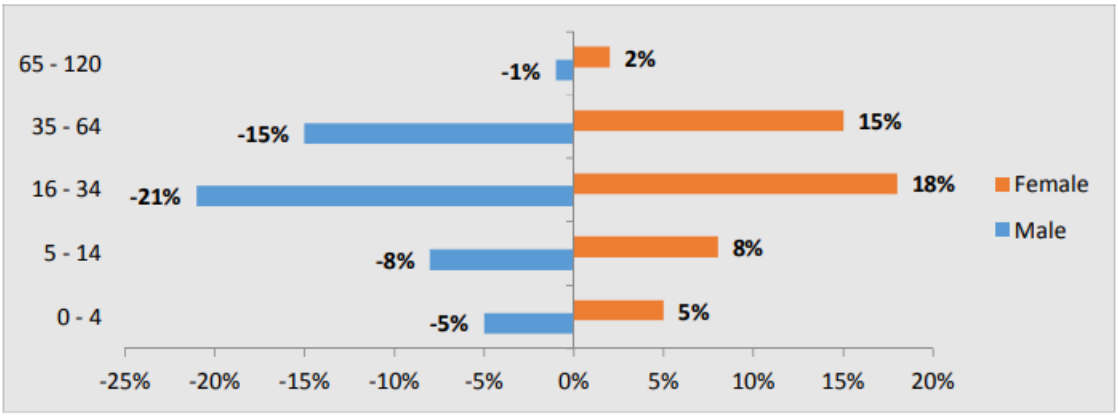
The proposed mining area is located on the All portions of the farm Vlaklaagte 107IS, located within the Govan Mbeki local municipality under the Bethal Magisterial District, Mpumalanga Province. According to Statistics South Africa (Community Survey 2016), the local municipality's population in 2011 approximatley was 294513, the population grew by 0.24 % between 2011 and 2001. This could be attributed to the number of industries that were opened sithin 10 years (2001 – 2011) that attractwd workers into Bethal



POPULATION DISTRIBUTION	GOVAN MBEKI MUNICIPALITY	
Year	2001	2011
Total Population	221748	294513
Male	51%	52%
Female	49%	48%

Figure 26: Population size between 2001 and 2011.

Age and Gender Distribution 2011



(Source: Stats SA: Census 2011)

GOVAN MBEKI LOCAL MUNICIPALITY: COMPARISON OF AGE AND GENDER								
	Census 2001		Census 2011		Census 2001		Census 2011	
	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4	10 705	10 965	15 129	15 174	9.5	-10.0	9.9	-10.7
5 - 9	10 575	10 897	12 840	12 759	9.4	-10.0	8.4	-9.0
10 - 14	10 550	10 599	11 778	11 517	9.4	-9.7	7.7	-8.1
15 - 19	10 369	11 062	12 897	12 843	9.2	-10.1	8.5	-9.0
20 - 24	10 674	10 483	17 262	14 448	9.5	-9.6	11.3	-10.2
25 - 29	11 068	10 848	18 507	14 829	9.9	-9.9	12.2	-10.4
30 - 34	10 201	9 812	14 304	11 133	9.1	-9.0	9.4	-7.8
35 - 39	10 593	9 475	11 028	9 795	9.4	-8.7	7.2	-6.9
40 - 44	9 600	7 740	9 201	8 907	8.5	-7.1	6.0	-6.3
45 - 49	6 758	5 330	8 331	8 688	6.0	-4.9	5.5	-6.1
50 - 54	4 261	3 640	7 743	7 338	3.8	-3.3	5.1	-5.2
55 - 59	2 709	2 571	5 604	5 022	2.4	-2.3	3.7	-3.5
60 - 64	1 657	2 105	3 273	3 306	1.5	-1.9	2.2	-2.3
65 - 69	1 026	1 524	1 962	2 319	0.9	-1.4	1.3	-1.6
70 - 74	735	1 088	1 020	1 836	0.7	-1.0	0.7	-1.3
75 - 79	413	543	702	1 122	0.4	-0.5	0.5	-0.8
80 - 84	274	476	327	717	0.2	-0.4	0.2	-0.5
85+	153	271	291	558	0.1	-0.2	0.2	-0.4
Total	**112 319**	**109 429**	**39 522**	**43 716**	**100.0**	**-100.0**	**100.0**	**-100.0**

Figure 27: Distribution of population by sex and age in the Govan MbekiLM (StatsSA)

The Govan Mbekilocal municipality is the biggest economy contributor in the Gert SibandeDistrict and is the third largest in the province. Mining remains the strongest sector in the municipality, contributing 28.0 % of all employment in the area.

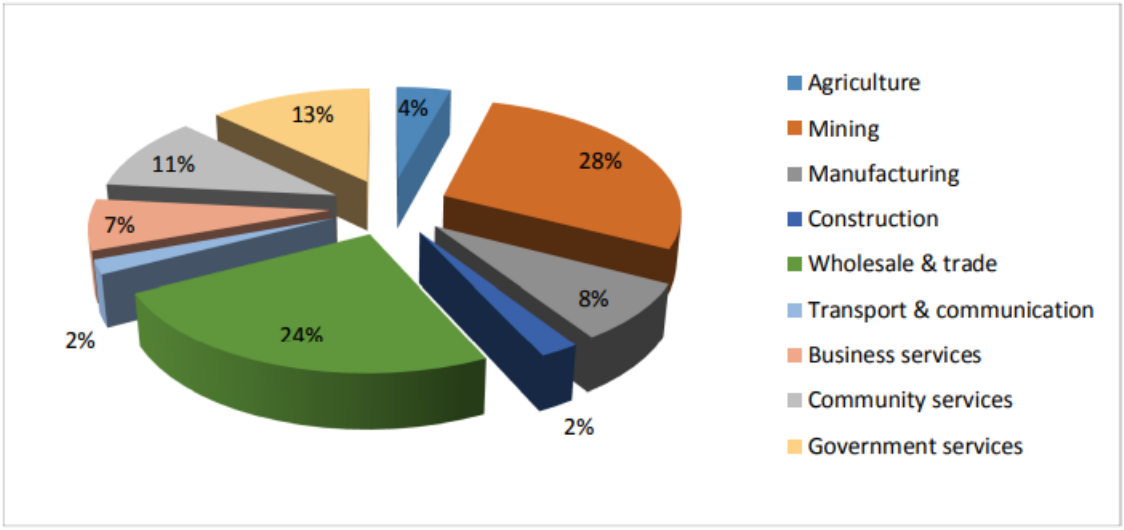


Figure 28: Sector employment between 2001 and 2011.

Although statistics indicate that education levels are improving, leaving only 7.46 % of people without education, unemployment still remains a big challenge with 26.6% recorded in 2016. The high rate of unemployment within the municipal area is an indicator of the need for economic development to create opportunities for employment.

18 IMPACT ASSESSMENT

18.1 Methodology

Direct, indirect and cumulative impacts of the issues that will be identified during the specialist investigations will be assessed in terms of standard rating scales to determine their significance. The rating system used for assessing impacts (or when specific impacts cannot be identified, the broader term issue should apply) is based on five criteria, namely:

1. Status of impacts– Determines whether the potential impact is positive (positive gain to the environment), negative (negative impact on the environment), or neutral (no perceived cost or benefit to the environment).
2. Spatial scale of impacts– Determines the extent of the impact. Potential impact is expressed numerically on a scale of 1 (site-specific) to 5 (global).
3. Temporal scale of impacts – Determines the extent of the impact in terms of timescale and longevity. Potential impact is expressed numerically on a scale of 1 (project duration) to 5 (permanent).

4. Probability of impacts– Quantifies the impact in terms of the likelihood of the impact occurring on a percentage scale of <5% (improbable) to >95% (definite).
5. Severity of impacts– Quantifies the impact in terms of the magnitude of the effect on the environment (receptor) and is derived by consideration of points 1, 2 and 3 above. For this particular study, a conservative approach is adopted for severity (e.g. where spatial impact was considered to be 2 and temporal impact was considered to be 3, a value of 3 would be adopted as a conservative estimate for severity of impact).

Table 10: Status of impacts

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

Table 11: Spatial scale of impacts

Rating	Description	Quantitative rating
Very low(VL)	Site-specific: Impacts confined within the project site boundary.	1
Low(L)	Proximal: Impacts extend to within 1 km of the project site boundary.	2
Medium(M)	Logal: Impacts extend beyond to within 5 km of the project site boundary.	3
High(H)	Regional: Impacts extend beyond the site boundary and have a widespread effect, i.e. > 5 km from the project site boundary.	4
Very high(VH)	Global: Impacts extend beyond site boundary and have a national/global effect.	5

Table 12: Temporal scale of impacts

Rating	Description	Quantitative rating
Very low(VL)	Project duration: Impacts expected only for the duration of the project or not longer than one year.	1
Low(L)	Short term: Impacts expected on a duration timescale of 1-2 years.	2
Medium(M)	Medium term: Impacts expected on a duration timescale of 2-5 years.	3

High(H)	Long term: Impacts expected on a duration timescale of 5-15 years.	4
Very high(VH)	Permanent: Impacts expected on a duration timescale exceeding 15 years.	5

Table 13: Probability of impacts

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

Table 14: Severity of impacts

Rating	Description	Quantitative rating
Very low(VL)	Negligible: Zero or very low impact	1
Low(L)	Site-specific and short-term impacts	2
Medium(M)	Local scale and/or short-term impacts	3
High(H)	Regional and/or long-term impacts	4
Very high(VH)	Global scale and/or permanent environmental change	5

These five criteria combine to describe the overall significance rating. Calculated significance of impact determines the overall impact on (or risk to) a specified receptor and is calculated as the product of the probability (P) of the impact occurring and the severity (S) of the impact if it were to occur (Impact = P×S). This is a widely accepted methodology for calculating risk and results in an overall impact rating of Low (L), Low/Medium (LM), Medium (M), Medium/High (MH) or High (H). The significance of a particular impact is depicted in Table 17 and assigned a particular colour code in relation to its severity.

Table 15: Overall significance rating

Rating	Description		Quantitative rating
Low	PxS=1-3	(low impact significance)	L
Low/medium	PxS=4-5	(low/medium impact significance)	LM
Medium	PxS=6-9	(medium impact significance)	M
Medium/high	PxS=10-12	(medium/high impact significance)	MH
High	PxS=13-25	(high impact significance)	H

Table 16: Overall significance rating - Severity

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

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings described in the following.

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

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

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

The model outcome is then assessed in terms of impact certainty and consideration of available information. Where a particular variable rationally requires weighting or an additional variable requires consideration, the model outcome is adjusted accordingly.

