SCOPING REPORT FOR COAL MINING RIGHT APPLICATION, INTEGRATED ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL AUTHORISATION

Portion 08 and 11 of the Farm Vaalbank 177 IS, Located in the Magisterial District of Hendrina, Mpumalanga

DRAFT SCOPING REPORT

PREPARED FOR

MWALIMU RESOURCES

No. 4 Blydepoort, 19 Seinhuewel, Aerorand, Middelburg, 1050

PREPARED BY

Singo Consulting (Pty) Ltd

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COMPETENT AUTHORITY

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

MPUMALANGA REGIONAL OFFICE

DMR SAMRAD REF: MP30/5/1/2/2/10267MR

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mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

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For listed activities associated with mining right and/or bulk sampling activities including trenching in cases of alluvial diamond prospecting.

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

NAME OF APPLICANT:	Mwalimu Resources (Pty) Ltd Reg. No. 2012/107017/07
TEL NO.:	079 350 9289 / 061 475 6440
E-MAIL.:	mwalimuresources@gmail.com/ ceo@mwalimucoal.co.za
FAX NO.:	086 607 3097
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FILE REFERENCE NUMBER SAMRAD:	MP 30/5/1/2/2/10267MR

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1. Important notice

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment". Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment (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.

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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.

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Executive summary

Mwalimu Resources (Pty) Ltd (hereafter the applicant) has appointed Singo Consulting (Pty) Ltd (Consultant) to apply for a mining right and undertake environmental authorization associated with the proposed Hendrina Coal Mine. The applicant has obtained a Prospecting Right (reference number MP 30/5/1/1/2/10937 PR), which the EMPr was approved on 22nd of May 2014 by the Department of Mineral Resources (DMR) to prospect for coal on Portion 08 and 11 of the farm Vaalbank 177 IS with an extent of 378 ha, Hendrina Mpumalanga province. The mining right application to the DMR includes the abovementioned properties and extent.

A Mining right application was lodged with the DMR on the 30 January 2020 (reference number: MP 30/5/1/2/2/10267MR). The extent of the mining right covers the above-mentioned farm portions and the proposed project relate to the opencast which within the project area there are two seams that were identified within portion 11 as the CPR and the located seams are; seam no. 4 and seam no. 2. The seams are categorized as; most economical and can be exploited by means of open cast mining and less economical and can be exploited by means of underground mining respectively. The coal seams are within the Witbank Coalfield and the parting between these two seams varies from 18.60m to 22.93m. It may be economical to extract the coal using open cut (also referred to as open cast, open pit, or strip) mining methods. Open cast coal mining recovers a greater proportion of the coal deposit than underground methods, as more of the coal seams in the strata can be exploited.

In order for the proposed mine to operate, the applicant is required to submit an application for a mining right with the DMR. 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 DMR 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).

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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).

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List of abbreviations

BID	Background Information Document
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
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

1 INTRODUCTION AND BACKGROUND

Mwalimu Resources (Pty) Ltd (hereafter the applicant) has appointed Singo Consulting (Pty) Ltd (Consultant) to apply for mining right and to undertake environmental authorization associated with the proposed Hendrina Coal Mine. The applicant has obtained a Prospecting Right reference number MP 30/5/1/1/2/10937 PR of which the EMP was approved on the 22nd of May 2014 by the Department of Mineral Resources (DMR) to prospect for coal on Portion 08 and 11 of the farm Vaalbank 177 IS with an extent of 378 ha, Hendrina Mpumalanga province. The mining right application to the DMR includes the abovementioned properties and extent.

A Mining right application was lodged with the DMR on 30 January 2020 (reference number: MP 30/5/1/2/2/10267MR). The extent of the mining right covers the above-mentioned farm portions and the proposed project relate to the opencast which within the project area there are two seams that were identified within portion 11 as the CPR and the located seams are; seam no. 4 and seam no. 2. The seams are categorized as; most economical and can be exploited by means of open cast mining and less economical and can be exploited by means of underground mining respectively. The coal seams are within the Witbank Coalfield and the parting between these two seams varies from 18.60m to 22.93m. It may be economical to extract the coal using open cut (also referred to as open cast, open pit, or strip) mining methods. Open cast coal mining recovers a greater proportion of the coal deposit than underground methods, as more of the coal seams in the strata can be exploited.

In order for the proposed mine to operate, the applicant is required to submit an application for a mining right with the DMR. 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 DMR 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 open-cast/ surface coal mining operations constitute various listed activities, as contained in the scheduled activities in Government Notice Regulation No 324, 325 and 327 (amended 7 April 2017). As such, a full Scoping and EIA process must be followed. Prior to any listed activity being approved by the DMR, 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:

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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.

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- 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 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, and 107 days for the competent authority review).

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2 PROPONENT AND ENVIRONMENTAL ASSESSMENT PRACTITIONER DETAILS

2.1 Details of the proponent

The following person may be contacted regarding this project:

Table 1: Proponent's contact details

NAME OF APPLICANT:	Mwalimu Resources (Pty) Ltd Reg. No. 2012/107017/07
TEL NO.:	079 350 9289 / 061 475 6440
E-MAIL.:	mwalimuresources@gmail.com/ ceo@mwalimucoal.co.za
FAX NO.:	086 607 3097
POSTAL ADDRESS.	Suite MW 162 Private Bag X 1838 Middelburg, 1055.
PHYSICAL ADDRESS.	No. 4 Blydepoort, 19 Seinhuewel, Aerorand, Middelburg, 1050
FILE REFERENCE NUMBER SAMRAD:	MP 30//5/1/2/2/10267 MR

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:

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Table 2: EAP's contact details

Environmental assessment practitioner	Singo Consulting (Pty) Ltd
Contact person(s)	Rudzani Shonisani (Junior EAP) Kenneth Singo (Senior EAP REVIEWER)
Physical address	Office No: 16 First Floor (South Block) Corridor Hill Crossing 09 Langa Crescent, Corridor Hill, eMalahleni, 1035
Postal address	Private Bag X7297, Postnet Suite 87, Witbank, 1035
Contact number(s)	Kenneth Singo: 078 272 7839 / 072 081 6682 Rudzani Shonisani: 078 548 1244 / 079 930 4772
Telephone number	013 692 0041
Fax	086 5144 103
Email(s)	Rudzani Shonisani: rudzani@singoconsulting.co.za Kenneth Singo: kenneth@singoconsulting.co.za

2.2.1 Expertise of Environmental Assessment Practitioner

See **Error! Reference source not found.** for EAP CVs.

2.2.2 Specialist studies

Specialists were 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 of the proposed Vaalbank Coal mine is provided in Table 3. The farm name applicable to this S&EIA is listed in this table. Several S&EIA processes would have to be followed for the proposed mining operations.

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Table 3: Property descriptions of the proposed Vaalbank Coal Mine

Farm name	Vaalbank 177 IS
Proposed name of the mine	Vaalbank Mine
Application area (ha)	Approximately 378 Ha
Magisterial district:	Middleburg
Local government municipalities	Local Municipality: Steve Tshwete Local Municipality District Municipality: Nkangala District Municipality
Distance and direction from nearest town	The project can be accessed from the R38 road that links Hendrina and Carolina. The R38 branches (in the middle of Hendrina town) from the N11 linking Hendrina and Ermelo. There is a gravel road that branches from the R38 for approximately 300m and goes through the project area. The project is located near the Klein Olifants River on the eastern direction. There are three coal fired power stations located in less than 60km to the project area, namely Hendrina, Arnot and Komati power stations.
21-digit Surveyor General code for farm portion	T0IS00000000017700008 & T0IS00000000017700011
Locality map	Locality map at a scale not smaller than 1:250000 (see Figure 1 and Figure 2).

2.4 Locality map

The mining right area is located on portions 08 and 11 of the farm Vaalbank 177 IS and is owned by Mr LLOYD JOHN JAMES. The farm (located in Hendrina) falls in the jurisdiction of Steve Tshwete Local Municipality in the Nkangala district in Mpumalanga, South Africa.

The site is 378 ha in extent and the project can be accessed from the R38 road that links Hendrina and Carolina. The R38 branches (in the middle of Hendrina town) from the N11 linking Hendrina and Ermelo. There is a gravel road that branches from the R38 for approximately 300m and goes through the project area. The project is located near the Klein Olifants River on the eastern direction. There are three coal fired power stations located in less than 60km to the project area, namely Hendrina, Arnot and Komati power stations. Refer to Figure 1 and Figure 2. There is a community located after the R38 National Route closer to the Portion 11 farm portion called Kwazamokuhle. The community has been addressed during the public meeting on the 21st of February 2020 held at Cosmos Community Hall; thus, community unrest is unlikely unless if the mine diverts from the plans discussed, thus community unrest will be likely.

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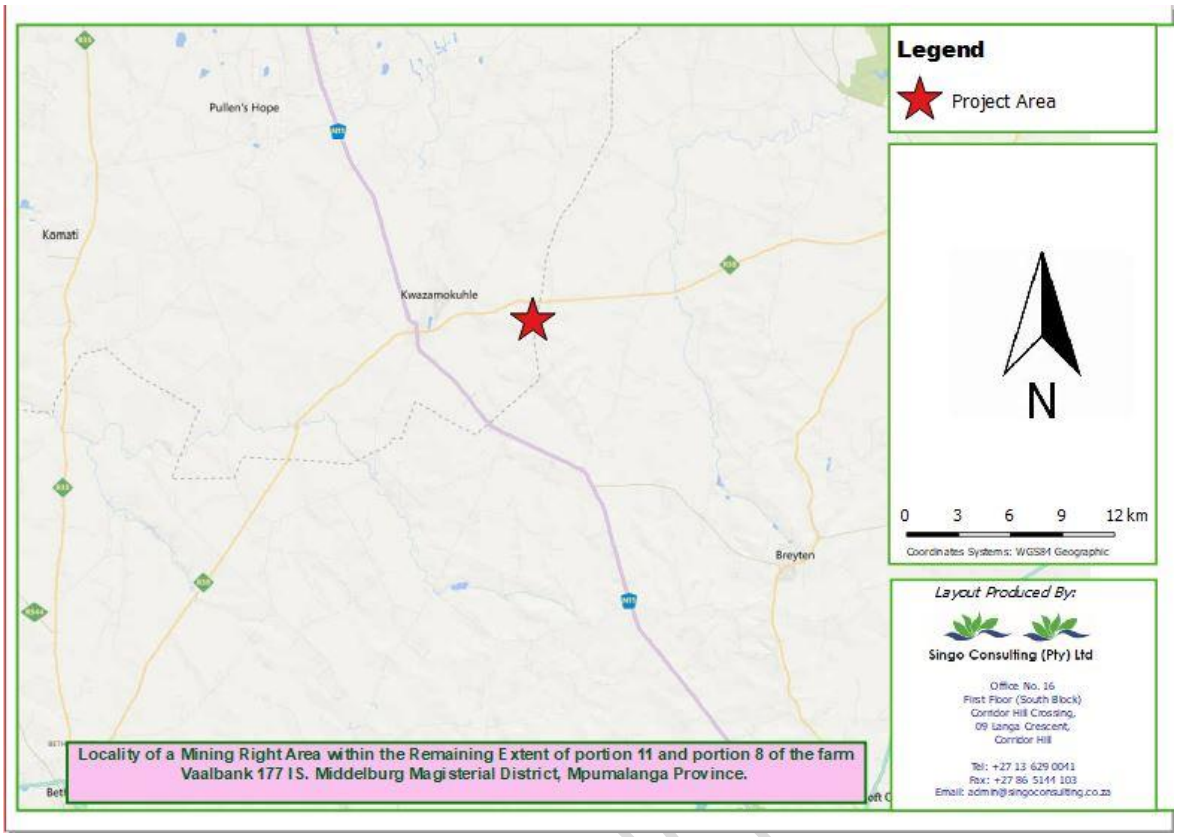

Figure 1: Project area locality

Figure 2: Google Earth view of the project area

2.4.1 Landowner

The mining right is applicable for the entire Portions 08 & 11 of the aforementioned property. The environmental authorisation process for the Vaalbank Coal Mine project study area includes the property indicated in Table 4. The property is under an offer for selling to Mwalimu Resources (Pty) Ltd by the landowner who is Mr Lloyd James. A confidential contract was shared with Singo Consulting (Pty) Ltd.

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Table 4: Landowner of the affected properties

Landowner	Property description	Title deed number
Mr Lloyd John James	Vaalbank 177 IS, Portions 08 & 11	T4286/2011 & T13677/2012

Farm List

windeed
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Date Requested	2020/01/22 10:54
Deeds Office	MPUMALANGA
Registration Division	IS
Farm Name	VAALBANK
Farm Number	177
Remaining Extent	NOT SELECTED

PORTION LIST

Portion	Owner	Title Deed	Registration Date	Purchase Price (R)
0	*** NO LONGER EXISTS - SEE ENDORSEMENTS ***		-	
1	NIENABER JAN HENDRIK	T59032/1988	1988/09/05	R66000.00
2	S J M TRUST	T11138/2010	2010/09/09	R4591663.00
3	VRY FRANCINA CATHRINA DE	T15504/1979	1979/05/10	R0.00
4	SOMCA 15 CC	T72436/2004	2004/05/31	R79800.00
5	MERWE MARTHINUS JOHANNES CHRISTIAAN VAN DER	T134303/2006	2006/10/13	R1840932.80
6	MERWE MARTHINUS JOHANNES CHRISTIAAN VAN DER	T117210/2004	2004/09/03	R265620.00
7	FERREIRA MORNE	T141163/2007	2007/10/16	R1420000.00
8	LLOYD JOHN JAMES	T4286/2011	2011/05/09	R2535335.00
9	MERWE MARTHINUS JOHANNES CHRISTIAAN VAN DER	T134303/2006	2006/10/13	R1840932.80
10	DAVEL MARIA JACOMINA	T36298/1977	1977/12/14	R0.00
11	LLOYD JOHN JAMES	T13677/2012	2012/12/14	R1156318.00
12	SIBANYONI JABULA GEELBOOI	T98179/2005	2005/08/02	R155000.00
13	MERWE MARTHINUS JOHANNES CHRISTIAAN VAN DER	T134303/2006	2006/10/13	R1840932.80
14	BEESTEPAN BOERDERY PTY LTD	T16995/2008	2008/10/22	R2030401.00
16	SIBANYONI JABULA GEELBOOI	T98179/2005	2005/08/02	R155000.00
17	SIBANYONI JABULA GEELBOOI	T98179/2005	2005/08/02	R155000.00
18	*** NO LONGER EXISTS - SEE ENDORSEMENTS ***		-	
19	PROVINCIAL GOVERNMENT OF MPUMALANGA	T75696/1994	1994/09/26	R0.00
26	STEVE TSHWETE LOCAL MUNICIPALITY	T9018/2013	2013/08/30	R2500000.00