19 IDENTIFICATION OF IMPACTS

Potential impacts resulting from the proposed Vlaklaagte Coal Mine are identified during the scoping phase using input from the following sectors:

- Views of I&APs parties
- Existing information based on literature reviews and desktop studies (EAP, Stakeholders and specialist inputs)
- Site visit with the project team
- Legislation
- Guidelines

The following potential impacts were identified:

- Contamination of ground and surface water (including AMD)
- Disturbance of geology and soils
- Land uses and capability
- Socio-economic
- Flora and fauna
- Noise
- Traffic
- Watercourses (wetlands)
- Dust and air quality
- Blast and vibration
- Heritage and cultural resource
- Paleontologic

Proposed specialist studies to assess the environmental impacts during the EIA phase:

- Geohydrological investigation, impact assessment and modelling
- Wetland delineation and impact assessment (PES and EIS)
- Surface water assessment and Floodline determination
- Biodiversity study
- Civil engineering pollution control dam designs and storm-water management plan
- Blasting and vibration assessment
- Soils and land capability assessment
- Agricultural impact assessment
- Traffic impact assessment
- Rehabilitation management plan
- Heritage impact assessment
- Mine Work Programme
- Social and Labour Plan
- Paleontological desktop assessment

19.1 Positive and negative impacts of the proposed activities/development and alternatives

Currently, a comprehensive impact assessment cannot be conducted for the anticipated impacts; however, the anticipated impacts can be discussed, and an indication provided whether it will be positive or negative (Table 17).

Table 17: Anticipated impacts

Impact	Status of impacts prior to mitigation	Proposed mitigation/improvement measures/ Recommendations
Surface and groundwater		
Ground and surface water contamination	Negative	❖ Conduct water monitoring and implement remedial actions as required and effective rehabilitation to as close to pre-processing conditions as practically possible. ❖ It is recommended that the monitoring network be extended to all the boundaries; north, south, east and west of the proposed coal mine. The construction must be overseen by a qualified Hydrogeologist to monitor pollution in the upper weathered aquifer as well as the lower fractured aquifer. ❖ A monitoring network should be dynamic. This means that the network should be extended over time to accommodate the migration of contaminants through the aquifer as well as the expansion of infrastructure and/or addition of possible pollution sources. An audit on the monitoring network should be conducted annually ❖ Prevention of pollution of surface water resources and impacts on other surface water users by training of workers to prevent pollution, equipment and vehicle maintenance, fast and effective clean-up of spills, effective waste management, manage clean and dirty water in accordance ❖ The disturbance of streams and surface drainage patterns and reduction in flow to downstream must be mitigated through careful design of ephemeral stream diversion that minimizes impacts on the downstream environment, limit activities and infrastructure within wetland and watercourses and their floodlines and implementation of storm water management plan to divert clean water ❖ Clean water trenches should be constructed surrounding the coal mine to prevent clean water from entering the coal mine area, regarded as a dirty water catchment ❖ Dirty water trenches must be constructed as well to direct water from the mine to the pollution control dam, thereby preventing any contaminant water from leaving the mine area.
Wetland/River/ Hydrology/Geomorphology	Negative	• Natural pans and channeled valley bottom wetlands, including the Olifants River, are the most important wetlands in the study area. These wetlands have been identified as potential no - go areas and it is recommended that all mining activities avoid these highly sensitive wetlands. Where any wetlands are to be destroyed, the best possible security factor (to a factor of 2) should be used if mining is above 100 m. This must be determined in the later stages of the design of the project. • Mining across wetlands/rivers should be restricted to low flow period (dry winter season) if possible. Ensure

		that mining activities are carefully monitored to limit unnecessary impacts to wetlands/riparian areas (particularly in-stream habitat). • Do not lower the original stream bed / profile of the wetland/river as this may result in scouring in an upstream direction and further alteration of bed conditions. • Ensure that coarse immovable material including boulders and other rock in river channels is not removed to ensure continued stability and functioning of the river systems. River sediments should not be permanently removed from the system in any case. • Limit activities occurring within the in-stream area of channels. • Under no circumstance should consideration be given to the excavation of an artificial channel or the damming of wetlands or rivers in such a manner as to totally restrict the flow. • Excavated material/sediments/spoil from the mining zone (including any foreign materials) should not be placed or stockpiled within wetlands or river channels, including the riparian zone of streams/rivers. • Any abstraction of water from rivers/wetlands for construction purposes must be approved by the Department of Water and Sanitation (DWS) by means of WUL.
Potential reduction of catchment yield of the aquifers through dewatering	Negative	• Regularly monitor groundwater levels as per the recommendations of the geohydrological report.
Excavated materials that are stockpiled in incorrect areas can interfere with the natural drainage, cause sedimentation and water pollution	Negative	• The areas excavated must have vegetated berms to separate dirty and clean water systems and serve as an erosion control measure. • The stockpiles must be vegetated to prevent erosion and subsequent siltation of clean and dirty water streams, as well as surface water resources. • Upslope diversion and down-slope silt containment structures should be constructed. • Surface water resources must be monitored pre-mining and during construction, as per the monitoring programme.
Terrestrial ecology		
The clearance for the construction of the proposed structures and infrastructure will result in habitat loss	Negative	• Keep the footprint of the disturbed area to the minimum and designated areas only. • Unnecessary vegetation clearing should be avoided. • Ensure rehabilitation plans are initiated during and after construction in areas not affected by mining operations. • Vegetation clearing on slopes must be minimised and, where necessary, appropriate stormwater management must be put in place to limit erosion of exposed soil. • No harvesting of indigenous tree species for firewood should be permitted. • An environmental induction for all staff members must be mandatory to discuss the potential of fire e.g. only smoking in designated areas and no open cooking fires.

		• All licences must be obtained prior to mining; • All ablution facilities must be placed far away from the water bodies including their buffer zone (50 meters from watercourses); • When placing structures as well as the mining area high sensitive areas of this report must be avoided; • An alien and invasive management plan as well as emergency preparedness plan during spillages must be adhered to at all times; and • Rehabilitation of cleared/mined areas occurs to avoid or to limit erosion
Accidental introduction of alien species and invaders	Negative	• Eradication and/or control of alien invasive plants and weeds as per the alien and invasive species monitoring programme. • Disturbance of natural areas should be avoided as far as possible and the spread of alien flora into natural areas must be controlled. • Continuous monitoring of the growth and spread of alien and invasive flora coupled with an adaptive management approach to identify suitable control mechanisms (e.g. mechanical, chemical or biological control). Mechanical control is usually preferred. • Cleaning of vehicles and equipment before entering natural areas to remove large deposits of foreign soils and plant material sourced from elsewhere.
Faunal mortalities	Negative	• Environmental induction for all staff members must be mandatory to discuss issues related to the killing and/or disturbance of faunal species should be avoided. • Several staff members must complete a snake handling course to safely remove snakes from designated areas. • Road mortalities should be monitored by vehicle operators (for personal incidents only) and the ECO (all road kill on a periodic monitoring basis as well as specific incidents) with trends being monitored and subject to review as part of the monthly reporting. Monitoring should occur via a logbook system where staff notes the date, time and location of the sighting/incident. This will allow determination of the locations where the greatest likelihood exists of causing road mortality and allow mitigation against it (e.g. fauna underpasses, and seasonal speed reductions). Mitigation must be adapted to the on-site situation which may vary over time. • All staff operating motor vehicles must undergo an environmental induction training course that includes instruction on the need to comply with speed limits, to respect all forms of wildlife (especially reptiles and amphibians) and, wherever possible, prevent accidental road kills of fauna. Drivers not complying with speed limits should be subject to penalties. • The proposed prospecting activities will result in the deaths of numerous fauna species. It is suggested that construction and mining operations occur from a predetermined area and move along a gradient to allow fauna species to relocate. • The ECO must monitor live animal observations to detect trends in animal populations and implement

		proactive adaptable mitigation of vehicle movements. • Should holes or burrows be located on-site, contact a zoological specialist to investigate and possibly remove any species located in them. • Where possible, barriers around excavation sites must be erected to prevent fauna from falling into excavations. • The area surrounding the bulk sampling operation must be demarcated and fenced-off to restrict animals from moving into the area, and to reduce fauna mortalities.
Vegetation and Fauna Management		• Keep the clearing of natural vegetation in wetland areas to a minimum and attempt to ensure that clearing occurs in parallel with the mining progress where practically possible. • Limit mining equipment operating in wetland/riparian areas to that needed to clear • Temporary noise pollution due to mining works should be minimized in sensitive areas by ensuring the proper maintenance of equipment and vehicles and tuning of engines and mufflers as well as employing low noise equipment where possible. • No wild animal may under any circumstance be hunted, snared, captured, injured, killed, harmed in any way or removed from the site. This includes animals perceived to be vermin. • Any fauna that are found within the mining corridor should be moved to the closest point of natural or semi-natural vegetation outside the mining corridor. A specialist may need to be used for dangerous/venomous species such as snakes.
Geology and soils		
Land use change which will affect the soil and land use capability both during construction phase and post-mining operations. Loss of agricultural soils and land expected.	Negative	• Should the No-Go alternative not be considered, mining activities must be located on low-medium agricultural potential land to minimise impacts. • Compensate landowners. • Rehabilitate areas disturbed by mining to return land to arable land where feasible. If not, other land uses (decommissioning phase) deemed socially, economically or environmentally applicable must be considered.
Site clearance and levelling during the construction phase will cause some additional exposed areas and could trigger erosion and siltation, especially during rainy periods	Negative	• Prevent soil loss through erosion. • Develop appropriate storm water management system to control surface run off over exposed areas. • Preserve soil fertility for later use. • Ensure all vehicles stay within the designated areas (for example, away from watercourses). • Plan to construct the majority of development during the dry winter months. • Have in place temporary erosion and sedimentation trapping control measures during the construction phase
Storage of topsoil	Negative	• Remove and stockpile topsoil from roads, building platforms, stockpile and dam areas prior to construction. • Preserve topsoil and store in an appropriate manner to maintain viability and seed bank for future rehabilitation.

		• Store away from watercourses to prevent sedimentation and erosion. • Protect from alien plant establishment.
Soils and Sediment Management	Negative	• Where possible, mining activities in river and wetlands should proceed during the dry winter months (low or zero flow periods) in order to limit the potential for erosion linked to high runoff rates. • All soil stockpiles should be placed in an up-slope direction from the trench so that that any surface wash is directed into the trench and not further downslope. • Any erosion points created during mining activity construction should be filled and stabilized immediately. Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms. • No stockpiling of soils or materials should take place within a watercourse, including wetlands and the riparian zone of streams/rivers. • Periodic visual inspections of on-site water quality, identifying the source of any rapid increases in turbidity of surface waters and remedying this where necessary such be performed by a qualified Environmental Officer. Water must be pumped out into a well- vegetated area some distance from any watercourse to facilitate sediment trapping and reduce the chance of sediment entering wetlands/streams. • Excavated and imported material should be stored away from streamlines / areas of concentrated flow to limit the risk of sediment wash to downstream areas. • Any topsoil removed from wetlands must be stockpiled separately from subsoil material and replaced once mining is complete to facilitate re-colonization of the site. • Stripped topsoil from wetlands must not be buried or in any other way be rendered unsuitable for further use by mixing with spoil or subjected to compaction by machinery. • Exposed soils should be rehabilitated as soon as practically possible to limit the risk of erosion. The channel embankments must be rehabilitated to ensure both longitudinal and cross-sectional stability against summer floods.
Pollution		
Waste Management/Pollution Control	Negative	• Storage of potentially hazardous materials (e.g. fuel, oil, etc.) should be outside of the 100-year flood line, or within a horizontal distance of 50m from a watercourse or wetland. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas. • Operation and storage of machinery and mining-related equipment must be done outside of wetlands and rivers wherever possible, unless authorised by a WUL. • Spillages of fuels, oils and other potentially harmful chemicals should be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil from the site must be removed and rehabilitated timeously and appropriately. • Mechanical plant and bowsers must not be refuelled or serviced within or directly adjacent to any watercourse (including river and wetlands). • Provide adequate waste disposal facilities (bins) and encourage workers not to litter or dispose of solid waste

		in the natural environment but to use available facilities for waste disposal. • Ensure that any rubbish is regularly cleared from the site, especially from wetlands/streams. • Routinely check machinery/plant for oil or fuel leaks each day before mining activities begin. No stockpiling should take place within a watercourse, including wetlands and the riparian area of the river. • Sanitation – portable toilets (1 toilet per 30 users is the norm) to be provided where mining is occurring. Workers need to be encouraged to use these facilities and not the natural environment. Toilets should be located outside of the 1:100 yr. flood line of a watercourse or 50m or from any natural water bodies including streams and wetlands. Waste from chemical toilets should be disposed of regularly and in a responsible manner by a registered waste contractor.
Social		
Recruitment strategies for the mine	Positive	N/A
Advantage to previously disadvantage individuals	Positive	N/A
Community development programmes	Positive	N/A
Upgrades and expansion of services will benefit local area	Positive	N/A
Increased income generation for local community	Positive	N/A
Increased job opportunities for local mining communities	Positive	N/A
Economic injection to the area and Mpumalanga	Positive	N/A
Noise		
Noise emanating from heavy machinery and transport vehicles	Negative	• Noise barriers in the form of berms should be constructed as close to the noise sources as possible. • Mining-related machines and vehicles must be serviced regularly to ensure noise suppression mechanisms are effective, e.g. installing exhaust mufflers where possible. • Noisy machinery must be used predominately during daylight hours. • Grievance mechanism to record complaints should be kept on site and investigated. • Regular monitoring of noise to take place.
Noise from blasting	Negative	• Blasting operations are generally intermittent and should be limited to the day when ambient noise levels are highest.
Infrastructure (e.g. contractor's yard, weighbridge, workshop and stores)	Negative	• To reduce the visual impact of permanent structures, colours for roofing, walls, etc. should have a matt finish to reduce reflection. • Infrastructure must be located away from sensitive and elevated areas.

Location of stockpiles, pollution control dams and discard dumps	Negative	• Place as far away as possible from roads and settlements. • Topsoil stockpiles must be vegetated as soon as possible, to reduce erosion and decrease visual disturbance. • Keep stockpiles as low as possible to reduce visual impact. • Plant fast-growing indigenous trees around the dams to enhance visual.
Lighting pollution	Negative	• Avoid up-lighting of structures but rather direct the light downwards and focused on the object to be illuminated. • Use non-UV lights where possible, as light emitted at one wavelength has a low level of attraction to insects. This will reduce the likelihood of attracting insects and their predators specifically in the site camps.
Heritage and cultural		
Heritage resources disturbed/destroyed	Negative	1. From a heritage perspective supported by the findings of this study, the proposed mining development and associated developments are feasible. However, the proposed mining development should be approved to proceed as planned under observation that the development dimensions do not extend beyond the proposed sites. 2. The recorded historical farmstead is older than 60 yeas and is thus protected by Section 34 of the NHRA. 3. Although the historical farm house, stock kraal is in a poor state of conservation, they must be assessed and documented. They must not be destroyed without a permit from PHRA as prescribed in Section 34 the NHRA. 4. The recorded burial site must be demarcated by a danger warning sign and must be clearly marked to avoid any accidental damage by heavy mining equipment and haulage trucks. 5. The applicant must ensure that the descendants of the recorded graves are sought, and notified about this proposed mining development has an impact (directly or indirectly) on their burial site. 6. No stone robbing, or removal of any material is allowed. Any disturbance or alteration on this burial site would be illegal and punishable by law, under Section 36(3) of the NHRA. 7. Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1). 8. Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the
Paleontological sites disturbed/destroyed	Negative	
Cultural places disturbed/destroyed	Negative	

		endorsement by SAHRA. 9. The footprint impact of the proposed mining development and associated infrastructure should be kept to minimal to limit the possibility of encountering chance finds. 10. Should any unmarked burials be exposed during mining, affected families must be tracked and consulted, relevant rescue/ relocation permits must be obtained from SAHRA before any grave relocation can take place. Furthermore, a professional archaeologist must be retained to oversee the relocation process in accordance with the National Heritage Resources Act 25 of 1999. 11. Should chance archaeological materials or human burials remains be exposed during mining work on any section of the proposed mining development laydown sites, work should cease on the affected area and the discovery must be reported to the heritage authorities immediately so that an investigation and evaluation of the finds can be made. The overriding objective, where remedial action is warranted, is to minimize disruption in mining scheduling while recovering archaeological and any affected cultural heritage data as stipulated by the PHRA and NHRA regulations (see appended Chance Find procedure for further details). 12. The project Public Participation Process should ensure that any cultural heritage related matters for this project are given due attention whenever they arise and are communicated to PHRA throughout the proposed project development. This form of extended community involvement would pre-empty any potential disruptions that may arise from previously unknown cultural heritage matter that may have escaped the attention of this study. 13. The landowner must be requested to declare burial sites within their farmsteads to the EAP. 14. Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project EMP there are no other significant cultural heritage resources barriers to the proposed mining right application. The Heritage authority may approve the proposed development to proceed as planned with special commendations to implement the recommendations here in made.
Traffic		
Increased traffic volumes on the existing road networks	Negative	• Implement speed limits and safety controls on-site. • Construct access roads within safety limits from other crossings. • Possible road upgrades where required. • Create safe environment for pedestrians, animals and motorists. • Create fauna underpasses where necessary (e.g. bridge

		crossings).
Blasting and vibration		
Blasting and vibration	Negative	• Pre-blast survey of all structures in the mining area. • Ground vibration survey in the form of signature trace study to be done for determination of ground vibration constants that can be used for accurate ground vibration prediction. • Investigate the possibility of alternative methods to blasting.
Safety		
Blasting	Negative	• Clearly demarcated areas and erect signs to indicate blasting zones.
Roads and vehicles	Negative	• Speed limits must be in place on site and before access roads on a provincial or national road. • Ensure drivers are trained in road safety.
Surrounding neighbours	Negative	• Personnel are not permitted on other properties without permission. • Avoid conflict with surrounding landowners. • Safety specialist will be appointed, and assessments will be conducted. Recommendations will be implemented.
Air quality		
Dust pollution	Negative	• The removal of vegetation will be minimised during stripping to reduce the effects of dust pollution as a result of exposed soil. • Water or dust control agents must be used in working areas, and roads will be sprayed for dust suppression on a regular basis in designated susceptible areas during heavy usage. • Dust monitoring must be undertaken in accordance to the monitoring programme. It is recommended that topsoil stockpiles be vegetated to sustain biological components and prevent dust emissions. • Reduction of dust fallout levels and particulate matter. • All coal haul trucks must be covered by a tarpaulin. • The overland conveyor belt should be covered and coal on the conveyor should be sprayed to reduce emissions.

19.2 Mitigation measures

The impacts that are generated by development can be minimised if measures are implemented to reduce the impacts. The mitigation measures ensure that the development considers the environment and the predicted impacts to minimise impacts and achieve sustainable development. This will be assessed and discussed in more detail during the EIA phase.

19.3 Motivating the preferred site

As a result of the scoping phase impact assessment and the sensitivity mapping exercise, a preferred layout alternative will be identified and assessed in the EIA phase.

20 PLAN OF STUDY

The scoping phase identified potential environmental impacts and discussed alternatives considered. The following section outlines the proposed plan of study which will be conducted for the various environmental aspects during the EIA phase. It is important to note that the plan of study will also be guided by comment obtained from I&APs and other stakeholders during the PPP of Scoping phase.

20.1 Impact assessment phase objectives

The impact assessment phase will have the following objectives:

- Identify and assess the environmental (biophysical and social) impacts of the construction, operation, decommissioning and post closure impacts of the proposed development. The cumulative impacts of the proposed development will also be identified and evaluated.
- Determine and assess alternative activities and locations in parallel with the proposed activity.
- Identify and evaluate potential management and mitigation measures that will reduce the negative impacts of the proposed development and enhance the positive impacts.
- Compile monitoring, management, mitigation and training needs in the EMPr.
- Provide the decision-making authorities with sufficient and accurate information to make a sound decision on the proposed development.

20.2 Impact assessment phase tasks

The impact assessment phase has four key elements, namely:

- ***Specialist studies****:* Specialist studies identified in the scoping phase and any additional studies that may be required by the authorities, will be conducted during the initial phase of the EIA. The relevant specialists will be appointed to conduct the various assessments. They will gather baseline information relevant to the study and assess impacts associated with the development. Specialists also make recommendations to mitigate negative impacts and optimise benefits. The resulting information is synthesised into the draft EIA report that will be made available to I&APs for review.
- ***Environmental Impact Assessment report (EIAr)****:* The main purpose of this report is to gather environmental information and evaluate the overall impacts associated with the project, consider mitigation measures and alternative options, and make recommendations in choosing the best development alternative. The EIAr identifies mitigation measure/management recommendations to minimise negative impacts and enhance benefits.

The draft EIAr and associated reports will be made available for public and authority review and comment for a period of thirty days as it was for scoping phase. The availability of the draft EIAr will be communicated to all registered I&APs and will be easily accessible. After comments have been received, the final EIAr will be compiled and submitted to the competent authority (DMRE) for review. This report will assist the DMRE in making an informed decision.

- ***Environmental Management Programme report (EMPr)****:* The EMPr provides guidelines to the proponent and the technical team on how to best implement the mitigation measure/management recommendations outlined in the EIAr during the construction, operational and decommissioning/rehabilitation phase. The EMPr is a legally binding document, and once approved cannot be amended without permission from the DMRE.
- ***Public Participation Process (PPP)****:* The PPP initiated during the scoping phase, is continued. This includes continuous engagement with I&APs and stakeholders, which includes meetings, receiving comments, issues and concerns raised by I&APs and the authorities during the review period, and also provides relevant responses to these comments.

20.3 Alternatives to be considered, including no-go option

According to the MPRDA and NEMA regulations, feasible alternatives need to be considered and assessed during the scoping and impact assessment phase of the project. During the scoping phase, based on professional judgement of the EAP, the engineering designs, specialist inputs, and I&AP comments, must be considered. The alternatives identified must achieve the triple bottom-line of sustainability, i.e. they must meet the social, economic and ecological needs of the public. The alternatives must aim to address the key significant impacts of the proposed project by maximising benefits and avoiding or minimising the negative impacts. The primary objective must be to avoid all negative impacts, rather than minimise them. The “feasibility” and “reasonability” of and the need for alternatives must be determined by considering:

- The general purpose and requirements of the activity
- Need and desirability
- Opportunity costs
- The need to avoid negative impact altogether
- The need to minimise unavoidable negative impacts
- The need to maximise benefits
- The need for equitable distributional consequence

A comparative assessment (of all alternatives identified) will be conducted in accordance with the aforementioned criteria, as part of the impact assessment.