DISCLAIMER

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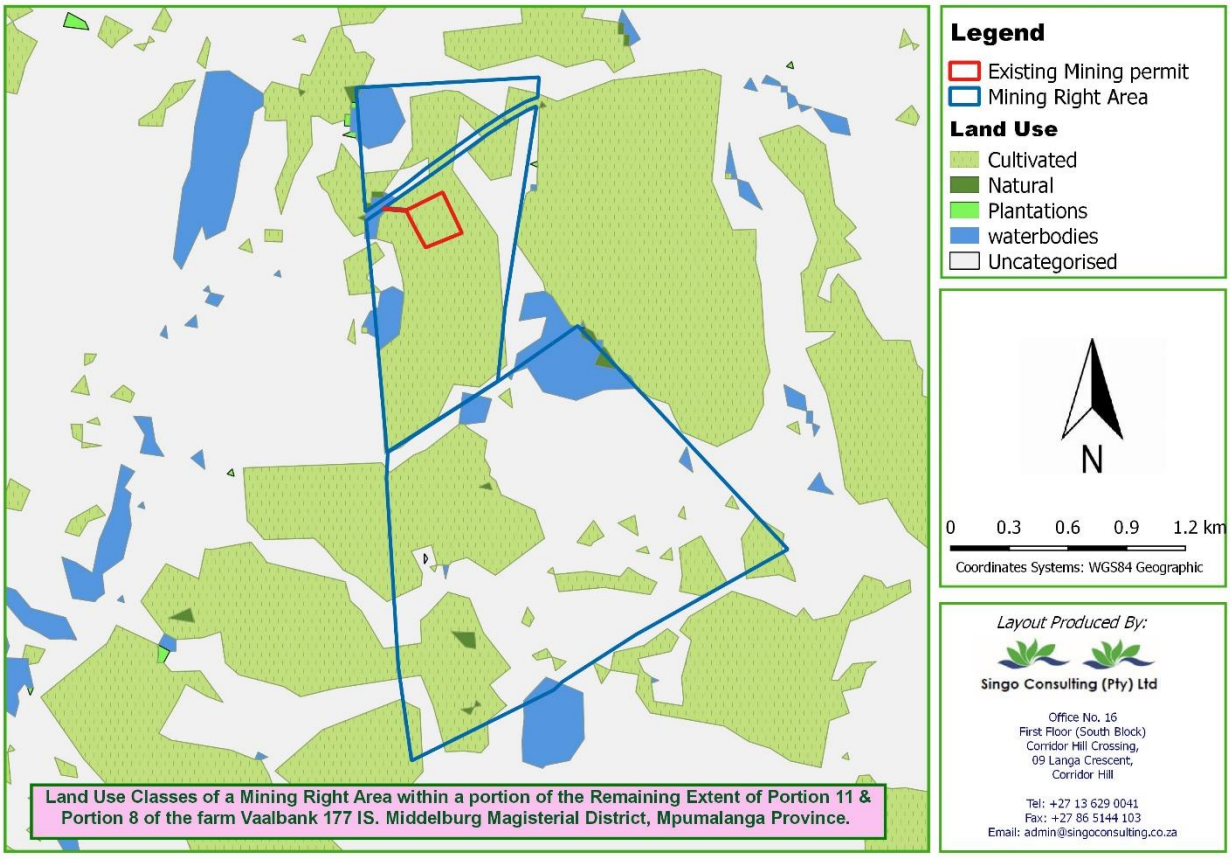
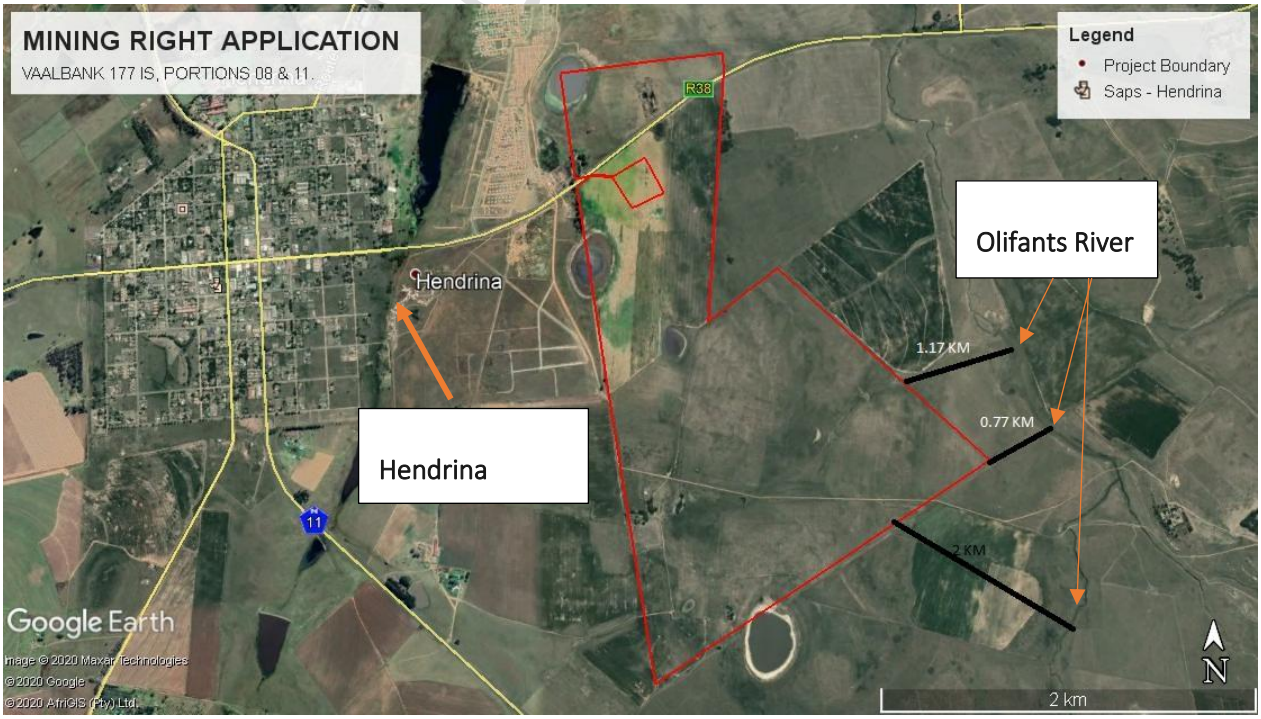
2.4.2 Description of current land cover

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.

Landsat 8 satellite imagery offers the opportunity to create a national land cover dataset for South Africa, circa 2013-14, which has replaced the previous (1994 and 2000) South African national land cover datasets (Geoterraimage, 2015). The 2013-14 national land cover dataset is based on 30x30 m raster cells and is ideally suited for ± 1:75,000 - 1:250,000 scale GIS-based mapping and modelling applications. As per the

2013-14 national land cover dataset, the current land cover for the study area includes multiple classes, the majority being cultivated, followed by uncategorised and few waterbodies. Refer to Figure 3 (A, B). During a field assessment it was, however, observed that most of the farm is being used for grazing and commercial cultivation and also neighbouring farms are used for the same purpose.





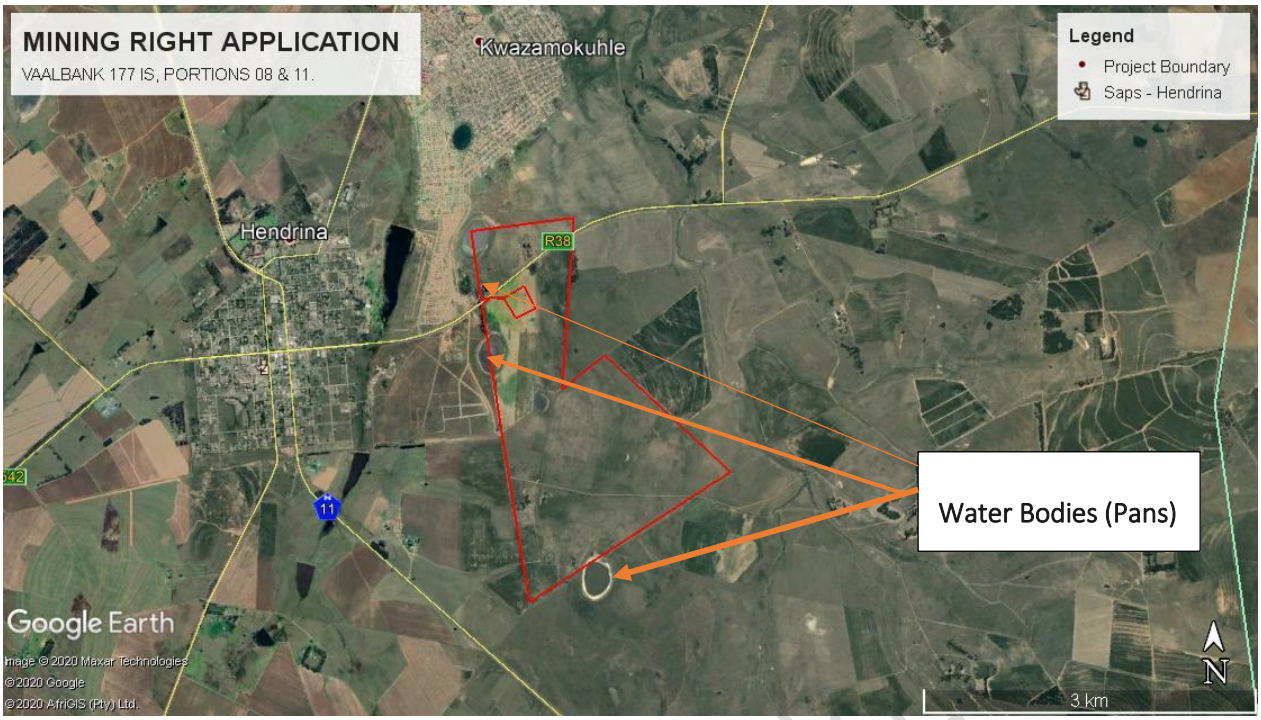


Figure 3 (A, B, C): Study area in relation to current land cover

2.4.3 Land claims

A land claim enquiry was lodged on the 12th of February 2020 to Lazarus Masuku (Lazarus.Masuku@drdlr.gov.za) and Vusi Kleinboy Khoza <Vusi.Khoza@drdlr.gov.za. Themba Mkhonto <Themba.Mkhonto@drdlr.gov.za responded on the same day, indicating that the land has an existing claim and any further enquiries must be directed to Mr Lawrence Matlala. call was made to Mr Matlala and he indicated that he only deals with the Vaalbank farm which is 289 IS and located in Middleburg and not the farm in Hendrina which is 177 IS. A ''to and for'' communication was held amongst land claim department between Mr Lawrence and Mr Themba as to clarify who is the appointed official who will assist Singo Consulting (Pty) Ltd with the access to information content. A letter for access to information was sent to all officials mentioned above. In the end, no one was able to resolve the issue and thus on the 24th of February 2020, Mr Vusi Khoza sent yet another claim letter results that still needs Singo consulting (Pty) Ltd to get access to information for. At the moment, access to information is anticipated. See Appendix 3.

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COMMISSION ON RESTITUTION OF LAND RIGHTS

OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER: MPUMALANGA PROVINCE
Shop no E8,Sovereign Crescent Centre,Cnr OR Tambo and Mandela Street, Die Heuwel Witbank
PRIVATE BAG X 7301
WITBANK, 1035
TEL : 013 655 1000

ENQ: MR THEMBA MKHONTO
TEL: 013 655 1000

ATTENTION: RUDZANI SHONISANI

LAND RESTITUTION IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT NO. 22 OF 1994

I refer to your enquiry, dated 12 February 2020
Please note that a claim for the restitution of land rights has been lodged against the following property:

Property Description	Comments	File number	Claim Status
Province: Mpumalanga **Magisterial District: Steve Tshwete** **Property:** ➢ Portion 8 & 11 of the farm Vaalbank 177 IS	➢ There is a registered land claim which was lodged against the mentioned property. Further clarity, please contact the Project Officer Mr Lawrence Mafisla @ 082 855 7665 / 013 655 1000	➢ KRP 2048	➢ Gazette

It is not within the powers of the Commission on Restitution of Land Rights to grant or withhold permission for the development or alienation in respect of land being claimed until such a claim has been gazette unless such development would constitute an obstruction to the achievement of the aims and objectives of the Restitution of Land Rights Act 22 of 1994. In such instances application can be made in the Land Claims Court in terms of Section 6(3) of the Restitution Act; this can be done at any stage after the claim has been lodged - even before the publishing of such a claim in terms of Section 11 of the Restitution of Land Rights Act 22 of 1994.

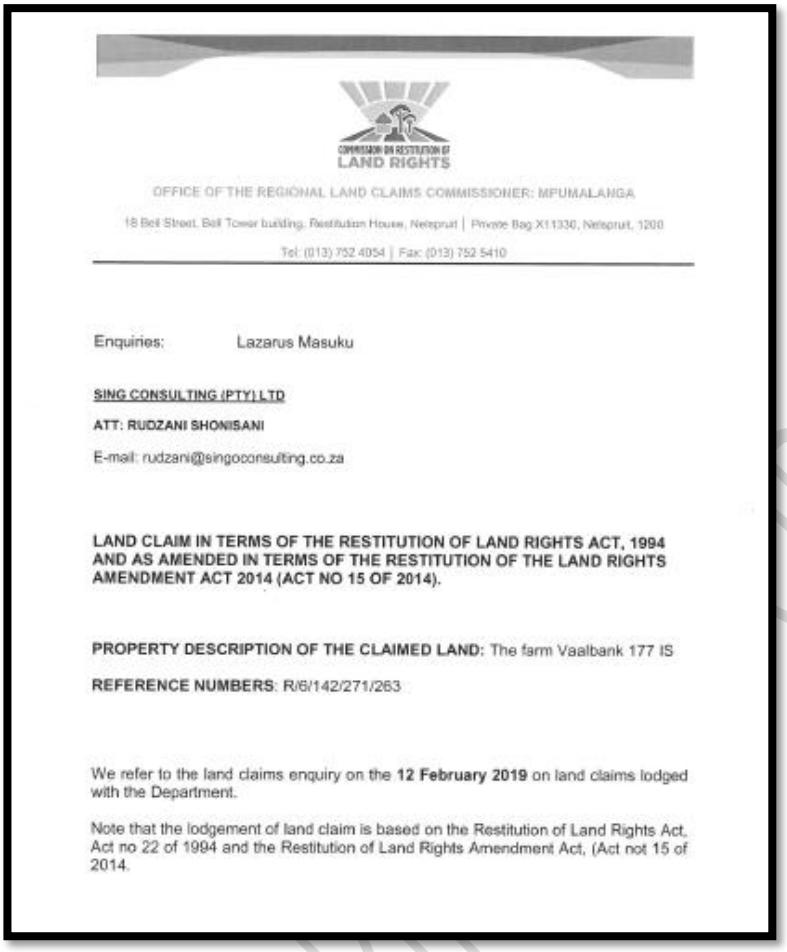
While the Regional Land Claims Commission: Mpumalanga
has taken reasonable care to ensure the accuracy of the above-mentioned information, the Commission cannot be held accountable if, through the process of further investigation, additional information is found that contradicts this communication.

The records in the Records Management Section of the Department of the Rural Development and Land Reform reflect in respect of the following property Vaalbank 177 JS which is situated in the Steve Tshwete Local municipality, Nkangala District in Mpumalanga Province, that there is a competing land claims in respect of the above mentioned properties.

Kind regards

P.P T. MKHONTO

Mr. E.S. NKOSI
CHIEF DIRECTOR
OFFICE OF REGINAL LAND CLAIMS COMMISSION
DATE:12 /02/2020



COMMISSION ON RESTITUTION OF LAND RIGHTS

OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER: MPUMALANGA

18 Bell Street, Bell Tower building, Restitution House, Nelspruit | Private Bag X11330, Nelspruit, 1200

Tel: (013) 752 4054 | Fax: (013) 752 5410

Enquiries: Lazarus Masuku

SING CONSULTING (PTY) LTD

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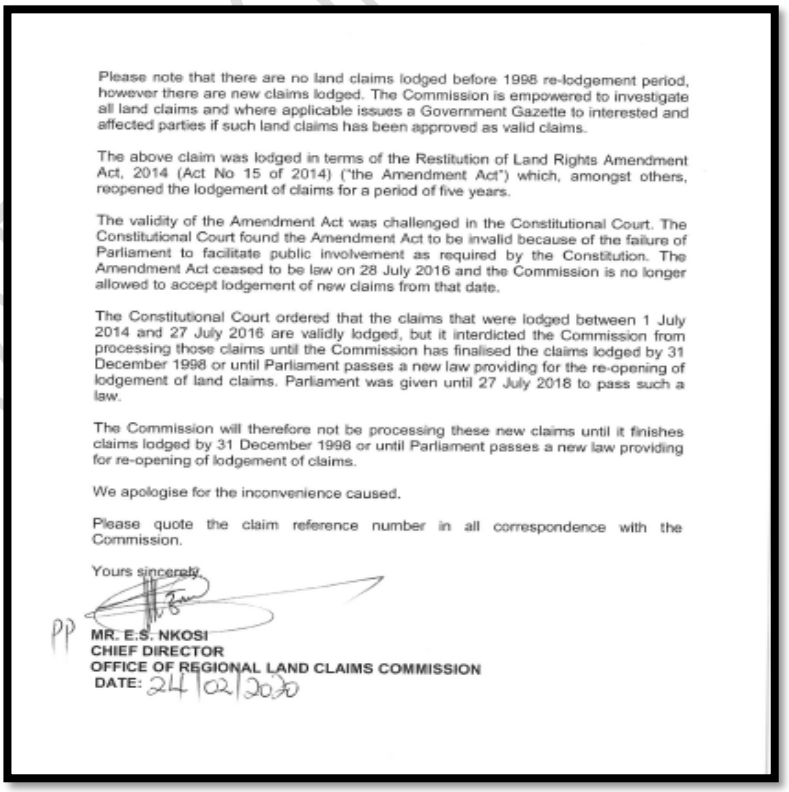
LAND CLAIM IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 AND AS AMENDED IN TERMS OF THE RESTITUTION OF THE LAND RIGHTS AMENDMENT ACT 2014 (ACT NO 15 OF 2014).

PROPERTY DESCRIPTION OF THE CLAIMED LAND: The farm Vaalbank 177 IS

REFERENCE NUMBERS: R/6/142/271/263

We refer to the land claims enquiry on the **12 February 2019** on land claims lodged with the Department.

Note that the lodgement of land claim is based on the Restitution of Land Rights Act, Act no 22 of 1994 and the Restitution of Land Rights Amendment Act, (Act not 15 of 2014.



Please note that there are no land claims lodged before 1998 re-lodgement period, however there are new claims lodged. The Commission is empowered to investigate all land claims and where applicable issues a Government Gazette to interested and affected parties if such land claims has been approved as valid claims.

The above claim was lodged in terms of the Restitution of Land Rights Amendment Act, 2014 (Act No 15 of 2014) ("the Amendment Act") which, amongst others, reopened the lodgement of claims for a period of five years.

The validity of the Amendment Act was challenged in the Constitutional Court. The Constitutional Court found the Amendment Act to be invalid because of the failure of Parliament to facilitate public involvement as required by the Constitution. The Amendment Act ceased to be law on 28 July 2016 and the Commission is no longer allowed to accept lodgement of new claims from that date.