20.4 Aspects to be assessed as part of the EIA

The following specialist studies will be assessed during the EIA phase:

- Soil, Land Capability and Land Use
- Surface Water
- Geohydrology
- Cultural and Heritage Resources
- Paleontological Impacts
- Economic impacts
- Social Impacts
- Air Quality
- Waste Classification
- Closure (rehabilitation)
- Noise
- Terrestrial ecology
- Visual Impacts
- Traffic Impacts
- Blasting and Vibration

In addition, the following will continue during the EIA phase:

- Public participation and consultation
- Environmental Management Programme
- Alternatives
- Site layout designs and Mining Works Programme

20.5 Proposed method of assessing environmental aspects and alternatives

Refer to section 20 for more details.

20.6 Stages at which the competent authority will be consulted

Competent authorities stated being consulted during the initial notification period, scoping phase and during the EIA phase.

A scoping phase meeting will be held with the DMRE and DWS, although initial contact has been made. No additional Authority meetings are scheduled during the scoping phase; unless an authority requires a meeting one will be arranged. The purpose of the Authority meeting would be to explain the project in detail to authorities and clarify the process going forward. Other stakeholders that will be included are the District and Local Municipalities, Ward Councillors, and others identified during the Scoping Phase.

The consultation process to be followed as part of the review and decision-making stages include:

- Scoping review and decision-making stage.

- Environmental impact assessment review and decision-making stage.
- The environmental authorisation decision making and appeal process stage.

20.7 Public participation process for the impact assessment

Competent authorities, stakeholders and I&APs were and/or will be consulted during the initial notification period, scoping phase and EIA phase.

20.7.1 Steps to be taken to notify Interested and Affected Parties

A detailed description of the PPP conducted for the scoping phase is described in Section 7 above and Appendix B. I&APs were notified of the proposed application via newspaper advertisements, emails, site and public notices, registered letters and facsimiles. The PPP will be undertaken in accordance with the NEMA process and the 2014 Regulations (as amended). A minimum of 30 days will be provided to the public to register as I&AP's and to provide initial comments, and 30 days will be provided to comment on the draft Scoping Report. The information submitted by I&AP's will be utilised during the Impact Assessment and compilation of the EIAR. Should the Final Scoping Report be accepted by the competent authority, an EIA process will be undertaken. During the EIA phase I&APs, stakeholders and the competent authorities will be notified of the process to be undertaken (similar way as described in Section 7 above and as outlined in the NEMA regulations (2014, as amended), will be provided an opportunity to comment on the draft EIAr which will include specialist studies and attend a public meeting).

20.7.2 Details of the engagement process

The process of identifying and contacting landowners, stakeholders and I&APs commenced when I&APs were notified via site and public notices, newspaper adverts, emails and distribution of the BID. Landowner and his contact details was identified through the Title Deed search for the property. Proof of notifications and documentation pertaining to the PPP during scoping phase have been recorded and will be recorded also during environmental impact assessment phase.

During the EIA phase, I&APs will be afforded the following opportunities in order to participate in the project:

- I&APs will be requested via notifications to provide their comments on the project, notified when the draft EIAR will be available for review and notified of a public meeting that will take place

- The EIAR and EMPr will be available for comment for a period of 30 days at the same public places in the project area that the Scoping Report will be made available, sent to stakeholders who request a copy.

All comments and issues raised during the public comment period will be incorporated into the final EIAr and EMPr to be submitted to the competent authorities for review and the final decision-making stage. I&APs will be notified of the decision of the competent authority within fourteen days of receiving written letters and will specify any further process to be undertaken, like the appeal process.

20.7.3 Information which was provided during Scoping and will be t provided to interested and affected parties during EIA phase.

The following information was and/or will be made available to I&APs:

- Background Information Document (BID): The aim of the BID is to inform all I&APs of the proposed project and process followed during the scoping and which will be followed during EIA phase, which were/or are; the undertaking of the PPP and EIA for the compilation of the EIA, Environmental Management Programme and Waste Management Licence for the proposed mining activities.
- The site plan, scale and extent of activities to be authorised.
- The draft scoping report, which included:
    - The plan of study:
        - List of activities to be authorized according to NEMA, NEM:WA and NWA
        - Indication and discussion of the impacts of activities to be authorised
        - The proposed specialist studies that will be undertaken as part of the project
        - The proposed mining methods to be used
        - Discussion of alternatives, including location, process and methodology and no-go
        - Details of the MPRDA, NEMA, NEM:WA and NWA Regulations (including a list of other applicable regulations) that must be adhered to.
    - Draft EIR and EMPr (including results from the specialist assessments) will be made available for public review and comment for a period of thirty days.
    - Information will be made available as requested by the I&APs throughout the process.

20.8 Tasks that will be undertaken during the EIA

The following tasks will be undertaken as part of the EIA phase of the project:

- Finalisation of the legislative context in which the activities will take place and documentation of the proposed activity and how it complies with this legislation.
- Finalisation of the activities triggered under NEMA and NEM:WA based on the specialist assessments and final design layout and specifications.
- Identification of the location of the development footprint in the preferred site based on impact and risk assessment process. This includes cumulative impacts and ranking of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment.
- Identification of the most ideal location for the activities in the preferred site based on the lowest level of environmental sensitivity identified during the assessment, especially with the proposed sitting of the mining infrastructure.
- Determination of the nature, significance, consequence, extent, duration and probability of the impacts occurring to identify preferred alternatives and the degree to which these impacts can be reversed, may cause irreplaceable loss of resources, can be avoided, managed or mitigated.
- Identification of suitable measures to avoid, manage or mitigate identified impacts
- Detailed specialist studies
- Continued PPP
- Compilation of the draft EIAr and EMPr and, once the consultation, review and commenting period has finished, the finalisation of the EIAr and EMPr, which will be submitted to the CA (Competent Authority) for review and final decision making.

❖ SUMMARY OF NEXT STEPS IN THE EIA PROCESS.

The next step will be to finalise the specialist studies that will inform the impact assessment. During the impact assessment phase, the issues raised by stakeholders and the potential impacts of the proposed project on the environmental and socio-economic status of the area will be examined in detail. Stakeholder issues will therefore assist to drive the EIA process. When complete, the findings of the specialist studies will be integrated into a single report, the Draft EIA Report and EMPR. The report will then be made available for stakeholder comment, after which it will be finalised and submitted to the decision-making Authorities for a final decision.

20.9 Measures to avoid, reverse, mitigate, or manage identified impacts and determine the extent of the residual risks

Please refer to Table 17: Anticipated impacts.

21 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

Compliance with the provision of Section 24(4)(a) and (b) read with Section 24 (3) (a) and (7) of the NEMA, the EIAr must include the following.

21.1 Impact on the socio-economic condition of any directly affected person

This is dependent on the results of the Social Impact Assessment which will also be addressed in the Social and Labour Plan (SLP). Full details will be made available during the EIA phase after the specialist studies have been conducted and consultation with the community, stakeholders and other I&APs.

The proposed Lazalelihlokohlo Mining and Projects (Pty) Ltd coal mine will provide employment opportunities, skills development, social development programmes, community upliftment and economic injection to the local area. Furthermore, impacts including visual, traffic, service delivery, land use changes and security and safety will be assessed and discussed during the EIA phase.

21.2 Impact on any national estate referred to in Section 3(2) of the National Heritage Resources Act

A specialist will be appointed by Singo Consulting (Pty) Ltd. The appointed specialist will conduct the first assessment during the scoping phase and the second phase of assessment during the EIA phase whereby full result of both phases will be made available.

21.3 Other matters required in terms of Section 24(4) (A) and (B) of the Act

Section 24(4)(b)(i) of the NEMA (as amended), stipulates that an investigation must be undertaken to determine the potential consequences or impacts of the alternatives on the environment and assess the significance of these consequences or impacts, including the option of not implementing the activity. Alternatives have been discussed in Section 6 of this report and will be addressed in detail during the EIA phase once all specialist assessments and comments from I&APs, stakeholders and the competent authorities have been received.

22 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

Certain assumptions, limitations, and uncertainties are associated with the scoping phase. This report is based on information that is currently available. The following limitations and assumptions are applicable:

- This report is based on project information provided by the client.

- This report is based on a project description taken from client meetings, preliminary drawings and design specifications for the proposed mine that have not yet been finalised and which are likely to undergo a number of iterations and refinements before they can be regarded as definitive and proposed methodology for the mining operations. Detailed information will be provided in the EIA phase.
- No specialist studies have been completed for the scoping phase. Descriptions of the environmental, economical and social environments are based on limited desktop assessments and available literature for the area. More detailed information will be provided in the EIA phase based on the outcomes of the specialist studies. Limited scoping-phase specialist input was obtained for inclusion in this report.
- The description of the baseline environment and, where possible, the updated information, has been obtained from various sources. More detailed information will be provided in the EIA phase based on the outcomes of the specialist studies, the finalisation of the Mining Works Programme and design layout.
- A detailed impact assessment was partially done at present; however, the levels of confidence is considered too low. Thus, full detailed impact assessment will be done once detailed specialist input and comments have been obtained from the I&APs, which will be presented and discussed in more detail during the EIA phase.

23 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.
d) That the information provided by the EAP to I&APs and any responses by the EAP to comments or inputs made by I&APs are correctly reflected herein.

-END-

24 EAP DECLARATION

I, _____ declare that:

General declaration:

- I act as the independent EAP in this application.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- I declare that there are no circumstances that may compromise my objectivity in performing such work.
- I have expertise in conducting Environmental Impact Assessments ("EIAs"), including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity.
- I will comply with the Act, Regulations and all other applicable legislation.
- I will take into account, as far as possible, the matters listed in Regulation 8 of the Regulations when preparing the application and any report relating thereto.
- I have no, and will not engage in, conflicting interests in the undertaking of the activity.
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority.
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to I&APs and the public and that participation by I&APs is facilitated in such a manner that all I&APs will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application.
- I will ensure that the comments of all I&APs are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments

made by I&APs in respect of a final report may be attached to the report without further amendment to the report.

- I will keep a register of all I&APs that participated in a PPP.
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.
- All the particulars furnished by me in this form are true and correct.
- I will perform all other obligations as expected from an EAP in terms of the Regulations.
- I realise that a false declaration is an offence in terms of Regulation 71 of the Regulations and is punishable in terms of section 24F of the Act.

Disclosure of vested interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity other than remuneration for work performed in terms of the Regulations.
- I do not have any vested interest in the proposed activity other than remuneration for work performed in terms of the NEMA regulations.

.....

Signature of the EAP

.....

Name of company

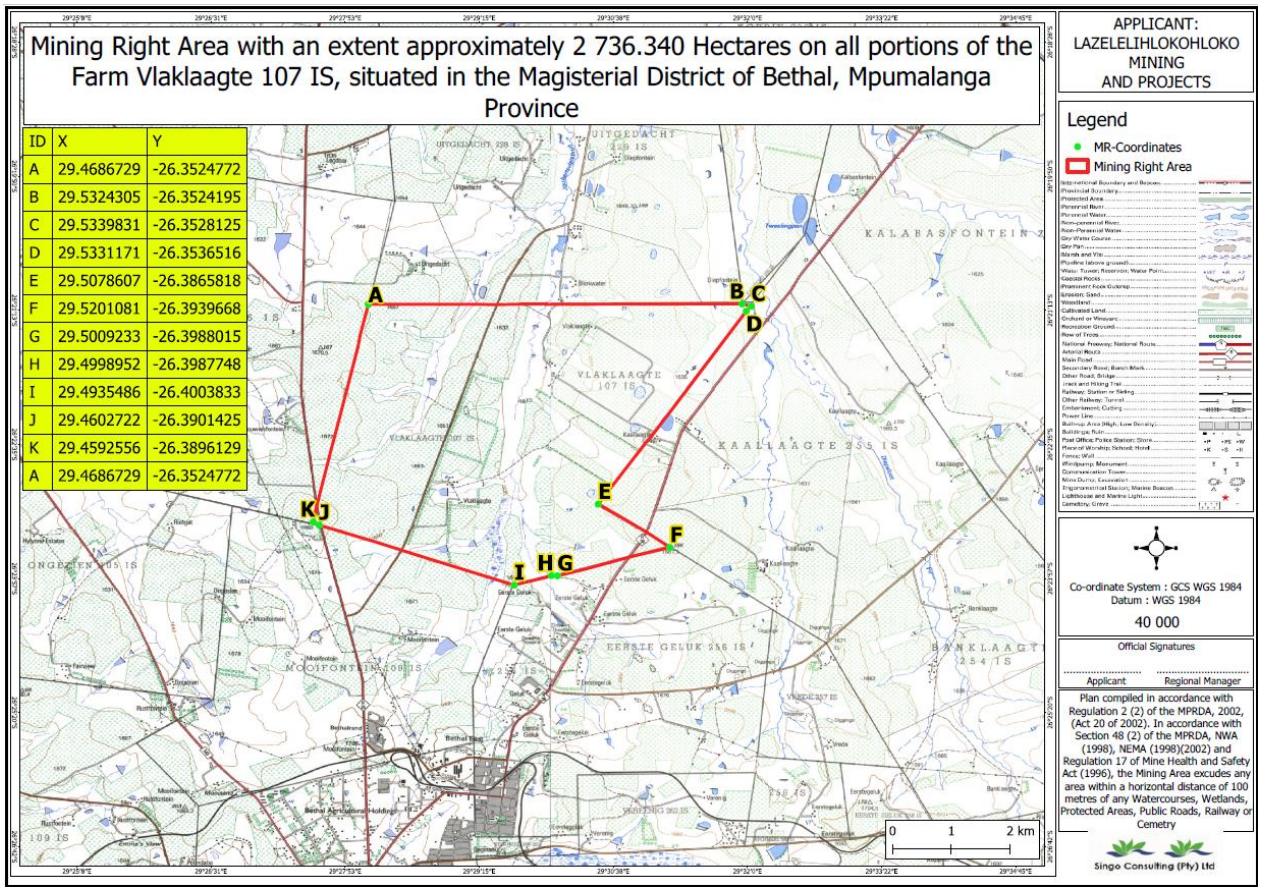
.....