The Constitutional Court ordered that the claims that were lodged between 1 July 2014 and 27 July 2016 are validly lodged, but it interdicted the Commission from processing those claims until the Commission has finalised the claims lodged by 31 December 1998 or until Parliament passes a new law providing for the re-opening of lodgement of land claims. Parliament was given until 27 July 2018 to pass such a law.

The Commission will therefore not be processing these new claims until it finishes claims lodged by 31 December 1998 or until Parliament passes a new law providing for re-opening of lodgement of claims.

We apologise for the inconvenience caused.

Please quote the claim reference number in all correspondence with the Commission.

Yours sincerely

PP **MR. E.S. NKOSI**
CHIEF DIRECTOR
OFFICE OF REGIONAL LAND CLAIMS COMMISSION
DATE: 24/02/2020

Figure 4: Land claim consultation correspondence

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 (DMR) 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 DMR 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.

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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

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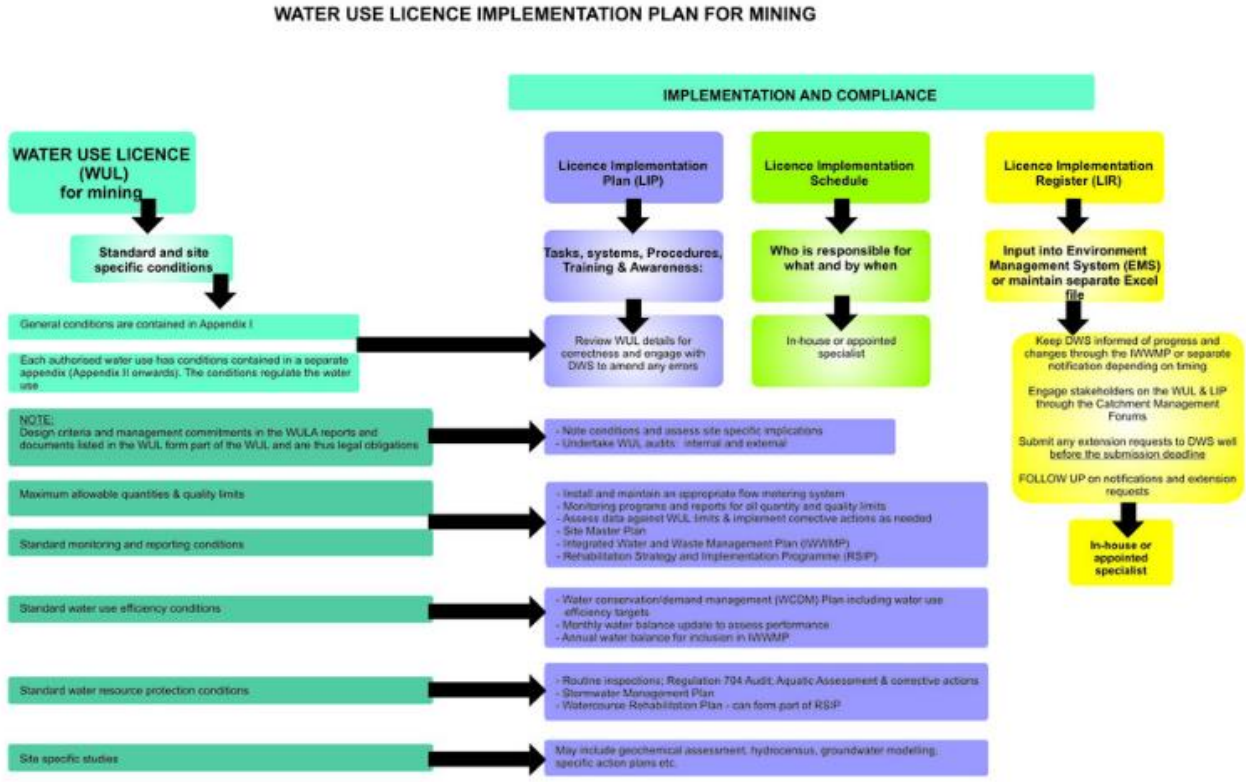
21 (g): disposing of waste in a manner which may detrimentally impact on a water resource

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.

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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

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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.

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- 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

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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.

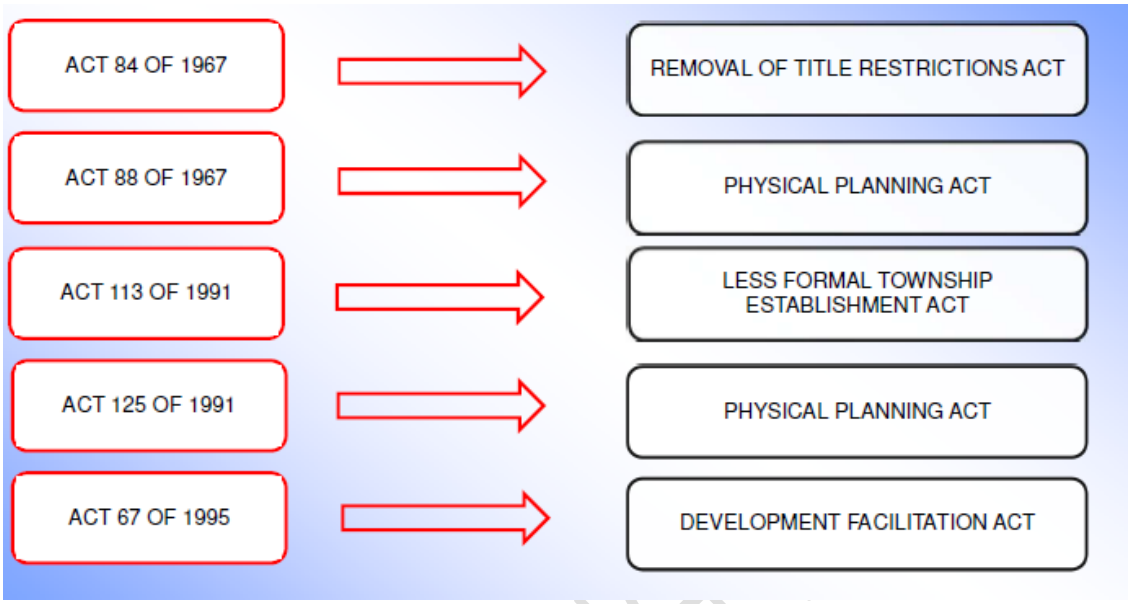

Figure 5: Repealed legislation as a result of SPLUMA

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

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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.

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.

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4 SCOPE OF THE PROPOSED OVERALL ACTIVITY

4.1 Mining operations

The mine will be located in Vaalbank 177 IS, portions 08 and 11 with an area extent of 378 Ha. There are two major coal seams sampled and found to be of economic importance, the No.4 and No.2 seam. The parting between these two seams varies from 18.60m to 22.93m.

The No.4 seam is well developed and can attain a maximum of 1.93m thickness with the lowest thickness of 0.73 and the No.2 Seam is 1.05 m to 1.54 m. The No.2 Seam is affected by dolerite intrusion which completely replaced it in some place and devolatilised it in other places for an example, seam replacement in BH 25 (drilled borehole) and devolatilisation BH 31, BH 24 (Drilled boreholes), see Figure 6. It is important note that the No.2 seam is economical only when it is mined together with the No.4 seam. A total of 16 boreholes has been drilled on portion 11 of Vaalbank 177 IS which as aerial extent of approximately 124 ha. The results according to the Competent Person's Report (CPR) shows that the area is a measured Coal Resource (the entire project is also referred to as such) as per the SAMREC code.

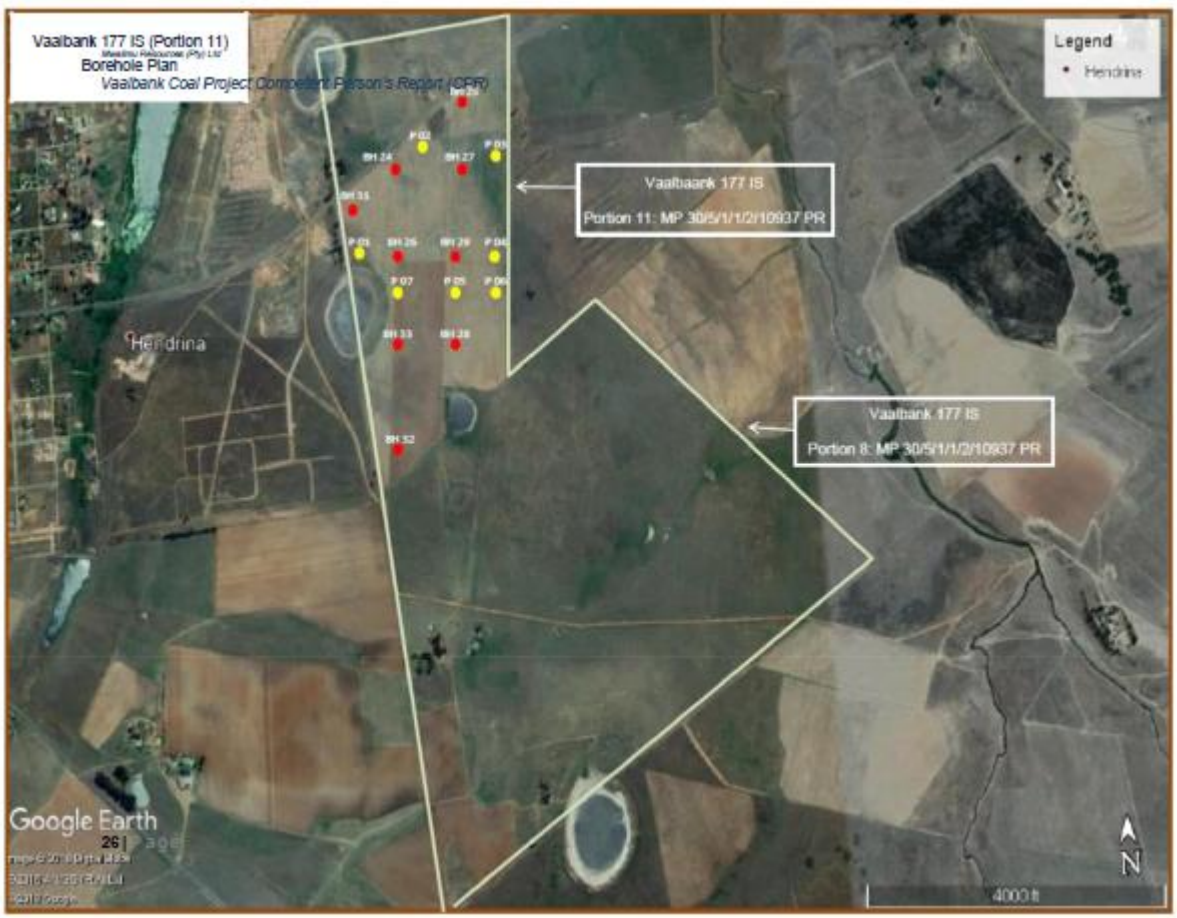

Figure 6: Plan showing existing drilled holes.

The seam cross sections were taken in a E-W direction and a N-S direction across portion 11 of the farm Vaalbank 177IS.

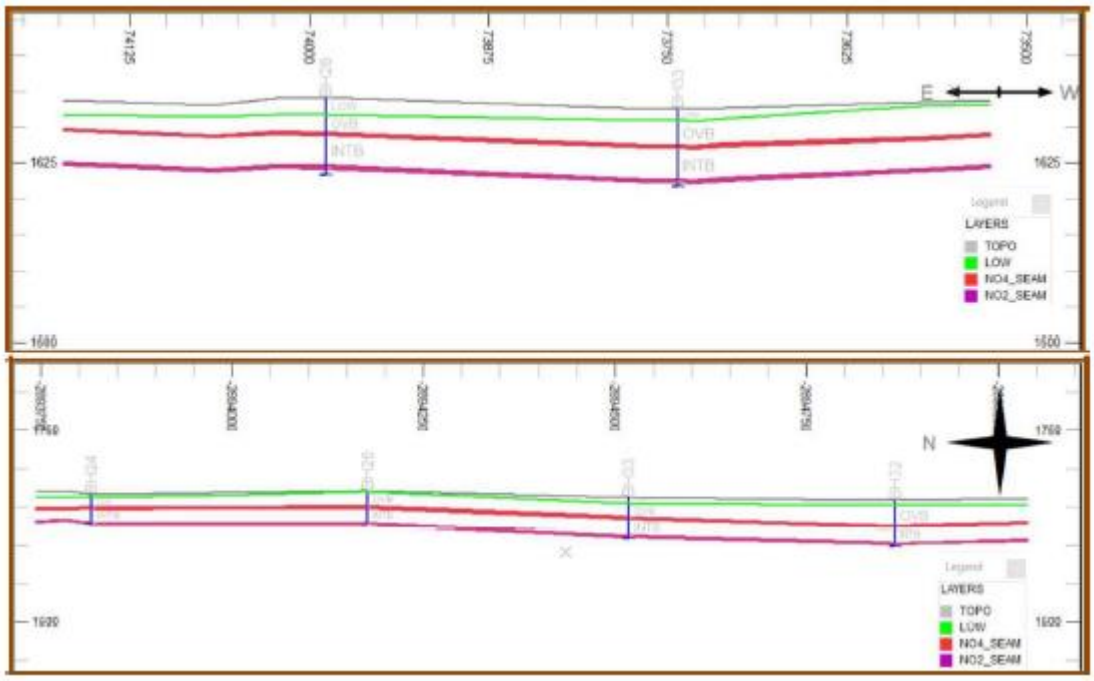

Figure 7: Cross section showing a gently seam undulation in a N-S direction.

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 strip mining and 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-cast 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.

The proposed mining layout for the mine block size on portion 11 is shown below. The purpose of a square mining layout is to enable strategic mine scheduling. The mine layout plan will only cover the applied portions.

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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 and water
- 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

The preliminary mine schedule layout is indicated in Figure 8. This layout will change once specialist investigations have been completed and alternatives have been assessed. The layout design will adhere to EA requirements for the NEMA and WULA processes. This will be discussed in detail during the EIA phase, once the draft Mining Work Programme has been updated.

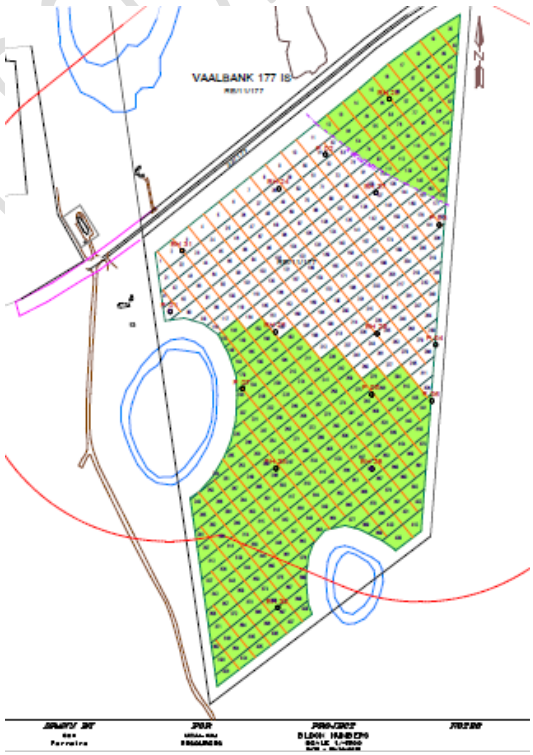

Figure 8: Preliminary mining layout for the proposed Vaalbank Coal Mine

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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 for the two mining blocks identified. Both applications are pending (see **Error! Reference source not found.** for signed letters). 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 5: 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.**
	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.

Table 6: Waste management listed activities according to NEM:WA requiring environmental authorisation

Government notice	Activity	Description
R.921 Category A	7	The treatment of hazardous waste using any form of treatment at a facility that has the capacity to process in excess of 10 tonnes, but less than 100 tonnes.

	12	The construction of a facility for a waste management activity listed in Category A of this Schedule.
R.921 Category B	1	The storage of hazardous waste in lagoons excluding storage of effluent, wastewater or sewage.
	7	The disposal of any quantity of hazardous waste to land.
	10	The construction of a facility for a waste management activity listed in Category B of this Schedule.
R.633: Category B	11	The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the MPRDA.
R.921 Category C	2	The storage of hazardous waste at a facility that has the capacity to store in excess of 80 m^3 of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste

Table 7: 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 which 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 for the safety of people

5 NEED AND DESIRABILITY OF PROPOSED ACTIVITIES

This section examines the need and desirability of the proposed Vaalbank 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 Vaalbank 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 Steve Tshwete spatial development framework (STM, 2019-2020) 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.

The Vaalbank 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

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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 DMR for local beneficiation as it is considered critical to South Africa's on-going development (DMR, 2011).

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5.3 Vaalbank proposed open-cast 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 Vaalbank coal mine will contribute directly to the South African economy and the development and growth of industries supporting the mining sector.

The proposed open-cast mining operations of the Vaalbank 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. A mine which was the source of income for many and created jobs in the past was Optimum Coal which closed down in Hendrina, thus many people are left jobless and crime rate increases dramatically due to lack of jobs. A new section of houses is currently being developed at extension 8 in Kwazamokuhle which increases the number of households with no jobs. The mine will act as a job gap closer in the Hendrina area. The proposed mining activities will fit in with these developments and the outcomes will be transported to the neighbour power stations to ensure electricity shortage is minimal. 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 five 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).

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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 due to the positive results obtained during the prospecting phase and exploration drilling with regards to the underlying coal grade. As the applicant already has prospecting right on the above-mentioned property together with a mining permit for the said property, and with the favourable results from the prospecting phase regarding coal deposits, the proposed study area is optimal for coal mining.

6.2 Land use alternatives

The first alternative is coal mining due to the results obtained during the prospecting phase, 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 google earth view, the area to the north of the proposed mining area is already being mined by various mines. Many of the Hendrina people are forced to travel long distances in order to get employments as minor mines or opportunities of employment are found in their area. According to the land use map, the area is cultivation and uncategorised dominated and in those areas that is where mines have dominated, 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 must be investigated in the EIA phase.

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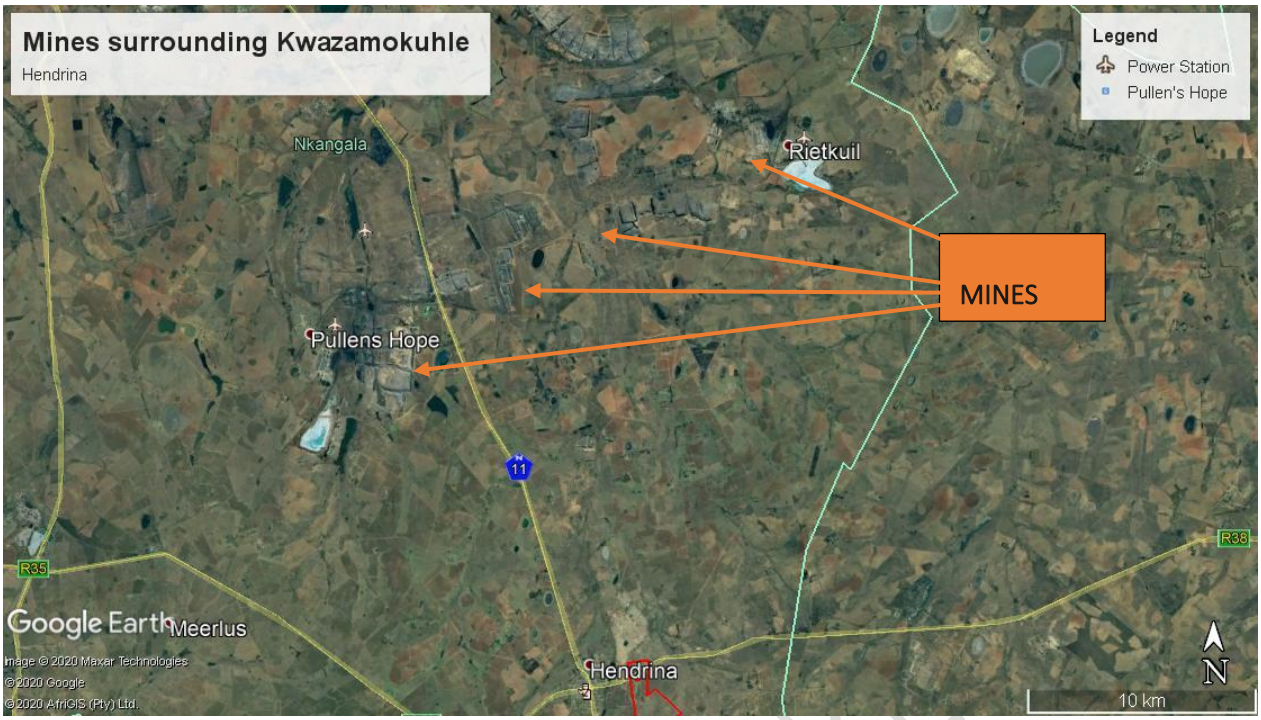

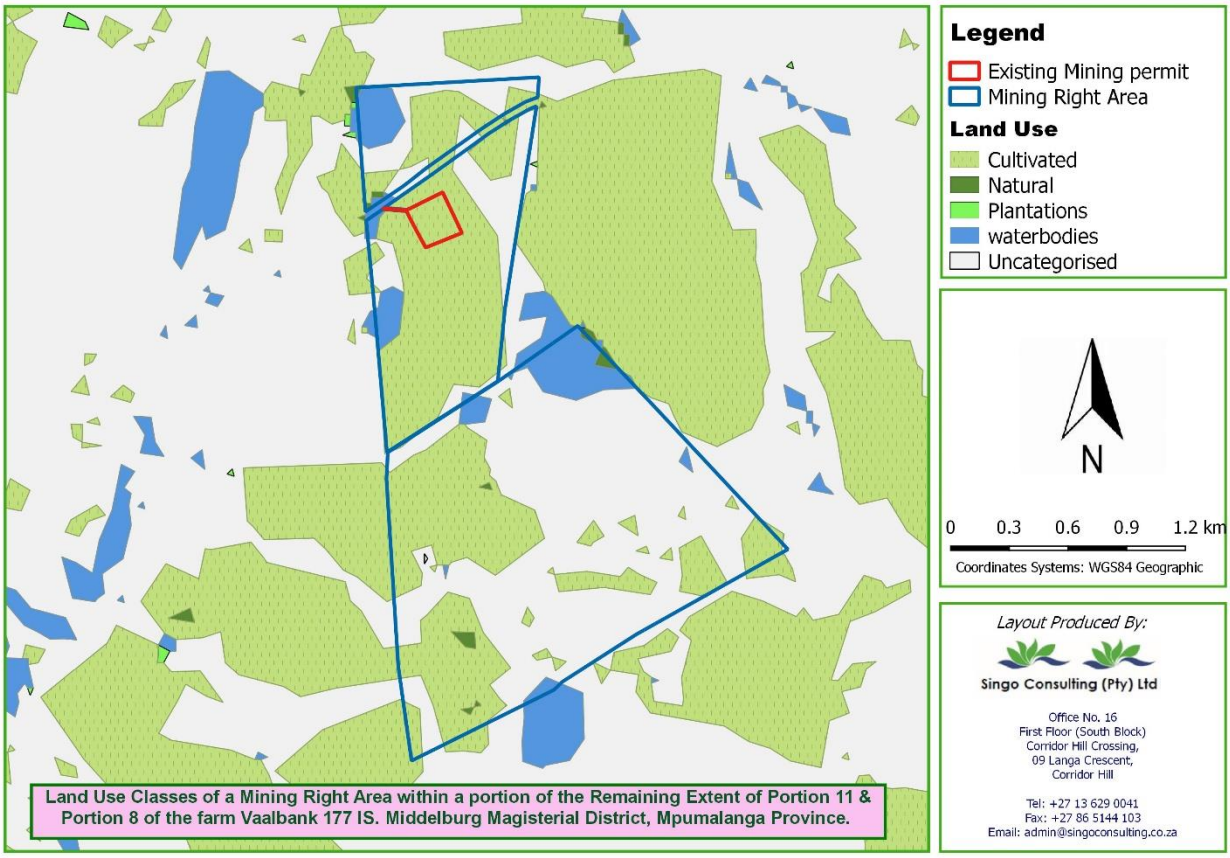

Figure 9: Land use and activity maps around the proposed area

Alternative 2: Agricultural land

The current land use of the study area (See figure 9). The area is mainly compromised of cultivated and uncategorised lands. The area falls under heavily modified, moderately modified- old lands, CBA Optimal and other natural area, see Figure 10. CBA Optimal is less in the boundary of the mining area and it is deemed flexible in land-use options. In the heavily modified area, it is where biodiversity and ecological function has been lost to a point that they are not worth considering for conservation at all. That is where mining activities will take place. Another category is the moderately modified area- old land, that is an area which was modified in the last 80 years but has been abandoned, including old mines and cultivated lands. The area can be used for mining, however it will be stabilised and managed to restore ecological functionality in particular, the soil carbon and water related functionality. Minor natural area category is observed on the mining right area boundary and that is where basic ecosystem functionality will be ensured. Water bodies are seen on the uncategorised and quaternary catchment B12A 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 old heritage houses, some which are still in use and no graves were observed within the mining right boundary. The area is dominated with cultivation and there are ostriches in the farm, cows and donkeys. The Klein Olifants quaternary catchment passes on the eastern side of the mine application area. Powerlines supplying electricity were observed on the farm portion and also were observed on the periphery, as there are existing households nearby. A graveyard is located in the western side of the mining right boundary, a new cemetery which has been given to the community of Kwazamokuhle by Mr Lloyd and partners as they are the land owners of the farms near the Vaalbank 177 IS, portion 08 and 11. The wide range of activities around the area is shown in Figure 11.

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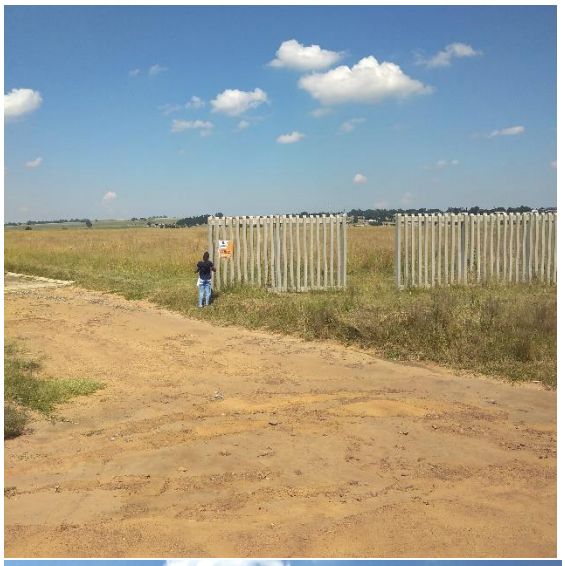
Table 8: Site pictures of the current active activities in and around the mining right application area





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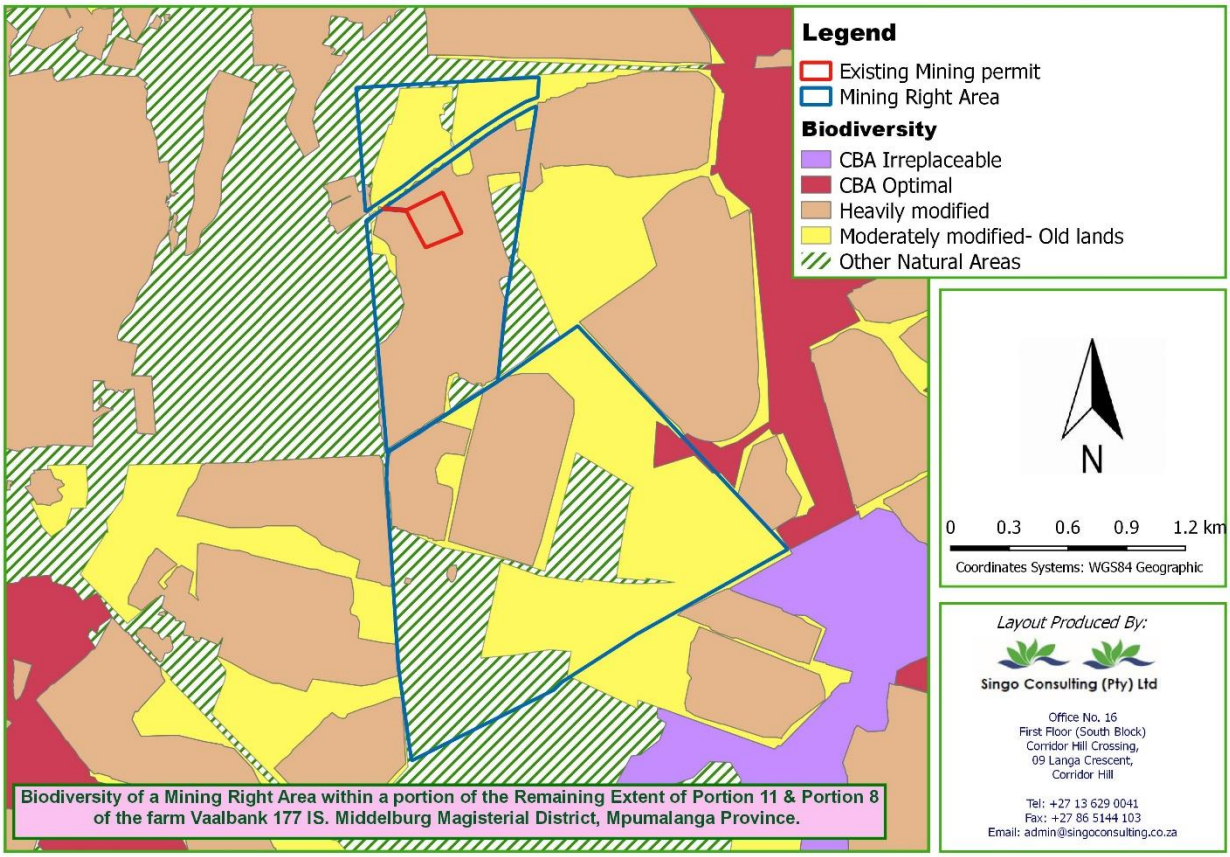

Figure 10: The critical biodiversity map of the area.

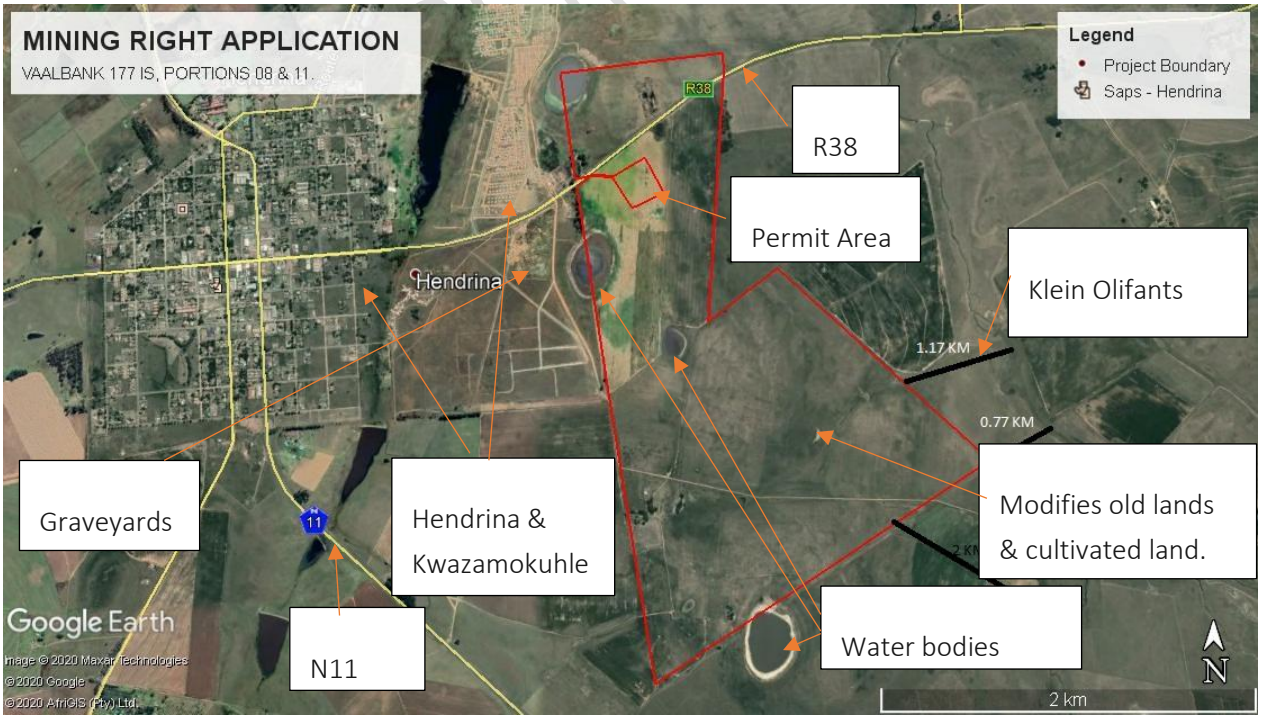

Figure 11: Wide range of activities on and around the proposed area

6.3 Process alternatives

6.3.1 Mine technology

The alternative for mining and extracting the target mineral resource is open-cast 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 Vaalbank 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

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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.

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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.

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- Attended a public meeting.