Date

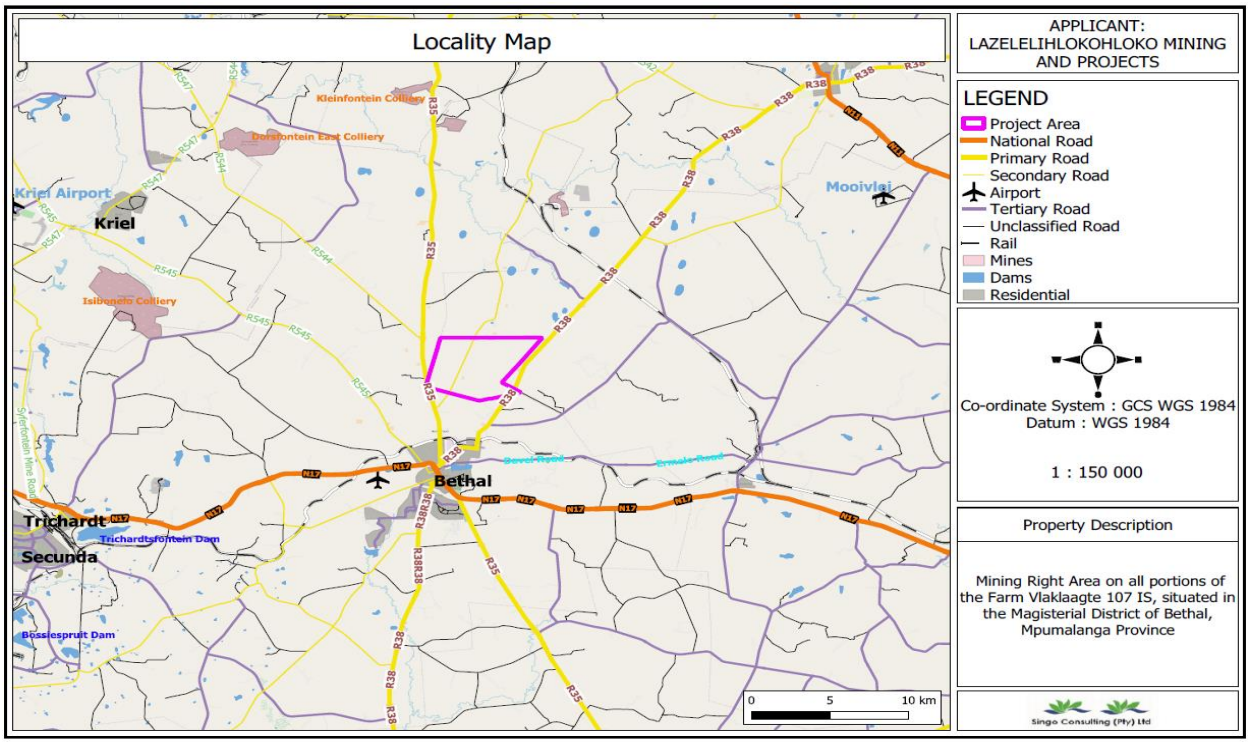
Appendix 1: DMRE Correspondence

Appendix 2: EAP CV

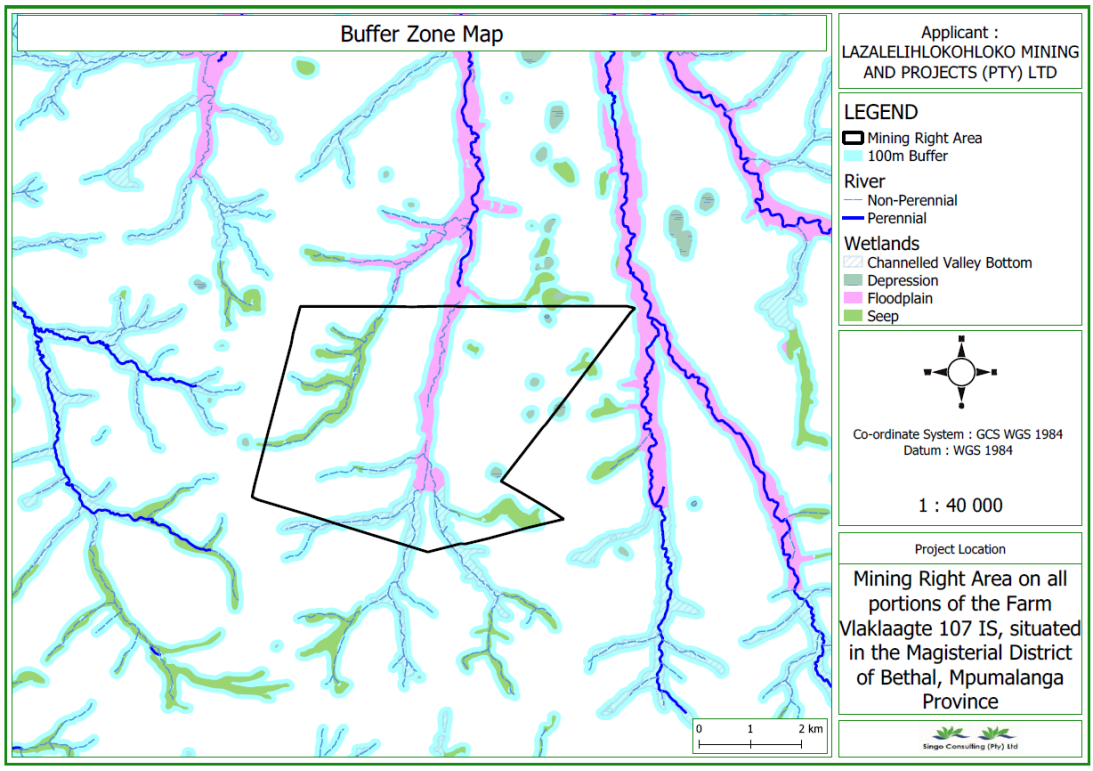
Appendix 3: Project Maps



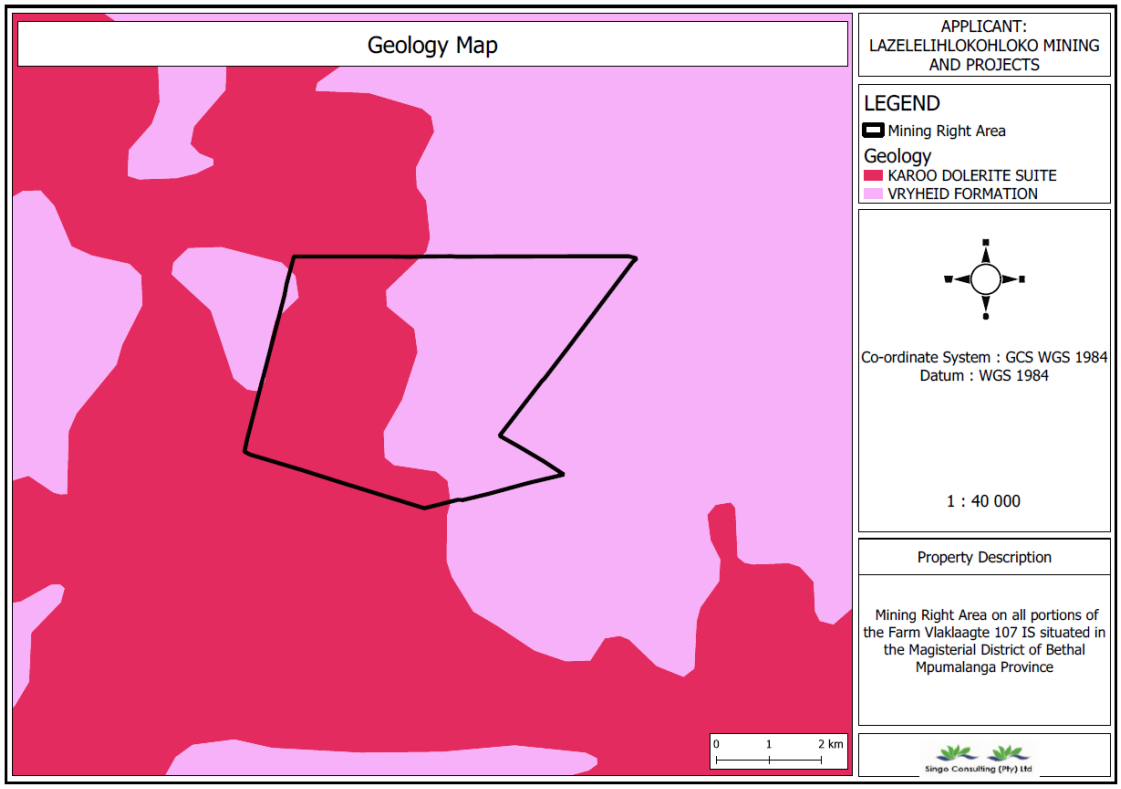
Regulation Map



Locality Map

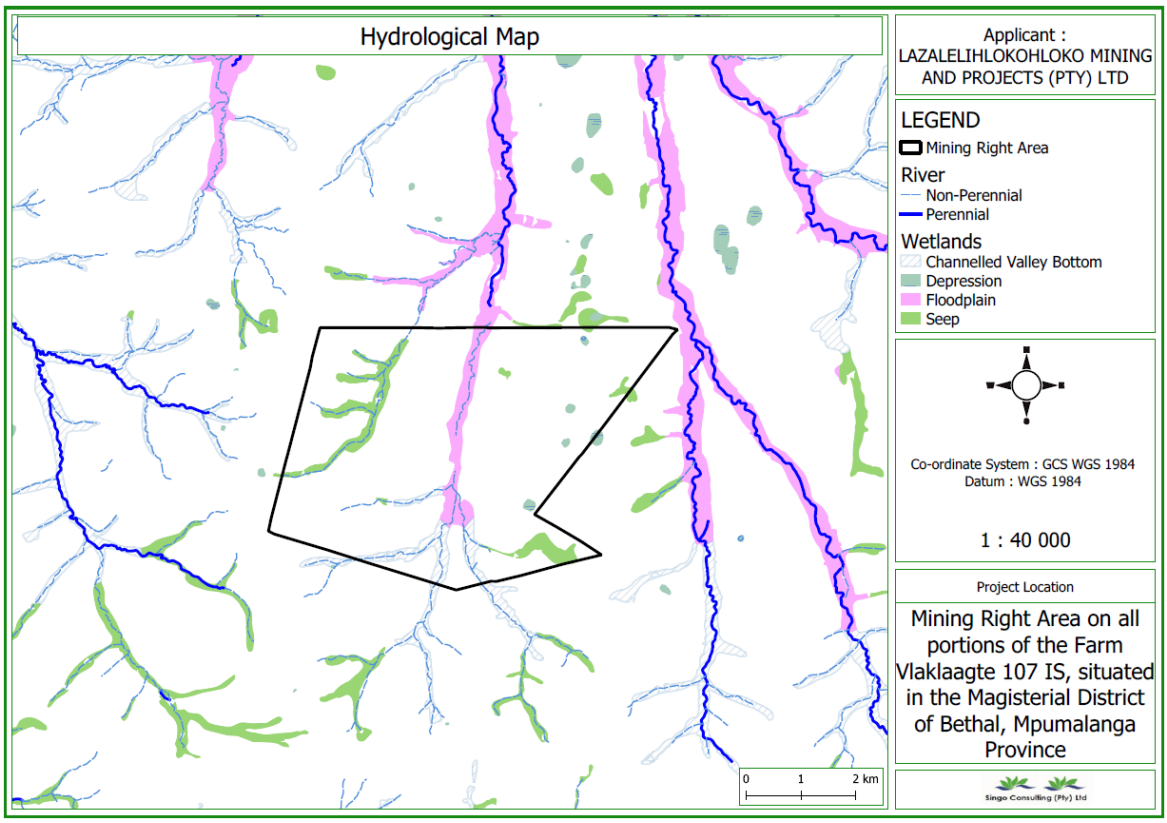


Buffer zone Map