The PPP commenced on 07 February 2020 and the public meeting was held on 21 February 2020 with an initial notification and call to register for a period of thirty days, ending on 7 March 2020. The notification procedure included the following (**Error! Reference source not found.** and 6):

- Newspaper advertisement: Published in ''Middleburg Observer'' on 07 February 2020.
- An erratum was published on the 14th of February 2020 with additional portions.
- A newspaper was also published on the National Gazette on the 21st of February 2020.
- A meeting with the counsellor of ward 03, Mrs Lindiwe Mahlangu (lmahlangu967@gmail.com), on 11 February 2020 with the ward committees at the Steve Tshwete Offices in Hendrina. Upon completion of the meeting, a meeting was attempted to be held (on the same day) with the LED Manager, to discuss the Social and Labour Plan (SLP, however it was discovered that the LED offices are only based in the Middleburg offices.
- A meeting was held with the portion 11 farm dweller Mrs Johanne Makua on the 14th of February 2020 on site.
- A meeting was held with the landowner, Mr John Lloyd James (lloyd.business@telkomsa.net) on 18 of February 2020 at Hendrina scrap Metal site and also at the two farm portions (Portion 08 & 11).
- Site notices were erected at prominent points on 14th and 18th of February 2020 around the mine boundary, close to the farmhouses, along the R38, N11 routes, at the farms, library, local municipality and at the Kwazamokuhle community area.
- Upon erection of site notices, a small meeting was held with the available farm community members during which the project was explained to them in detail and they were informed of the meeting that was scheduled for 21 of February 2020. Arrangements were made with counsellor of ward 03, Mrs Lindiwe Mahlangu in order to get transport to transport attendees to this meeting, since they indicated a lack of transport and the transport was paid for by Singo Consulting and attendees came in numbers to Cosmos Community Hall were the meeting was held.
- Public A3, A2 notices were distributed to an identified waste recycling area as they could not be plugged at their boundary without a permit.
- Consultation emails were sent to the identified authorities, adjacent landowners, ward councillors and RI&Aps from the consultation meeting held during the mining permit in 2018.
- Public Participation meeting was held on the 21st of February 2020 at Cosmos Community Hall.
- Comment forms were received from the affected and interested community members of Hendrina and Kwazamokuhle community.

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- Draft Scoping Reports is to be sent to all registered I&AP's of the project and comments received, will be incorporated on the report.

Table 9, **Error! Reference source not found.** to 9 and Section 7.7 for more information on the outcomes of the I&APs meetings.

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Counsellor (ward 03) meeting (Steve Tshwete Local Municipality), 11 February 2020)



Meeting with the landowner (Mr John Lloyd James), 18 February 2020)


Meeting with the farm dweller and Waste Recycling Site, 14 February 2020



Site notices erected around the farm, neighbouring properties, national routes and town





PRIVATE
PROPERTY





KwaZamokuhle
Public Library



Vehicle
Exceeding
3500kg

Public Participation Meeting Held at Cosmos Community Hall on the 21st of February 2020


PUBLIC PARTICIPATION PROCESS
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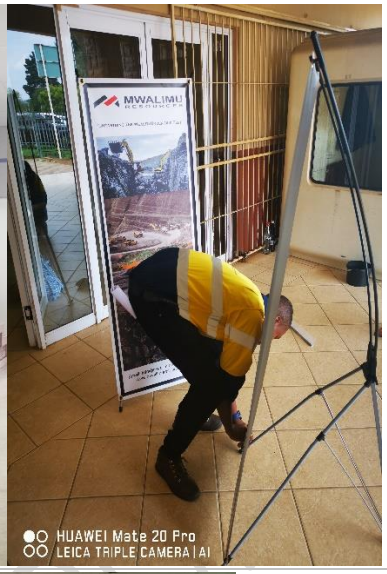
HUAWEI Mate 20 Pro
LEICA TRIPLE CAMERA | AI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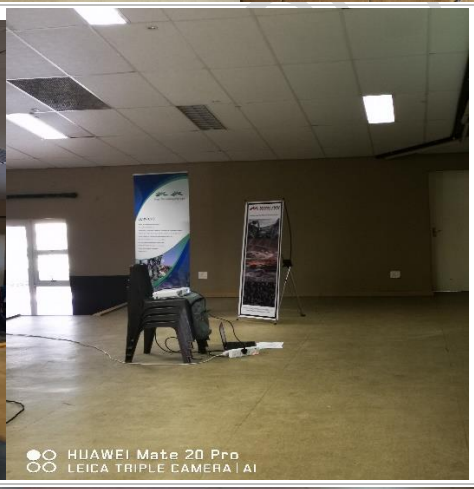
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Table 9: Consultation procedure

7.4 Background information document

Included in the I&AP notification letters: facsimiles, and e-mails in 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

All registered I&APs and stakeholders have been notified via email of the availability of the Draft Scoping Report for review for a planned period of thirty days which was due to start from 8 March 2020 to 7 April 2020,however the new period starts from 18th March 2020 to 21st of April 2020. The report will be available at the public library in Hendrina and Gerald Sekoto: 44 Kerk Street, Hendrina, 1095 (013 293 0000) and Wanderers Avenue, Middleburg (013 249 7146) Respectively and obtainable from Rudzani Shonisani (rudzani@singoconsulting.co.za) at Singo Consulting. All incoming comments received from stakeholders and I&APs are being included in the Issues and Comments register (see **Error! Reference source not found.** and Section 7.7). 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 who participated in the meeting and other departments are anticipated to comment like; DRDLR (Department of Rural Development and Land Reform), Klein Olifants Catchment, MTPA (Mpumalanga Tourism & Parks Agency), SANBI (South African National Biodiversity Institute) , Eskom, DARDLEA(Mpumalanga Department: Agriculture, Rural Development, Land and Environmental Affairs) ,DEA(Department of Environmental Affairs), DMR(Department of Mineral and Resources) and LED(Local Economic Development) Manager of Steve Tshwete, Steve Tshwete Local Municipality and Nkangala District. The DMR has forty-three days from report submission to review and make decision for the application.

7.6 Meetings

The following meetings were held:

- Steve Tshwete Local Municipality meeting (Ward 03 Counsellor and committee members): 11 February 2020
- Landowner's meeting: 18 February 2020
- Informal community with farm dweller: 14 February 2020
- Public participation meeting: 21 February 2020

The minutes of all formal meetings, the presentation given to the attendees and site notices advertising the community meetings are included in **Error! Reference source not found.** and 6).

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Names of I&APs	Organisation/Capacity
Mr John Lloyd James	Vaalbank 177 IS, Portion 08 and 11 (Landowner) Gransfontein Portion 3 (Landowner)
Mrs Lindiwe Mahlangu Ward 03	Steve Tshwete Local Municipality
M. Skosana Municipal Manager	**Nkangala District Municipality** skosanamm@nkangaladm.gov.za MatoaneT@nkangaladm.gov.za nkosinm@nkangaladm.gov.za
Sam S. Maluleka Chief Director: Environmental Affairs	**Mpumulanga Department of Agriculture, Rural Development, Land and Environmental Affairs** smaluleka@mpg.gov.za gmamba@mpg.gov.za dtswai@mpg.gov.za jmmabuza@mpg.gov.za
M. Nembilwi Air Quality Officer	nembilwim@nkangaladm.gov.za
D Makhubele, T Phooko & L Mahlangu	**Department of Environmental Affairs** dmakhubele@environment.gov.za tphooko@environment.gov.za lmahlangu@environment.gov.za
Ms Masoka Acting Director	**Nkangala District Municipality** nsylvia706@gmail.com
Mr Rhulani Chavalala	Department of Agriculture, Forestry and Fisheries
Mr Sonnyboy Mhlongo and Peter Ackerman	Department of Water and Sanitation
Okwethu Fakude, Mr J.D Mdluli, Mr PS Mohlala	Department of Environmental Affairs
Mr Peter Molapo	Department of Labour
Mr P Mashiane	Department of Public Works
Mr T Mkhonto Mr. L Matlala, Mr V Khoza	Commission on Restitution of Land Rights
Miss Phumla Nkosi	Mpumalanga Tourism
Mr K Makhuvha	Biodiversity Planning
Mr. M Wayleaves, Mr T Lechaba	Eskom
Mr. J Oliver, Nr Statutory Control	Sanral
Mr Y Chavalala	Transnet

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7.7 Summary of issues raised by I&APs

I&APs Names of persons consulted. An "X" indicates that those who had to be consulted were consulted.		Date comments received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where issues and/or responses were incorporated
Landowner					
Mr John Lloyd James Vaalbank 177 IS, Portion 08 & 11 Cell: 082 561 4559 Email: llyod.business@telkomsa.net Email (2): http.www.h-scrap@mweb.co.za	X	22/05/2018 (Via Comment Form) 18/02/2020 (Face to	• Register me as an I&/AP • I am the owner of Vaalbank 177 IS, portions 08 and 11 and neighboring farm Gransfontein portion 3. • I am aware of the prospecting right on portion 11 and 08 ad also of mining permit on portion 11. • I have no objection of the mining and Mwalimu Resources and myself are in a process of concluding a purchase agreement for the farm. I have no objections for the mining and taking you as consultants to the farm.	Landowner was registered and appreciations were given to the landowner. Eap appreciated Mr Lloyd and site was visited.	Error! Reference source not found.

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		Face)			
	X	27/01/2020 (Face to Face)	Receive copy of purchase agreement	Copy was acknowledged.	Appendix 2
Lawful Occupiers					
Irene Loran Cell: 013 293 0453 Land occupier on portion 08 of Vaalbank 177 IS.					
Adjacent Occupiers					

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Gransfontein Portion 03 Landowner: Mr John Lloyd James Cell: 082 561 4559	X	18/02/2020 (Face to Face)	No Objections for mining in Vaalbank 177 IS, Portion 08 and 11	Respond was noted with thanks.	**Error! Reference source not found.**

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Tweefontein Portion 2 Landowner: H.A.J Davel	X	18/02/2020 (Face to Face)	No Objections for mining in Vaalbank 177 IS, Portion 08 and 11	Respond was noted with thanks.	Appendix 2
Local Municipality					
Steve Tshwete Local Municipality STEVE TSHWETE LOCAL MUNICIPALITY Mrs. Lindiwe LK Mahlangu Ward 03 counsellor Cell: 071 573 6608 Email: lmahlanmgu967@gmail.com Email(2): lindiwelk@stlm.gov.za	X X X	31/01/2020 (Via Phone Call) 11/02/2020 (Face to Face) 21/10/2019 (Via Phone Call)	A meeting was requested Project proceedings were discussed with Mrs. Lindiwe Mahlangu. Issues raised included: • Having a public meeting • Setting up the date for a meeting with the public • Booking of the venue and time for holding the meeting. • Arrange a venue with Cosmos Community hall care taker (Mrs. Monicah Nkosi) • Has the venue been confirmed? • has transportation been arranged?	Meeting was scheduled for 11th of February 2020. • Public meeting was scheduled for the 21st of February 2020 at 10h00 am. • Venue was booked with Mrs. Monicah Nkosi. • Venue is confirmed and secured • Transport arrangement	**Error! Reference source not found.**

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			• Catering must available	were done. • Cooking team will be sourced from the community in order to give back to community.	
Mr Michael N LED Manager Email: michaeln@stlm.gov.za	X	26/02/2020 (Via Phone Call)	SLP discussions were held through telephone with LED Manager (Mr. Michael N). Issues raised included: • A meeting must be held for SLP proceedings. • Sharing of the draft SLP Report	• Date request for SLP discussion was sent. • A draft Social and Labour Plan (SLP) was sent to Mr. Michael	Appendix 3
Mrs Monicah Nkosi Caretaker: Cosmos Community Hall (Hendrina) Cell: 076 8944 871 Email: monican@stlm.gov.za	X	11/02/2020 (Face to Face)	Venue banking details were given	Payment was made for hall booking.	Appendix 3

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District Municipality

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Nkangala District Municipality M. Skosana Municipal Manager Email (s): skosanamm@nkangaladm.gov.za MatoaneT@nkangaladm.gov.za nkosinm@nkangaladm.gov.za Sam S. Maluleka Chief Director: Environmental Affairs Mpumulanga Department of Agriculture, Rural Development, Land and Environmental Affairs Email (s): smaluleka@mpg.gov.za gmamba@mpg.gov.za dtswai@mpg.gov.za jmmabuza@mpg.gov.za	X X X			On the 12th of February 2020, consultation email was sent. Responds are anticipated. On the 12th of February 2020, consultation email was sent. Responds are anticipated. On the 12th of February 2020, consultation email was sent. Responds are anticipated.	**Error! Reference source not found.**

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M. Nembilwi Air Quality Officer Email: nembilwim@nkangaladm.gov.za Ms Masoka Acting Director Nkangala District Municipality Email: nsylvia706@gmail.com	X X			On the 12th of February 2020, consultation email was sent. Responds are anticipated. On the 12th of February 2020, consultation email was sent. Responds are anticipated.	

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Government departments		

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Department of Agriculture, Forestry and Fisheries agriculture, forestry & fisheries Department: Agriculture, Forestry and Fisheries REPUBLIC OF SOUTH AFRICA Mary Dorcus Mogale Resource Auditor Land Use and Soil Management Department of Agriculture, Forestry and Fisheries Tel: 013 754 0728/01 Cell: 071 643 4754/082 362 7583 Fax: 013 754 0735 Web: www.daff.gov.za E-mail: MaryM@daff.gov.za OR Mrs. Rhulani Chavalala Email: Minolta@daff.gov.za/ RhulaniC@daff.gov.za	X	25/02/2020 (Via Email)	• Detailed soil study • Land capability class • Weeds and invader management programme • Sensitive areas like wetlands • Current land use to be mentioned.	Daff was registered as an interested and/or affected party of the project. Draft Scoping Report to courier on the 18th of March 2020. Specialist studies currently underway and upon completing of the drafts, they will be couriered over to daff offices.	**Error! Reference source not found.**

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South African Heritage Resource Agency  	X	09/03/2020 (Via Online System)		Background Information Document (BID) was uploaded on the Sahra online system.	Appendix 9
Department of Water and Sanitation  Pieter Ackerman (PrLArch) Chief Landscape Architect Department of Water and Sanitation (DWS), South Africa Sub Directorate Instream Water Use Tel: 012 336 8217 Cell: 082 807 3512 Fax: 012 336 6608	X	12/02/2020 (Via Email)	• Alternatives, hierarchy of mitigation • Watercourses to be protected by scientific buffer • AMD treatment strategy • Master Plan • Stormwater management Plan • Resource quality objectives to be met. • Rehabilitation plan • Monitoring and auditing plan • EIA/ EMP • Design drawings.	DWS was registered as an interested and/or affected party of Vaalbank 177 IS on Portion 08 and 11 located in Hendrina. Reports/ studies that comprise of all raised points will be shared with dws office together with the draft scoping report that includes the raised points in order to limit any negative impacts in the area.	Error! Reference source not found.
Department of Environmental Affairs					Error! Reference source not found.

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environmental affairs Department: Environmental Affairs REPUBLIC OF SOUTH AFRICA economic development & tourism MPUMALANGA PROVINCE REPUBLIC OF SOUTH AFRICA the dedet Department: Economic Development, Environment and Tourism MPUMALANGA PROVINCIAL GOVERNMENT Okwethu Fakudde Email: oqfakude@mpg.gov.za D Makhubele, T Phooko & L Mahlangu Email(s): dmakhubele@environment.gov.za tphooko@environment.gov.za lmahlangu@environment.gov.za	X X			On the 12th of February 2020, consultation email was sent. Responds are anticipated. On the 12th of February 2020, consultation email was sent. Responds are anticipated.	
Department of Labour labour Department: Labour REPUBLIC OF SOUTH AFRICA Mr.Peter Molapo Email: petermolapo@labour.gov.za or mp.customercare@labour.gov.za	X	12/02/2020 (Via Email)		On the 12th of February 2020, consultation email was sent. Responds are anticipated.	**Error! Reference source not found.**

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Department of Public Works public works Department: Public Works REPUBLIC OF SOUTH AFRICA Mr. P Mashiane Email: pat.mashiane@dpw.gov.za Tell: 013 752 6371 Cell: 083 676 5764	X	04/03/2020 (Via Email)		On the 4th of March 2020, consultation email was sent. Responds are anticipated.	**Error! Reference source not found.**
Commission on Restitution of Land Rights COMMISSION ON RESTITUTION OF LAND RIGHTS Mr Themba Mkhonto Email: Themba.mkhonto@drdlr.gov.za Mr. Vusi Khoza Email: Vusi.khoza@drdlr.gov.za Mr. Lawrence Matlala Email: Lawrence.matlala@drdlr.gov.za	X	12/02/2020 (Via Email)	There is a claim on the land.	Further enquiry was sent to Land restitution for access to information of claimants. Responds is anticipated.	**Error! Reference source not found.**

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Mpumalanga Tourism Komilla Knarasoo Email: Komilla.Knarasoo@mtpa.co.za Khumbelo Makhuvha Email: khumbelomakhuvha940@gmail.com Ms. P Nkosi Email: phumla.nkosi@mtpa.co.za	X	12/02/2020 (Via Email)		On the 12th of February 2020, consultation email was sent. Responds are anticipated.	**Error! Reference source not found.**
Wayleaves Email: wayleavesmou@eskom.co.za TH Ludere Email: LudereTH@eskom.co.za Land and Rights Negotiations Land Development Eskom Distribution MOU Tell: 013 693 2562	X	12/02/2020 (Via Email)		On the 12th of February 2020, consultation email was sent. Responds are anticipated.	**Error! Reference source not found.**

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Fax: 086 605 3668 OR Thakgalo Lechaba Tell: 013 755 9657 Email: LechabRT@eskom.co.za					
 Ria Barkhuizen Email: nrstat@nra.co.za/ Barkhuizenr@nra.co.za	X	27/02/2020 (Via Email)	• Request for commenting on the Background Information Document (BID) for Vaalbank 177 IS, Portions 08 & 11 has relevance. • Sanral has no objection to the approval of the application by DMR and issuing of the Environmental Authorization. • Sanral is however an interested and/or affected party in that the subject site is located adjacent to the national road (R38). • Prior the commencement of mining on the subject properties, access arrangements to and positions of access will be agreed to with Sanral. All accesses to the colliery shall be upgraded by the Colliery owner according to Sanral's typical intersection layout	SANRAL was registered as an interested and/or affected party of the mining right application project by Mwalimu Resources (Pty) Ltd in Vaalbank 177 IS, Portions 08 and 11. Thank you for not objecting the project. Please note; •Mwalimu Resources (Pty) Ltd has no intentions to move the national route (R38) that belongs to Sanral nor to mine on the route. •Communications for upgrading any access routes that will be used by the mine will be made with Sanral Prior	**Error! Reference source not found.**

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			drawing TD-R-JI-1001 providing for protected right turn movements. The associated costs will be for the account of the applicant. • Detailed engineer drawings for the upgrading of the intersection(s) must be submitted to Sanral for approval at least 6 months before mining. • No mining pits will be permitted within a distance of 100 meters from the R38 road reserve boundary without the written consent of SANRAL.	commencement. •The application boundary of the mining area will not necessary have the pits close to, thus the pits will be located at approximately 300m away from the road and also away from the application boundary. •A traffic management study will be conducted, designs will be drawn and all content will be shared with your office for commenting 6 months before commencement with mining.	
TRANSNET Yuza Chabalala Risk Consultant – Environmental Specialist Email: Yuza.Chabalala@transnet.net Tell: 017 817 1232 Cell: 060 583 4470	X	19/02/2020 (Via Email)	Be aware that Transnet does have railways and pipelines throughout the Mpumalanga, Free State and Kwa Zulu Natal Provinces and that both these railways and pipelines maybe be affected by your proposed prospecting/mining activities, which you are applying for. It TFR's conviction that the railways and pipelines portion as	Comments were recorded and included in the Draft Scoping report. As per comments, stated laws will be adhered to in order to ensure that TFR is not negatively affected by mining and a risk assessment report will be done and shared with	**Error! Reference source not found.**

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			mentioned above, necessarily need to be protected in order to prevent any significant risks. Furthermore, TFR would like to draw your attention to following pieces of legislation and plead that these be adhered to where applicable; Section 48 (1) (b) of the Minerals & Petroleum Resources Development Act, Act No. 28 of 2002, stipulated that Subject to section 20 of the National Parks Act, 1976 (Act No. 57 of 1976), and subsection (2), No reconnaissance permission, prospecting right, mining right or mining permit may be issued in respect of: (a) land comprising a residential area; (b) any public road, railway or cemetery; (c) any land being used for public or government purposes or reserved in terms of any other law; or; (d) Areas identified by the Minister by notice in the Gazette in terms of Section 49. Regulation 17 (7) (a) of the Mine Health and Safety Act, Act no. 29 of	TFR.	

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			1996, stipulates that no mining operations may be carried out under or within a horizontal distance of 100 meters from buildings, roads, railways, reserves…unless a lesser distance has been determined safe by risk assessment…" Should there be a need/ any request for further information or clarifications or future correspondence relating to the matter, kindly contact Yuza Chabalala (TFR Coal BU Environmental Specialist) at 060 583 4470, yuza.chabalala@transnet.net or Tshilidzi Mavulwana (Acting HEFS Manager) 083 797 1392, Tshilidzi.mavulwana@transnet.net.		
COMMUNITY (Kwazamokuhle and Hendrina)					
Mr Johannes Mathibela Opearator ADT Kwazamokuhle Community Member	X	21/02/2020 (Via Community Meeting)	We ask for transparent and fairness in all developments.	Member was registered ads an I&AP of the project Comments were noted.	Appendix 3 and 5

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Cell: 076 523 3391 Address: 3177 Ext 4, Kwazamokuhle 1098.					
Mr Doctor Khanyile Taxi Association Kwazamokuhle Community Member Cell: 079 338 2935 Address: 2863 Ext 4, Kwazamokuhle, 1098.	X	21/02/2020 (Via Community Meeting)	We wish to have this mine.	Member was registered ads an I&AP of the project and comment was noted.	Appendix 3 and 5
Mr Solomon Nkosi Kwazamokuhle Community Member Cell: 083 593 0368 Address: 2344, Kwazamokuhle, Hendrina 1098.	X	21/02/2020 (Via Community Meeting)	Unemployment is the issue	Member was registered ads an I&AP of the project Comments were noted to be addressed during SLP.	Appendix 3 and 5
Mr Michael Samuel Thabalala Kwazamokuhle Community Member Cell: 079 726 3559 Address: 1339, Kwazamokuhle, Hendrina 1098. Email: Michealtshabalala527@gmail.com	X	21/02/2020 (Via Community Meeting)	Unemployment is the issue.	Member was registered as I&AP of project and comment noted to be addressed during SLP.	Appendix 3 and 5
	X	21/02/2020 (Via Community	No comments.	Member was registered as I&AP of project.	Appendix 3 and 5

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Mr Trinity Themba Mthembu Kwazamokuhle Community Member Cell: 079 948 7705 Address: 2876 Ext 4, Kwazamokuhle, Hendrina 1098.		Meeting)			Appendix 3 and 5
Mr Hilton Falakhe Lukhele Kwazamokuhle Community Member Cell: 076 470 7161 Address: 3612 Ext 4, Kwazamokuhle, Hendrina 1098.	X	21/02/2020 (Via Community Meeting)	No comments.	Member was registered as I&AP of project.	Appendix 3 and 5
Mr Banele Khoza Kwazamokuhle Community Member Cell: 067 234 2615 Address: 543 Phumelela, Kwazamokuhle, Hendrina 1098.	X	21/02/2020 (Via Community Meeting)	The mine must provide job opportunities to local members but must make sure that their chemicals do not affect the community.	Member was registered as I&AP of project and comment noted to be addressed during SLP.	Appendix 3 and 5
Mr Sbusiso Mathelela Kwazamokuhle Community Member Cell: 082 638 0771 Address: 3686 Vilakazi, Kwazamokuhle, Hendrina	X	21/02/2020 (Via Community Meeting)	The mine should provide job opportunities and provide skills development programmes and working experience.	Member was registered as I&AP of project and comment noted to be addressed during SLP.	

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1098.					Appendix 3 and 5
Mr Siyabonga Mantszwane Kwazamokuhle Community Member Cell: 076 541 8279 Address: 469 Phumelela, Kwazamokuhle, Hendrina 1098. Email: Siyabongamatszwane836@gmail.com	X	21/02/2020 (Via Community Meeting)	I would really like if the mine provides skills development programme and not require people with experience only but also consider those without experience in the industry.	Member was registered as I&AP of project and comment noted to be addressed during SLP.	Appendix 3 and 5 Appendix 3 and 5
Miss Precious Vilakazi Kwazamokuhle Community Member Cell: 079 639 3707 Address: 2353 Ext 2, Mahlatshe, Kwazamokuhle, Hendrina 1098.	X	21/02/2020 (Via Community Meeting)	Job Opportunities and Bursary.	Member was registered as I&AP of project and comment noted to be addressed during SLP.	Appendix 3 and 5
Mr Lucky Ngwagwane Kwazamokuhle Community Member Cell: 079 689 2126 Address: 1901 mafred poku Kwazamokuhle, Hendrina 1098.	X	21/02/2020 (Via Community Meeting)	Yes, we need the mine to operate so that Hendrina can improve.	Member was registered as I&AP of project and comment noted to be addressed during SLP.	
	X				

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Mr Nhlakunipho Malaza Kwazamokuhle Community Member Cell: 063 613 8579 Address: mafred puku, Kwazamokuhle, Hendrina 1098.	X	21/02/2020 (Via Community Meeting)	Yes, I need the mine.	Member was registered as I&AP.	
Mr Amos Molothwa Kwazamokuhle Community Member Cell: 072 331 8313 Address: 4740 Ext 7, Kwazamokuhle, Hendrina 1098.	X	21/02/2020 (Via Community Meeting)	Yes, I need the mine.	Member was registered as I&AP.	
Mr Jacky Batana Nkabinde Kwazamokuhle Community Member (Safety Rep) Cell: 079 175 0643 Address: 3630 Ext 4, Kwazamokuhle, Hendrina 1098.	X	21/02/2020 (Via Community Meeting)	If it happens that this mine becomes a success, let it be transparent and fair to all of us.	Member was registered as I&AP of project and comment noted to be addressed during Full EIA Phase.	
Mr Bheki Ngwenya Kwazamokuhle Community Member Cell: 078 287 5308 Address: 17 makhosi, Kwazamokuhle, Hendrina 1098.	X	21/02/2020 (Via Community Meeting)	No Comment I agree for the mikne to continue	Member was registered as I&AP.	

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Mr BhIssac Moses Mthombeni Kwazamokuhle Community Member Cell: 076 105 2173 Address: 690 Kwazamokuhle, Hendrina 1098.		21/02/2020 (Via Community Meeting)	because as community members we will get jobs and skills development. Our brother		
INTERESTED AND AFFECTED PARTY					
Caser Porjects Email: siyamnguni132@gmail.com Tel: 076 070 4876 Physical Address: 12 Mahlangu Street, Hemdrina, Mpumalanga, 1098, RSA.	X	24/02/2020	My name is Senzo Selepe the owner of iNtuthwane Technology PTY(LTD), I attended the meeting you had with the community of hendrina today 21/02/2020. We currently running two projects in the mining sector, maintenance with Exxaro and building an ICT center with Mbuyelo mine for the community of Carolina.	Mr Senzo was registered as an interested and/or affected party of the Mining Right Application Project in Henderina at Vaalbank 177 IS, Portions 08 and 11. Business profile has been filed and upon commencement of the project, it will be considered on the chain of Social and Labour Plan.	Appendix 3 and 5

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Mahlangu Dododo Civil (Pty) Ltd Reg Number: (2017/481504/07 Manan, Siphiwe Doris and Mahlangu Samuel Cell Number: 076 177 8185/ 073 139 3011 Email address: Mahlangudododocivil@gmail.com	X	04/03/2020	Receive my Business Profile for Database consideration. .	Mr Mahlangu was registered as an interested and/or affected party of the Mining Right Application Project in Henderina at Vaalbank 177 IS, Portions 08 and 11. Business profile has been filed and upon commencement of the project, it will be considered on the chain of Social and Labour Plan.	

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8 ENVIRONMENTAL ATTRIBUTES AND DESCRIPTION OF THE BASELINE RECEIVING ENVIRONMENT

8.1 Geology

8.1.1 Regional geology

The Karoo Supergroup in the project area comprises the Ecca Group and the Dwyka Formation. The Ecca sediments consist predominantly of sandstone, siltstone, shale and coal. Combinations of these rock types are often found in the form of interbedded siltstone, mudstone and coarse-grained sandstone. The Ecca sediments overlie the Dwyka Formation (loosely referred to as the Dwyka tillite). The latter consists of a proper tillite, sandstone and sometimes thin shale development. The upper portion of the Dwyka sediments may have been reworked, in which case carbonaceous shale and even inclusion of coal may be found.

The Witbank Coalfield is a basin like feature that extends from Brakpan in the West through to Belfast in the East. The northern boundary is the sub-crop against the pre-Karoo basement rocks of predominantly the Waterberg sandstones and the south is a prominent pre-Karoo basement ridge called the Smithfield ridge. The basin was formed in the shallow cratonic paralic environment with slow but consistent subsidence during the late Carboniferous and early Permian. This basin was first exploited before the beginning of the 20th Century in the Brakpan (Apex Mines region) and has been the focus of concerted exploration and exploitation since. The basin is the type area for the multiple Seam deposit type with the development of five major Seam horizons which may in places be composite Seams. The major controls on the development of the coal are proximity to undulations of the —basement|| topography, through erosion channeling and sediment influx into swamp beds and finally erosion of the current erosion surface.

The primarily economic coal Seams have been the No. 2 Seam, The No. 4 and No. 4 Lower Seam and in places the No. 5 Seam. Structurally the coal horizons are undeformed with each displaying a very slight dip to the south east of less than a degree and minor discrete faulting events that have a southwest to northeast trend of graben features and other minor faulting events. The most distinctive post depositional feature is the intrusion of dolerites related to the Lesotho Basalts that have resulted in a variety of sills and dykes of various ages. The most prominent of the dykes in the area is the Ogies dyke a 12 to 20m thick essentially vertical intrusion with an east-west strike. The No. 4 Dolerite sill, a 20 to 70m thick multiple flow event, has a preferential intrusion horizon above the No. 5 coal Seam, but in places it transgresses through the coal bearing strata to the pre-Karoo basement and forms in other places a barrier to erosion. The large amount of exploitation in the region has resulted in the development of an efficient coal transportation

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infrastructure that is now resulting in previously uneconomic coal Seams such as the No. 1 and No. 2 Lower coal Seams becoming economic propositions.

There five major coal seams present in the Witbank Coalfield named (with sub seams in brackets) from the top down are as follows:

- The No. 5 Seam, (S5)
- The No. 4 Seam, (S4U, S4A, S4L)
- The No. 3 Seam, (S3)
- The No. 2 Seam, (S2U, S2, S2L, S2A)
- The No. 1 Seam, (S1)

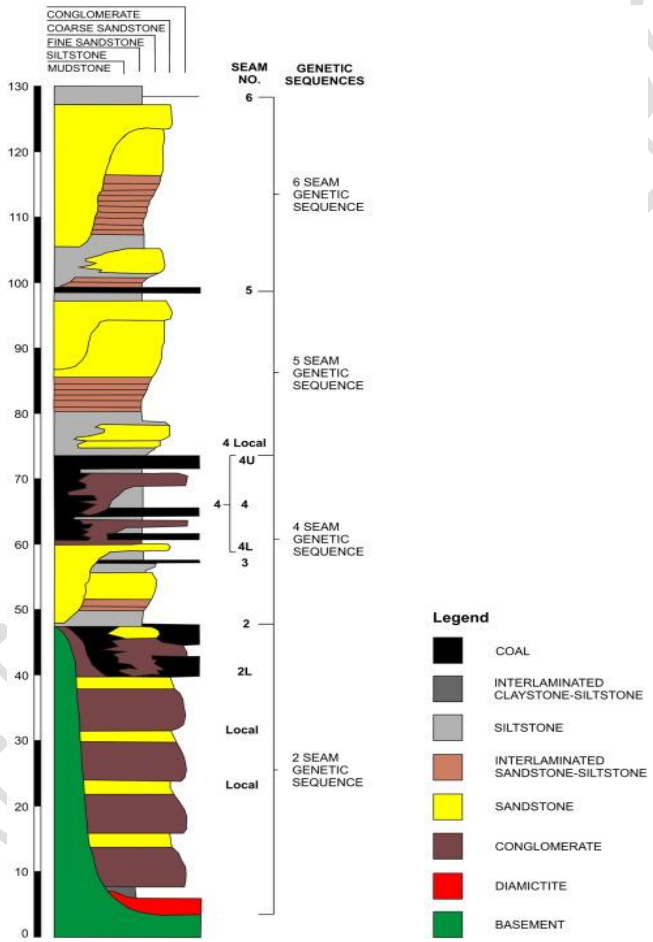

Figure 12: The stratigraphic column of the coalfield

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 13). 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 13 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.

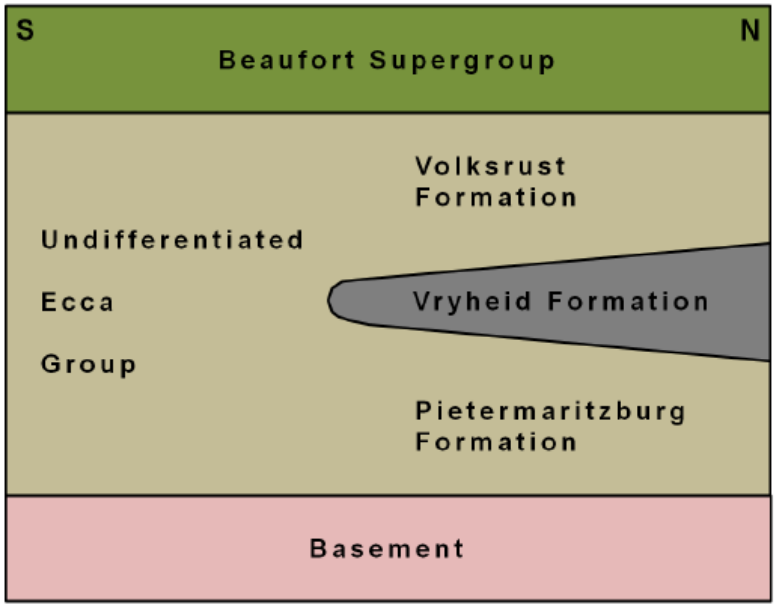

Figure 13: Schematic north-south oriented stratigraphic section of the Ecca Group in the northeast corner of the Karoo Basin.