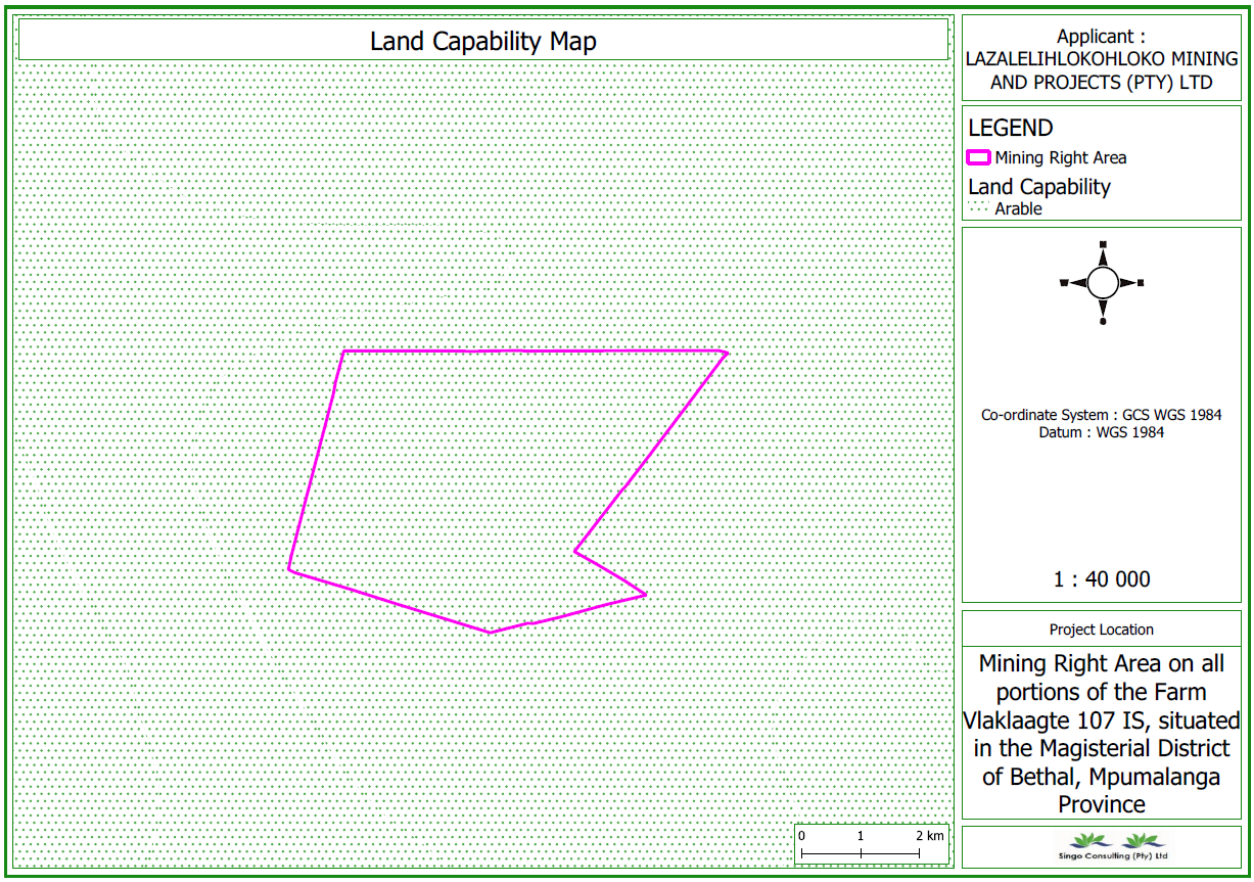


Geology Map

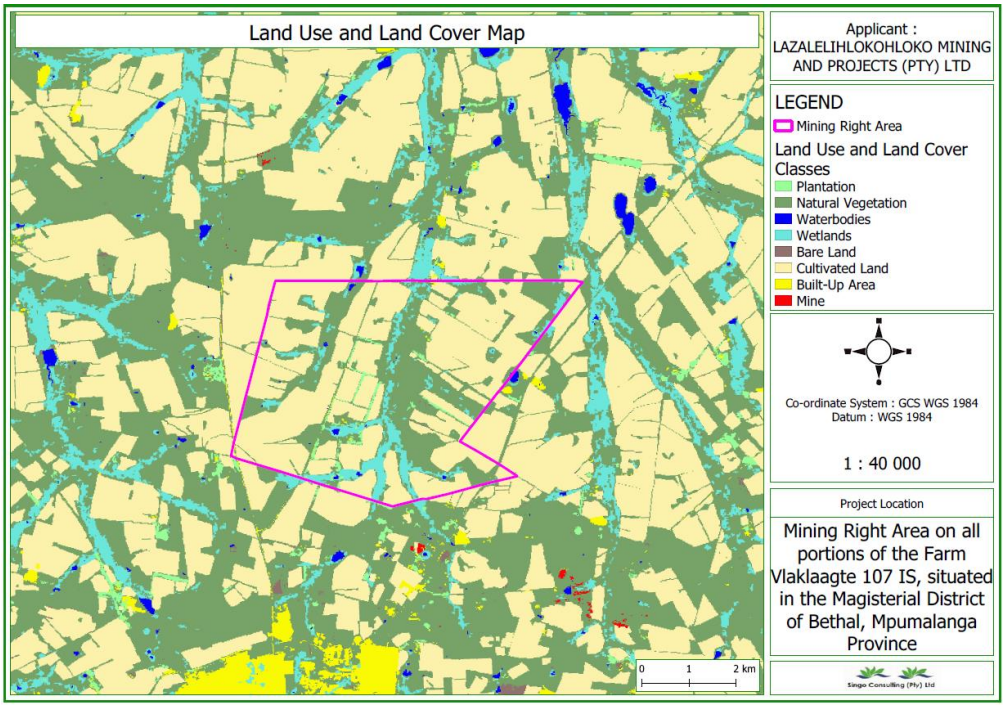
Google Earth View



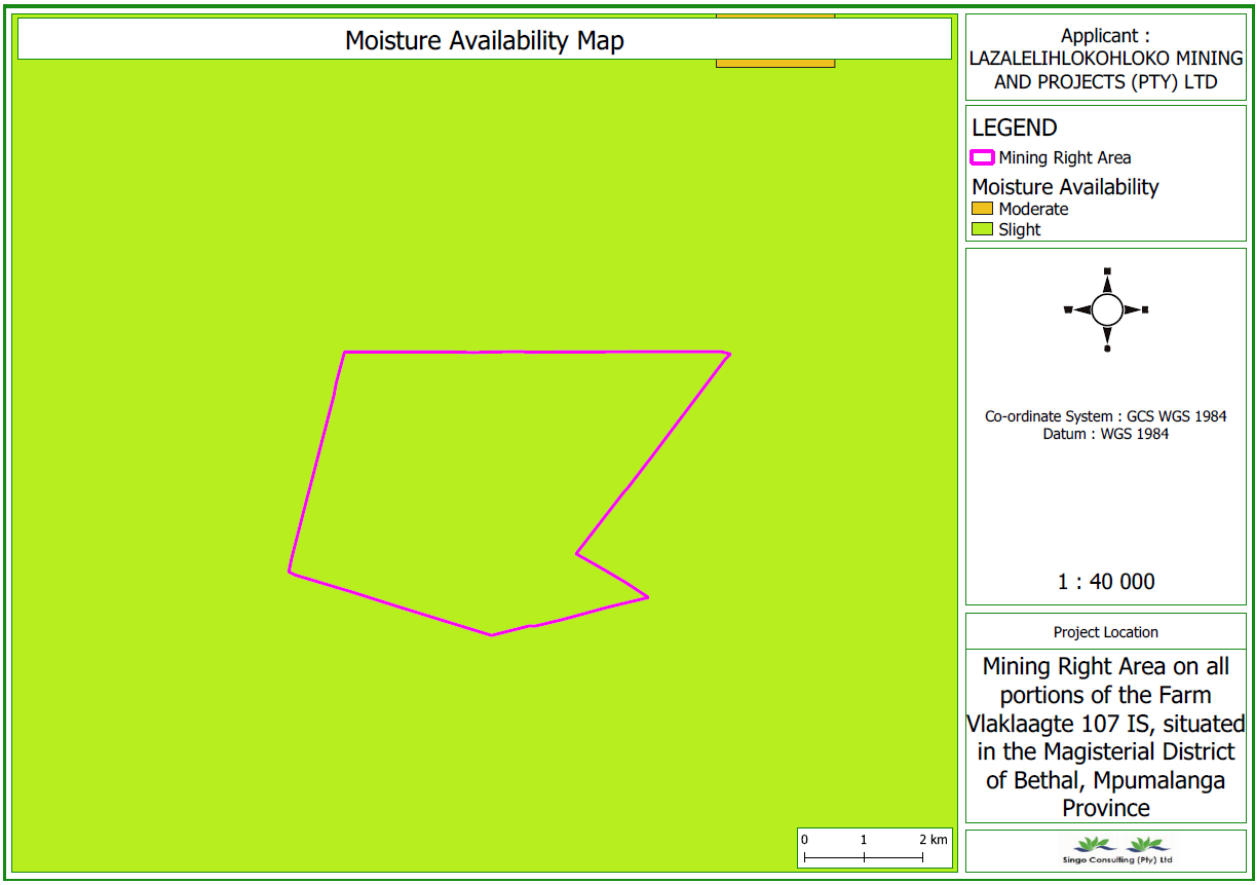
Hydrological Map



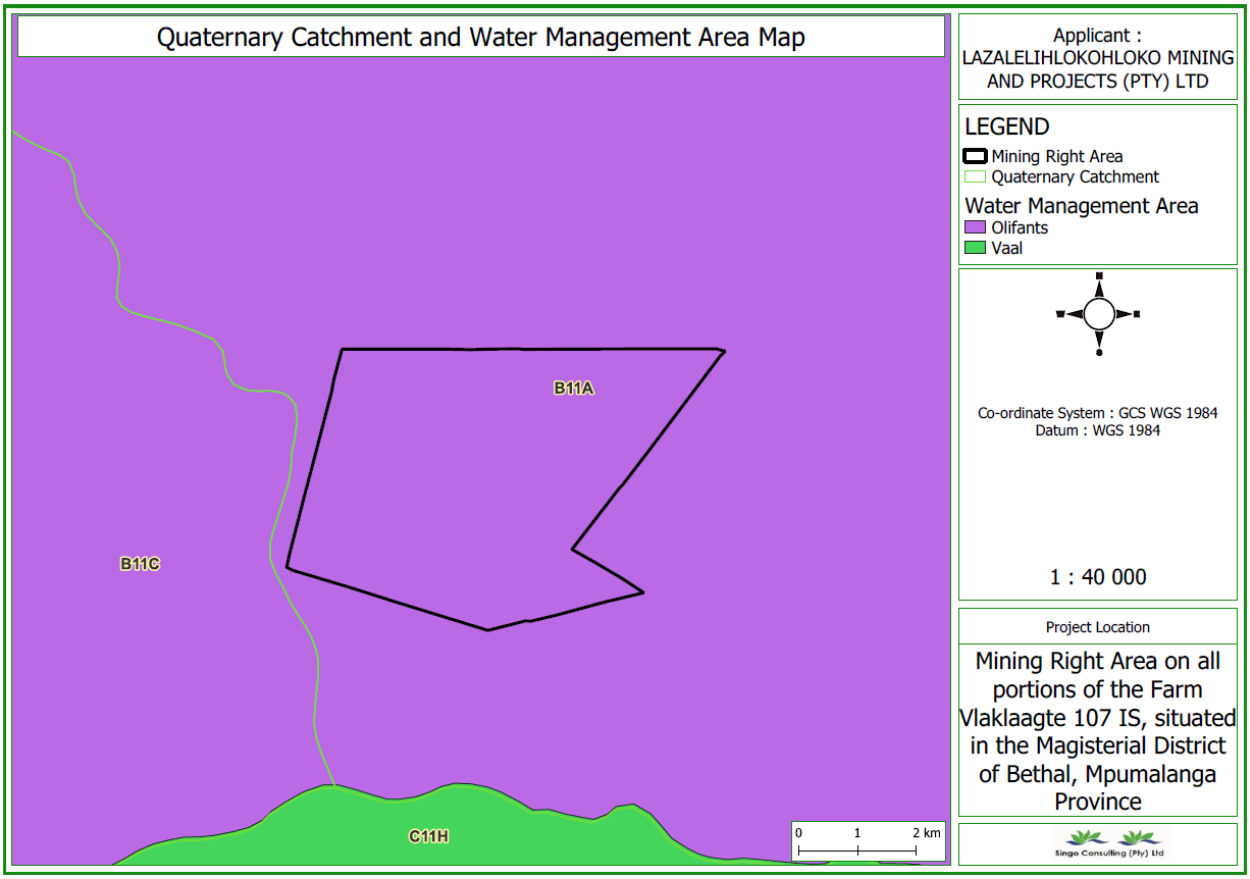
Land capability Map



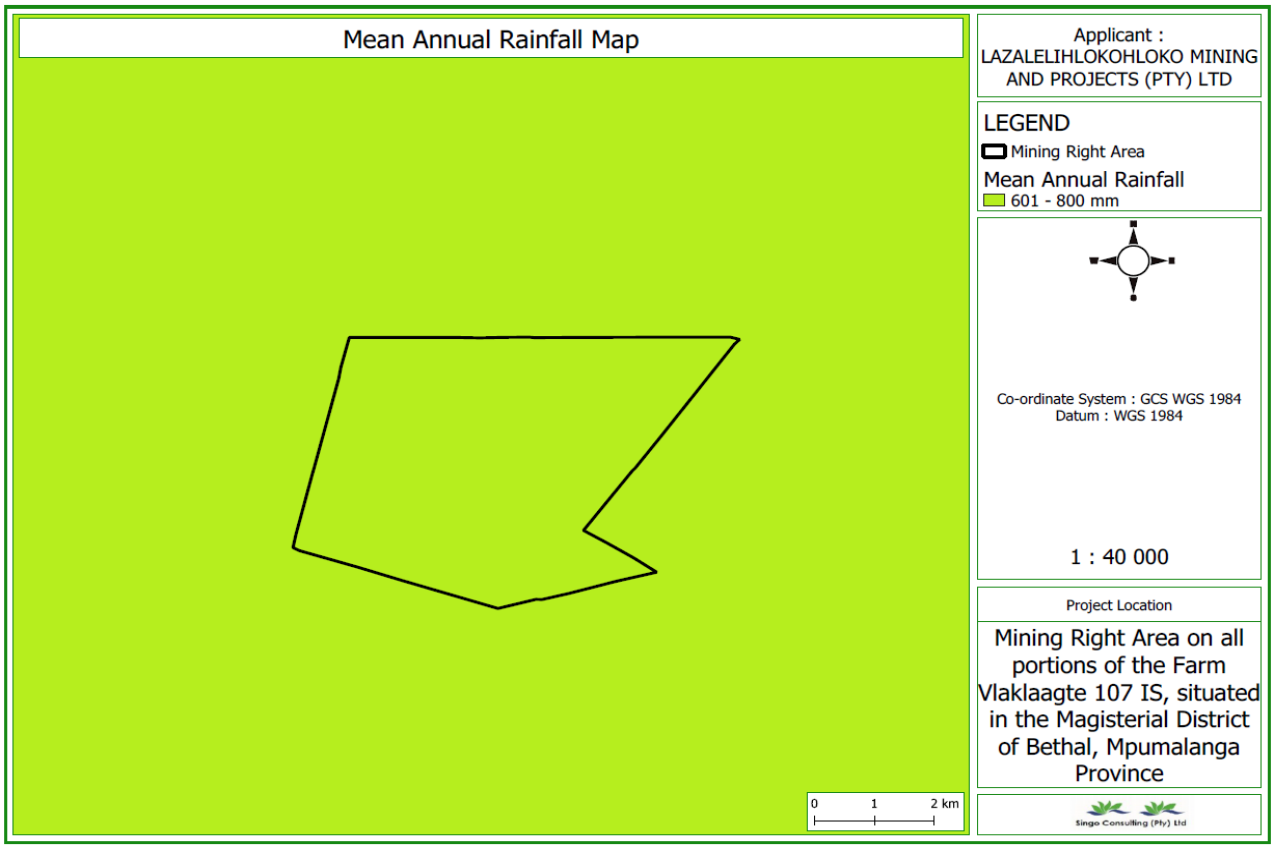
Land use and Land cover Map.