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8.1.3 Local geology and coal seams

8.1.3.1 Witbank coalfield

The project area is situated in the Witbank Coalfield. The Witbank coalfield is, historically, the most important coal-producing region in South Africa. Bituminous coal is hosted in the Permian Vryheid Formation (Karoo Supergroup) and five coal seams exist in the region, although not all are economically exploitable. About 22 coal mines in the area around Witbank. Some dumps are burning, in part already for decades.

The basin is a multiple-seam deposit with the development of five major seam horizons, which may, in places, be composite seams. The Coalfield is situated in the northern part of the Main Karoo Basin, extending from roughly 25°30'S to 26°30'S by 28°30'E to 30°00'E, and covering an area of over 568,000ha.

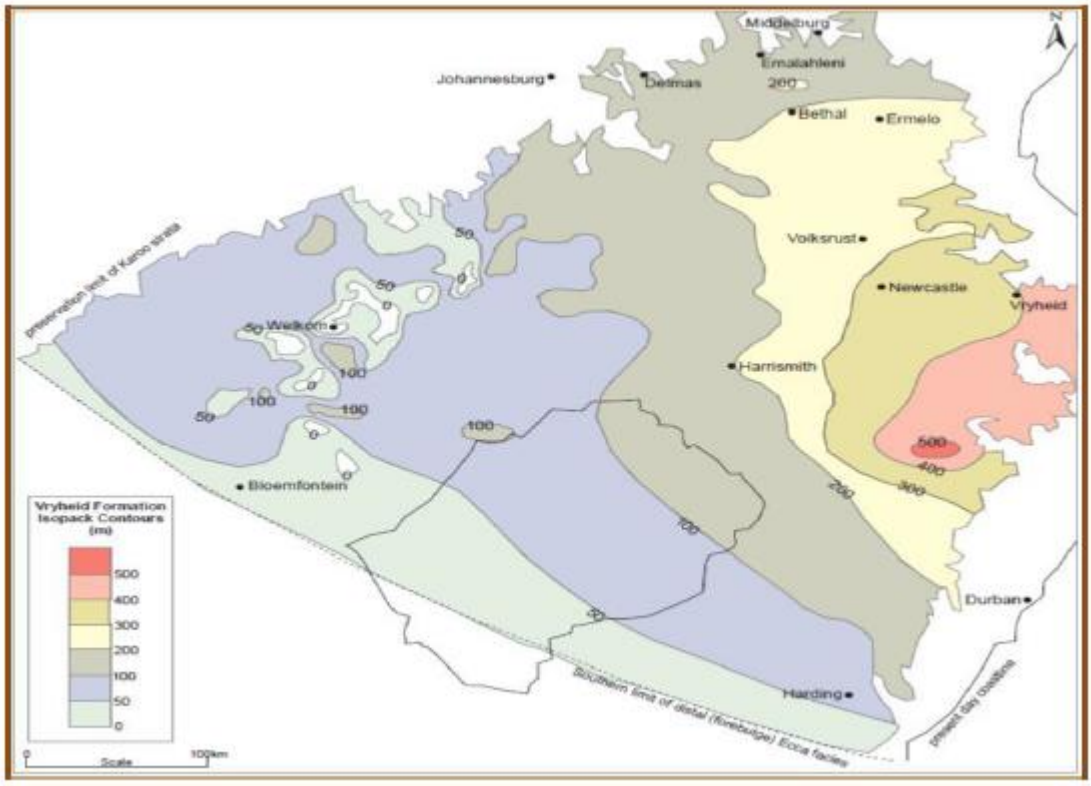

Figure 14:Illustration of the Witbank Coalfield.

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 15.

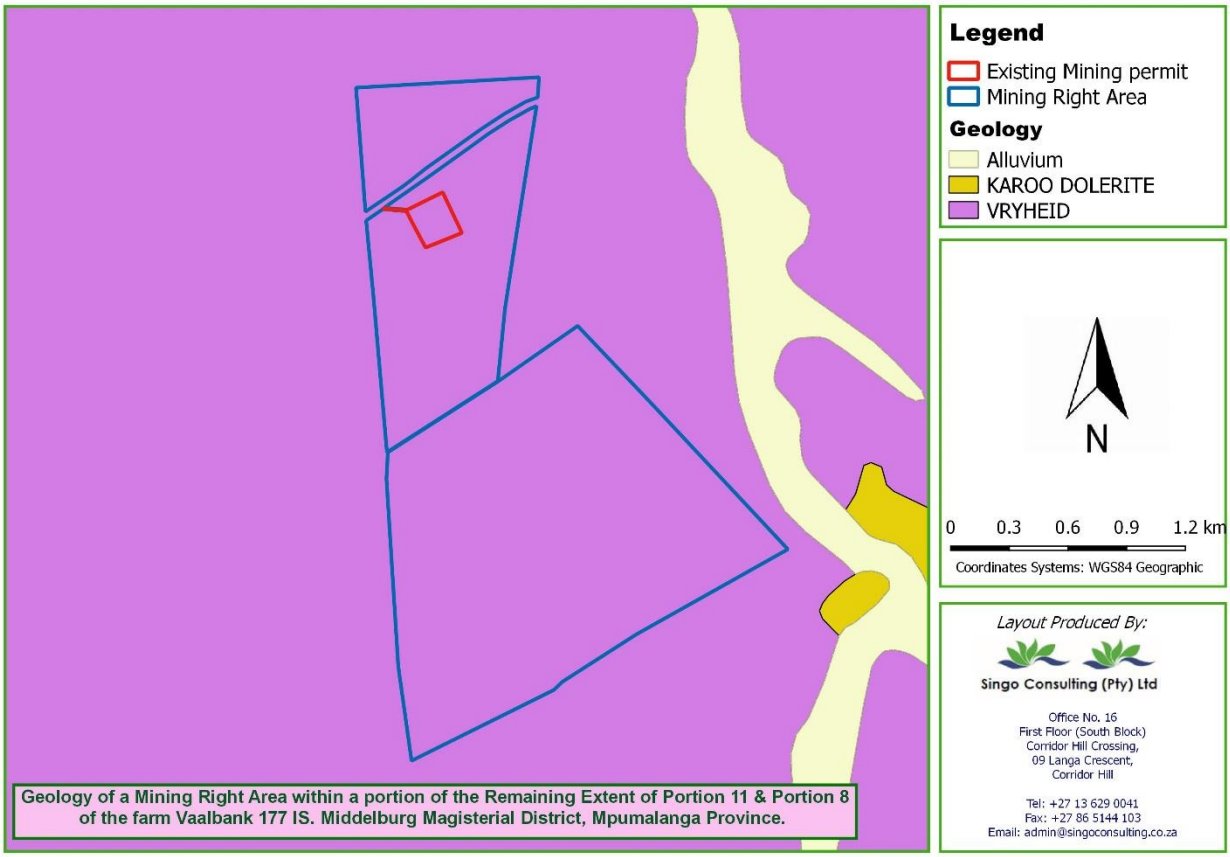

Figure 15: The lithology of the area

8.1.3.2 Exploration outcomes

As per the CPR complied by Ngcebo Consultants and Projects A total of 9 boreholes were drilled on portion 11 of farm Vaalbank 177 is in the year 2017. An additional 7 holes were drilled during the month of June 2018. This brings the total holes drilled over the 124 ha to 16, see Figure 16. Two seams were intersected in the project area namely.

• No.4 Seam: most economical and can be exploited by means of open cast mining.

• No.2 Seam: less economical and can be exploited by means of underground mining. The resource is now at the Measured Resource Classification for both the No.4 Seam and the No.2 Seam.

Table 10: Resource Classification

No. 4 Seam Resource Classification														
Seam	Av Width (m)	Raw RD	Area (m^2)	Volume (m^3)	GTIS (t)	Geol. Loss (%)	TTIS (t)	CV (Mj/kg)	ASH (%)	FC (%)	VOL (%)	IM (%)	TS (%)	Resource Class
No.4	1.66	1.64	874 271	1 451 290	2 380 115	10	2 142 104	20.45	31.80	39.20	25.90	3.10	1.70	Measured

No. 2 Seam Resource Classification														
Seam	Av Width (m)	Raw RD	Area (m^2)	Volume (m^3)	GTIS (t)	Geol. Loss (%)	TTIS (t)	CV (Mj/kg)	ASH (%)	FC (%)	VOL (%)	IM (%)	TS (%)	Resource Class
No.2	1.45	1.81	874 271	1 267 693	2 294 524	15	1 950 345	14.83	45.39	32.76	19.11	2.74	0.92	Measured

Total Resource Classification														
Seam	Av Width (m)	Raw RD	Area (m^2)	Volume (m^3)	GTIS (t)	Geol. Loss (%)	TTIS (t)	CV (Mj/kg)	ASH (%)	FC (%)	VOL (%)	IM (%)	TS (%)	Resource Class
No.4	1.66	1.64	874 271	1 451 290	2 380 115	10	2 142 104	20.45	31.80	39.20	25.90	3.10	1.70	Measured
No.2	1.45	1.81	874 271	1 267 693	2 294 524	15	1 950 345	14.83	45.39	32.76	19.11	2.74	0.92	Measured
Total	**1.555**	**1.725**	**874 271**	**2 718 983**	**4 674 639**	**12.5**	**4 092 449**	**17.83**	**38.15**	**36.19**	**22.72**	**2.94**	**1.34**	**Measured**

The Mwalimu Resources (Pty) Ltd, Vaalbank Coal Project (Portion 11) has an estimated Measured Resource (TTIS) of **4 028 475 t** broken down as follows:

- No. 4 Seam: **2 064 678 t**
- No. 2 Seam: **1 963 796 t**

There are two major coal seams sampled and found to be of economic importance, the No.4 and No.2 seam. The parting between these two seams varies from 18.60m to 22.93m.

The No.4 seam is well developed and can attain a maximum of 1.93m thickness with the lowest thickness of 0.73 and the No.2 Seam is 1.05 m to 1.54 m. The No.2 Seam is affected by dolerite intrusion which completely replaced it in some place and devolatilised it in other places for an example, seam replacement in BH 25 and devolatilisation BH 31, BH 24. It is important note that the No.2 seam is economical only when it is mined together with the No.4 seam.

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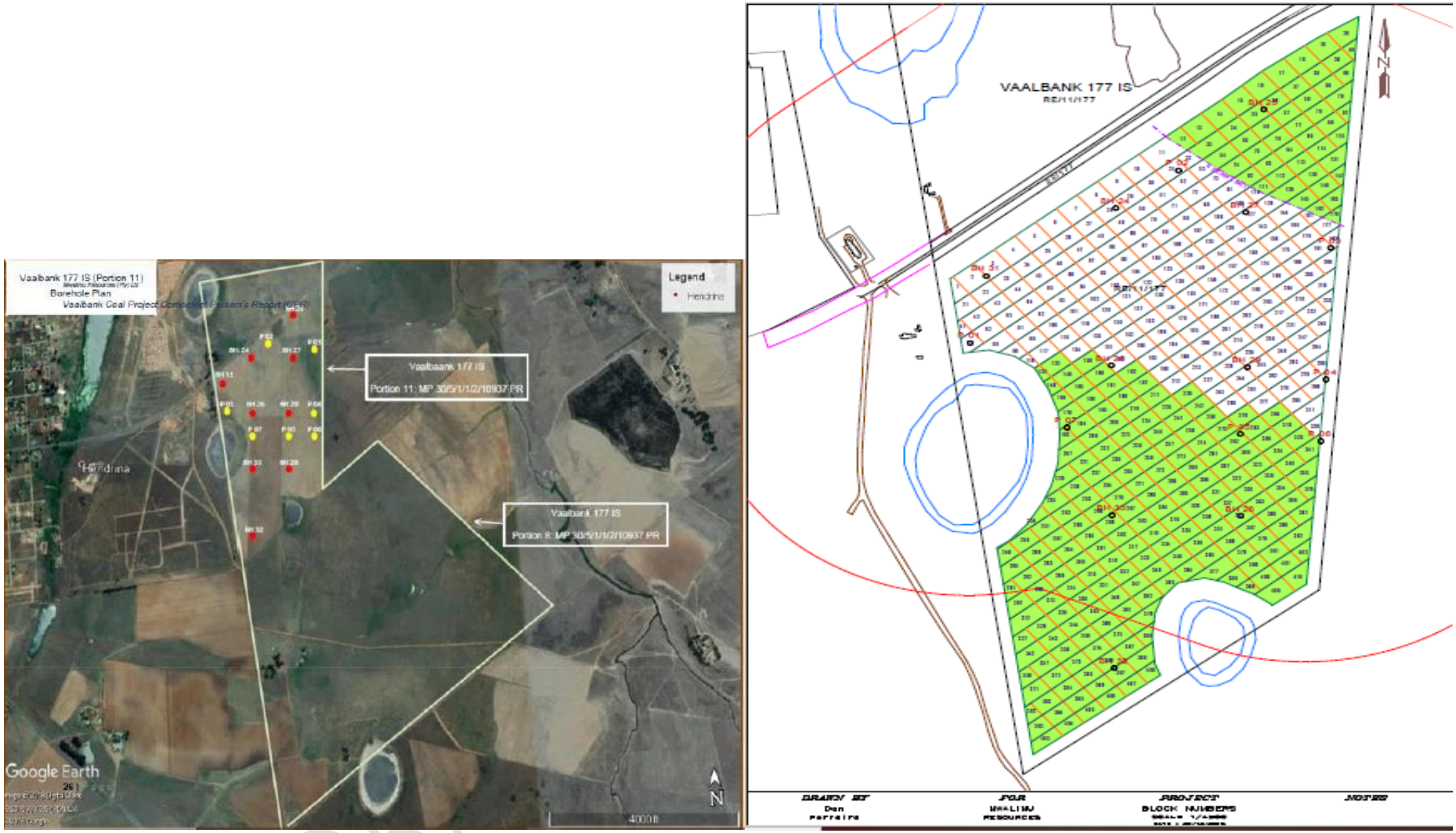

Figure 16: Map showing the positions of the drilled boreholes and Block Plan.

8.1.3.3 Coal seams

The Witbank Coalfield is situated in the northern part of the Main Karoo Basin (MKB) and roughly covering an area of over 568 000 ha. It extends some 90 km in a west-east direction, from the towns of Springs in the west to Belfast in the east, and 50 km in a north-south direction, from the town of Middelburg in the north to Rietspruit in the south. The northern boundary of the coalfield is formed by pre-Karoo basement rocks whilst the southern boundary in the central portion of the basin is widely considered to be the sub-outcrop against a basement palaeohigh known as the Smithfield Ridge (Figure 6) (Hancox and Götz, 2014).

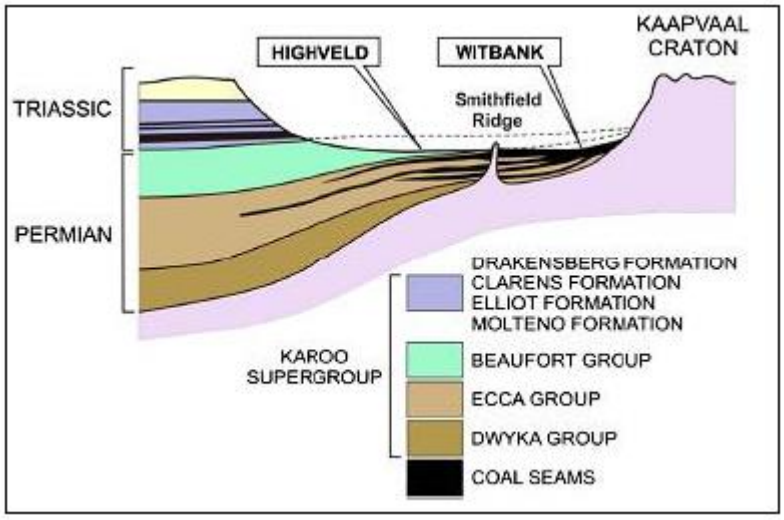

Figure 17: Schematic north-south transect of the Witbank and Highveld coalfields separated by the Smithfield Ridge (From: Falcon, 1986a)

8.1.3.4 Local geology

The two major coal seams sampled and found to be of economic importance are the No.4 and No.2 seam. The parting between these two seams varies from 18.60m to 22.93m. No.4 seam being well developed and can attain a maximum of 1.93m thickness with the lowest thickness of 0.73 and the No.2 Seam being 1.05 m to 1.54 m. The No.2 Seam is affected by dolerite intrusion which completely replaced it in some place and devolatilised it in other places, thus it is important note that the No.2 seam is economical only when it is mined together with the No.4 seam. The seam cross sections were taken in a E-W direction and a N-S direction across portion 11 of the farm Vaalbank 177IS.