Moisture Availabilty Map

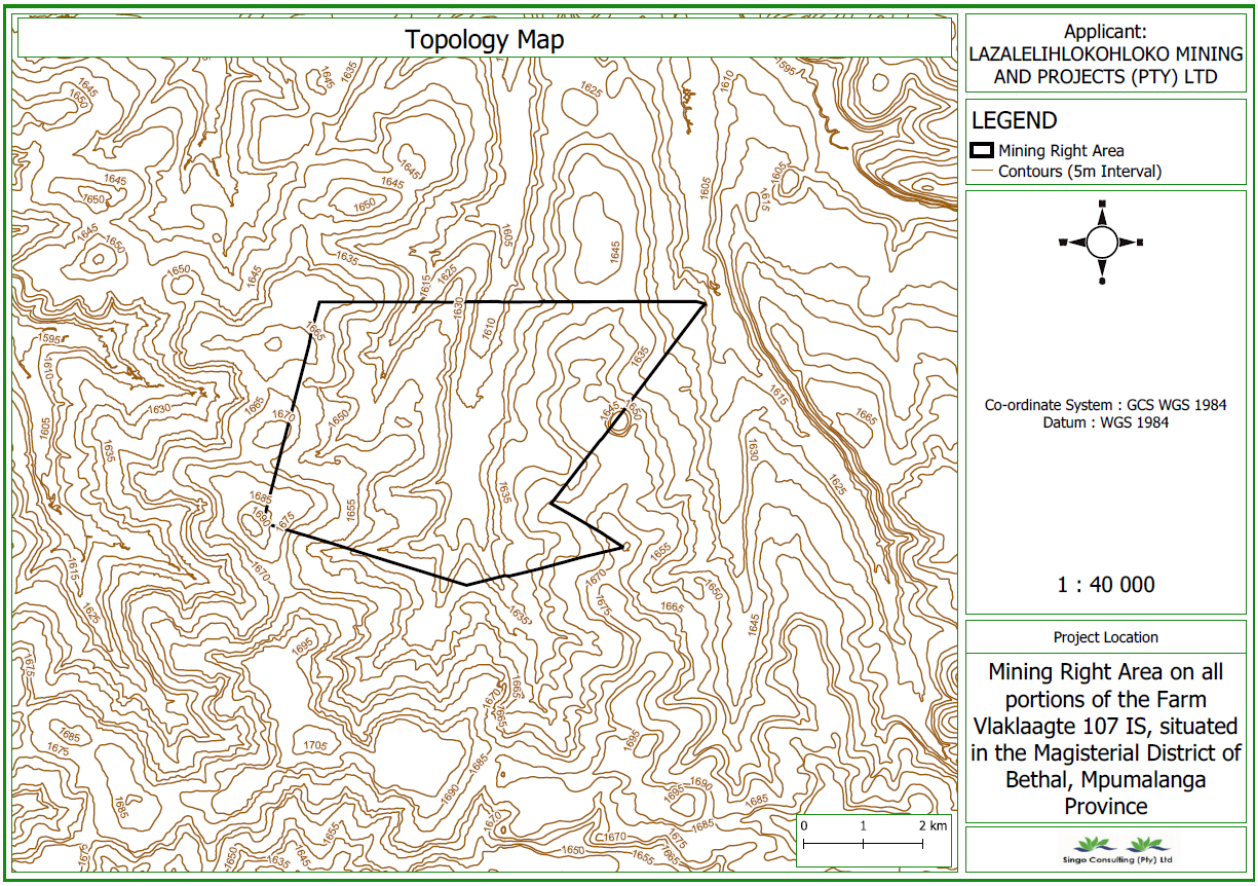


Quaternary Catchment and Water Management Area Map

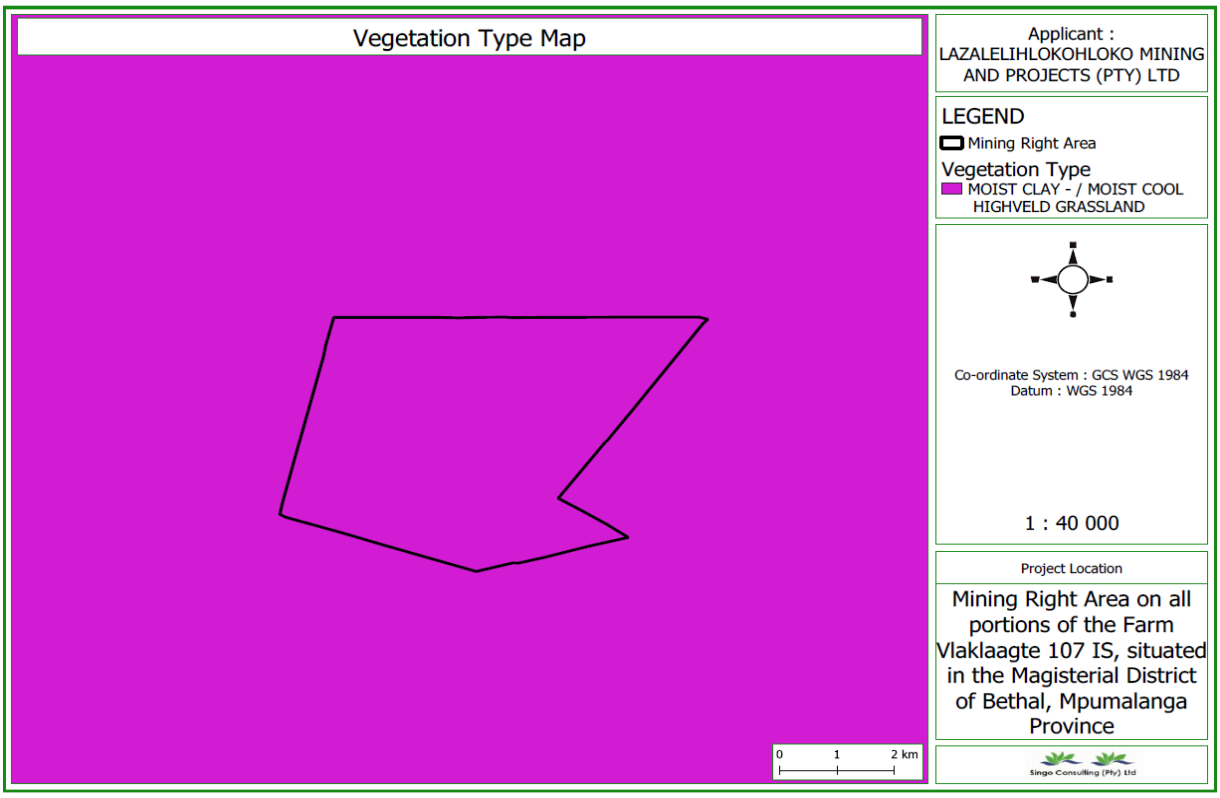


Mean Annual Rainfall Map

Soil Classes Map

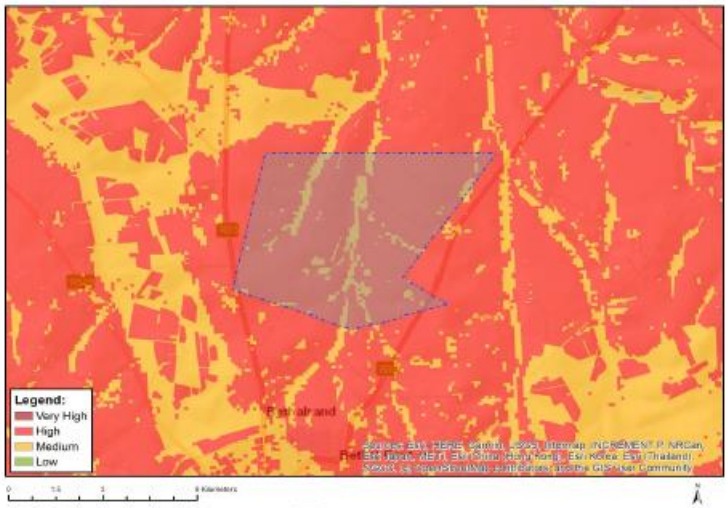


Topology Map



Vegetation Type Map

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY



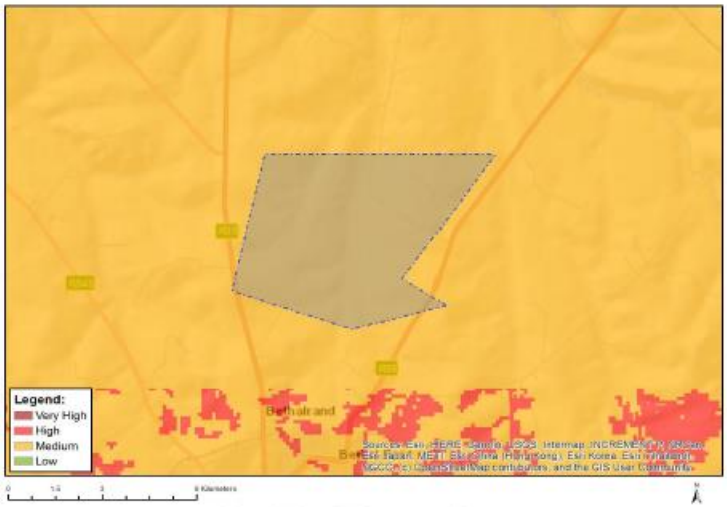
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

Map of Relative Agriculture Theme Sensitivity

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)
Medium	Aves-Tyto capensis
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi

Map of Relative Animal Species Theme Sensitivity

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

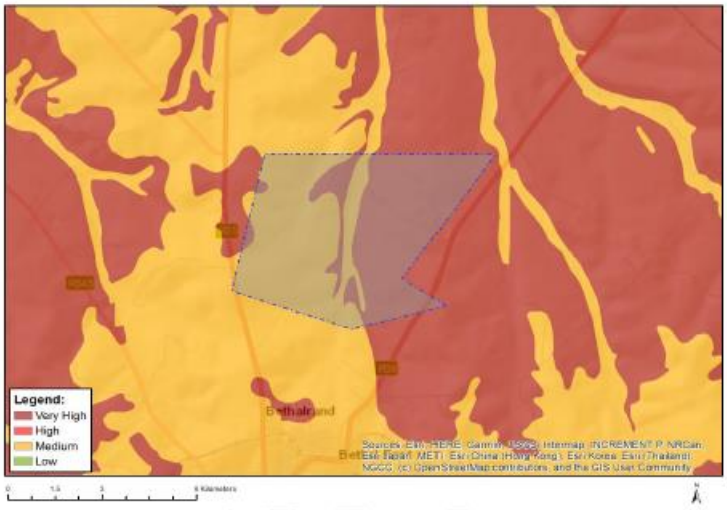
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

Map of Relative Archeological and Heritage Theme Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



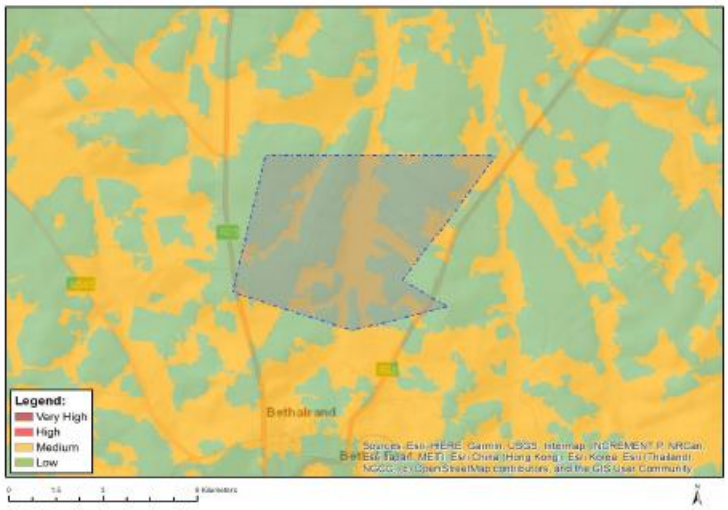
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

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

Map of Relative 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	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 41
Medium	Sensitive species 691
Medium	Pachycarpus suaveolens

Map of Relative Plant Species Theme Sensitivit