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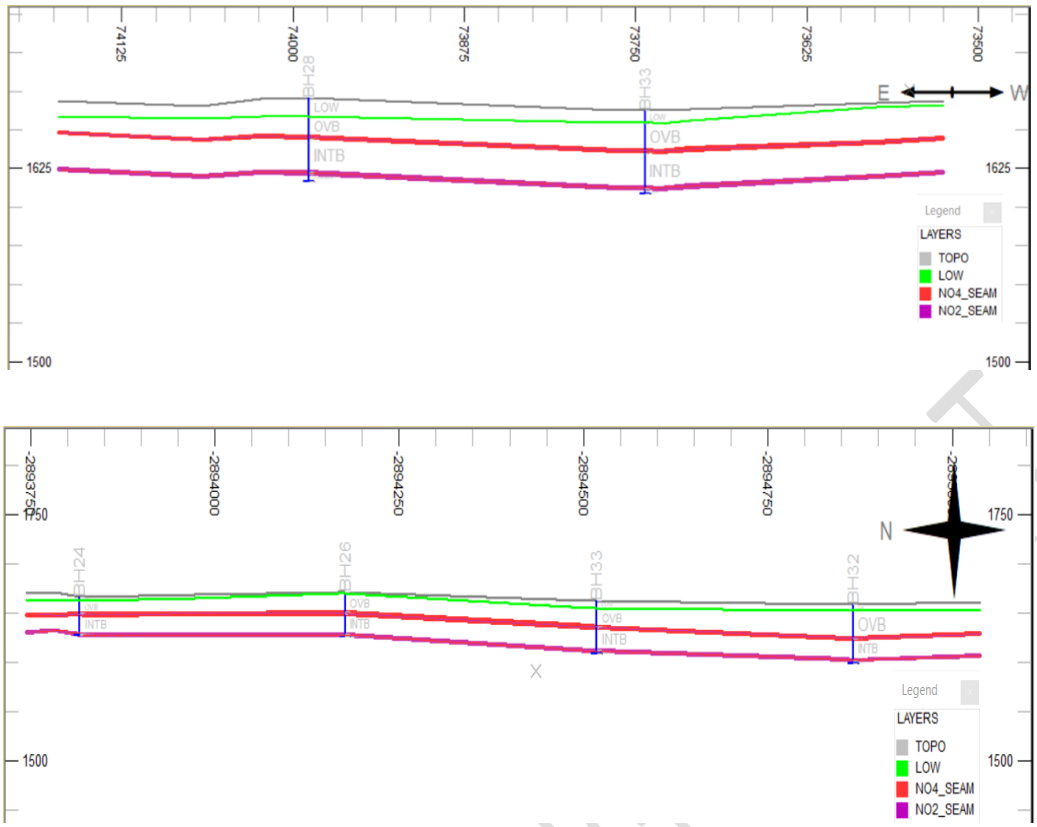

Figure 18: Cross section showing a gently seam undulation in a N-S direction.

8.1.4 Soil

The property is associated with classes of undifferentiated shallow soil and land classes, where the area of the permit is associated with classes as undifferentiated structureless soil, freely drained soil and structureless soil. The area seems to be dominated by red and yellow structureless soil with a plinthic horizon.

Top soil of many parts of the property and on alternative sites have been disturbed or degraded by erosion, as the property is used for cultivation and mining activities. The permit area is located in a flat slope where storm water does not easily flow at high speeds but dams up after rainfall.

As indicated in Figure 19 and Figure 20, the project falls under soil type or association with class 1 to 4 undifferentiated structureless soil. Soil classes from this type of soil is characterised by sandy, red soil which is less productive due to its limitations in terms of vegetation and high-maintenance conservation practices. These soils do not allow for commercial plant production and their use is limited to recreational purposes, wildlife habitat, or aesthetic purposes. Several different soil forms are found in the proposed area: pink, brown, green, structureless, and sandy loam to sandy clay soils all of which tend to be moderately deep to deep. Soil forms mainly include Hutton and Clovelly, with some shallow Glenrosa and Mispah soils.

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Figure 19: Soil classes map encountered

Figure 20: Soil type observed onsite

9 CLIMATE

9.1 Regional climate

The study area is situated in the Mpumalanga Highveld Region, which is a summer rainfall region. The climate is temperate with warm summers and cold, dry winters. Precipitation usually occurs in summer, as mist, rain and hail. Convectional thunderstorms are common and the source of most precipitation. Hail can

be expected to occur about six days per year. The average annual rainfall is between 601 mm and 800 mm with 85 % of this falling in the high rainfall months (October-March). The usual highveld weather conditions prevail with warm summers and cold winters with the main temperature at 14:00 in winter being about 17°C. The climate of the area under investigation is classified as the Highveld region (Region H), which is defined as a climate with a temperate to warm temperature and summer rains.

The highest mean daily maximum temperature of >25°C occur between December and February. Average maximum temperatures in the winter months (May-August) vary between 16.9°C and 20.1°C. Sharp frosts are common in winter. In summer, average minimum temperatures do not drop below 12.7°C, in contrast to the June/July minimum of 0°C and 0.2°C respectively. An extreme maximum temperature of 34.7°C has occurred in January, whilst an extreme minimum of -12.4°C has been recorded in July. Frost can be expected from the beginning of May until mid-September, with an average of fifty-eight frost days a year.

The prevailing wind direction throughout the year is from the north-west, but storm winds (i.e. high velocity winds) generally blow from the south-east, with the strongest winds occurring in late winter and early spring. Maximum evaporation occurs in summer (October-January), due to high summer temperatures. The annual rain fall of the area in question is between 601-800 mm. See Figure 21.

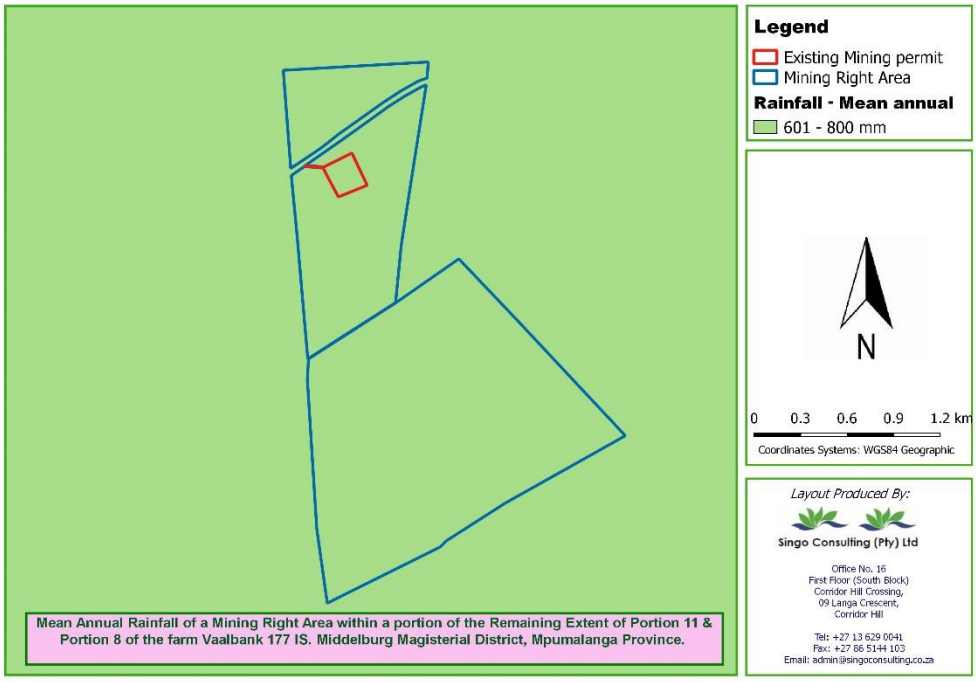

Figure 21: Rainfall in the area

9.2 Local climate

The climate is a typical Highveld climate and is generally dry with moderate summers and cold winters. The mean monthly and mean annual rainfall is 59 mm and 711 mm respectively. The mean monthly wind direction is north-west, whilst the mean monthly wind speed is approximately 4.4 m/sec. The Middelburg area has the following features:

- Warm to hot summers with average temperatures being 27ºC, extremes of up to 35ºC are sometimes encountered;
- Cold winters with average temperatures being 15ºC, extremes of up to 10ºC are sometimes encountered;
- Drought periods during the rainy season are frequent to occasional; 0 - 9 rain days per month may be expected;
- Low lying topographical areas experience heavy mist from April to September;
- Hail occurs on average 2.8 days per annum; and
- Frost occurs from 120 - 150 days per annum from April to September.

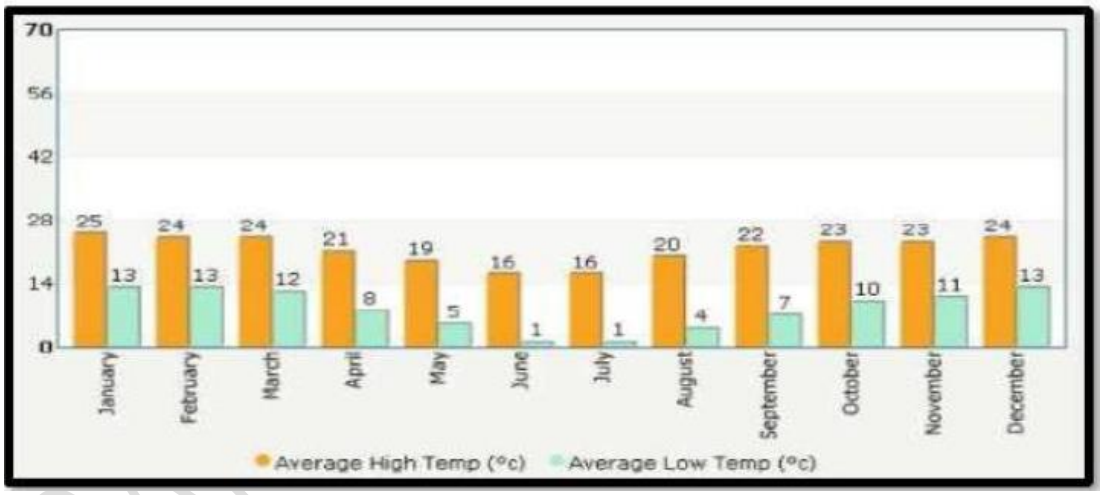

Figure 22:Hendrina's high and low temperatures.

9.3 Local temperatures, rainfall and wind

❖ Temperature

Temperatures in the vicinity of the mine are warm to hot during summer and cold in the winter. Mean temperatures vary from 26ºC in the summer to 15ºC in the winter. Extreme conditions, with temperatures as high as 35 C and as low as -10 C, have been recorded. During April to September heavy mist often occurs in the low-lying areas and 120 to 150 days with frost may be experienced. The area normally receives about 614 mm of rain per year, with most rainfall occurring during summer. The region is the coldest during June

when the mercury drops to 0.9°C on average during the night and overall, annual temperatures vary between 0.1 and 2 °C and -1.9 to 0°C. See Figure 23.

Figure 23: Annual temperature ranges

Hendrina is a slightly moist area. Less rainfall occurs in the area, as shown in Figure 24.

Figure 24: Moisture content

❖ Wind

The mean monthly wind direction is northwest, and the mean monthly wind speed is approximately 4.4m/sec. The north-westerly winds continue to be more pronounced in the summer and during the autumn months the high energy north north-easterly and south-easterly winds increase in occurrence. In the winter a similar wind frequency distribution as that of autumn continues and in the spring months the energy of the wind decreases and the winds from the northerly quadrant are more pronounced (Golder, 2008).

Wind roses summarize the occurrence of winds at a specified location via representing their strength, direction and frequency. Calm conditions are defined as wind speeds of less than 1m/s which are represented as a percentage of the total winds in the centre circle. Each directional branch on a wind rose represents wind originating from that specific cardinal direction (16 cardinal directions). Each cardinal branch is divided into segments of different colours which represent different wind speed classes.

For the current wind roses, wind speed is represented in classes, 1 to 2 m/s in blue, 2 to 4 m/s in dark green, 4 to 6 m/s in light green and> 6 m/s in yellow. Each circle represents a percentage frequency of occurrence. Between 00:00 to 05:59, winds are predominantly from the north (15% of the time) and north north-east (13% of the time). During the morning (06:00 to 11:59), winds are predominantly from the north (15.5% of the time) and north-north-west (10.5% of the time). During the afternoon (12:00 to 17:59), winds are predominantly from the north-west (14.5% of the time) and north north-west (12% of the time). During the evening (18:00 – 23:59), winds are predominantly from the north (11.0% of the time) and north-north-east (10.75% of the time). During summer (DJF), winds are predominantly from the north (17.5% of the time) and north north-east (10.5% of the time).

During autumn (MAM), winds are predominantly from the east (10.5% of the time) and east-south-east (9.25% of the time). During winter (JJA), winds are predominantly from the south-east (13.75% of the time) and east-south-east (13.5% of the time). During spring (SON), winds are predominantly from the north (22.5% of the time) and north-north-east (13%). The average monthly wind speed is 10.26 m/s for the period 1993 - 2003. The maximum wind speed of 13.6 m/s was measured in October 1995 and the minimum wind speed of 8 m/s was experienced in June and July 2000.

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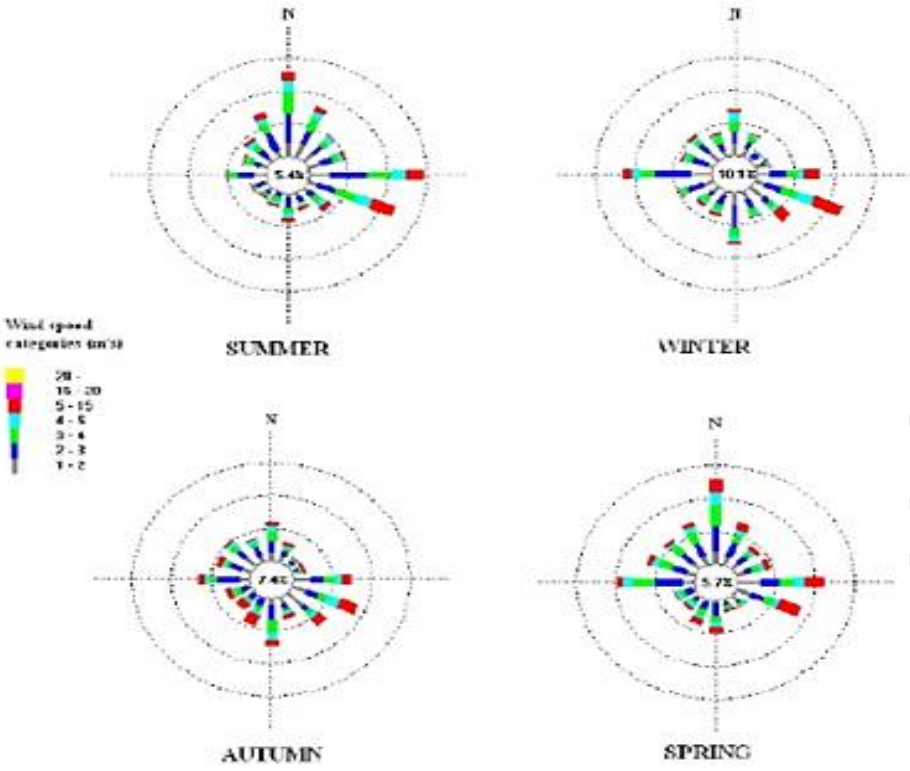

Figure 25: Wind characteristics of the areas

❖ Rainfall

Annual rainfall values range from 601 mm 800 mm with an average of approximately 754 mm per annum. Most precipitation occurs over the period November to January with an average of approximately ninety (90) rain days per annum. Rainfall over the period May to September is generally low or absent, with a noticeable increase in the months of October to April. Rainfall events in the region occur mainly in the form of thunderstorms and heavy showers.

Table 11: Average Monthly Rainfall

MONTH	AVERAGE NUMBER OF RAINY DAYS PER MONTH	AVERAGE RAINFALL PER MONTH (mm)
January	9.9	87.5
February	7.1	99.5
March	7.6	82.3
April	2.9	31.6
May	0.8	4.1
June	1.5	14.2
July	0.4	1.6
August	1.0	6.1
September	3.2	30.4
October	6.4	79.1
November	7.8	98.9
December	9.7	85.7

❖ Evaporation

Gross annual average — A|| pan evaporation at Bethal is 1,702 mm, and at Kriel, 1,733 mm. Maximum evaporation occurs in summer from October to January, due to high summer temperatures. Thunderstorms are frequent during the rainy season and are usually accompanied by lightning, heavy rain, strong winds and sometimes hail. The storms are highly localised.

Table 12: Mean Monthly Evaporation

Month	Mean monthly evaporation (mm)
January	179.8
February	151.1
March	147.8
April	111.1
May	94.8
June	79.2
July	89.0
August	132.0
September	167.0
October	186.6
November	167.6
December	195.9
Annum	**1702.0**

10 TOPOGRAPHY

The topology of the area is illustrated in Figure 26. The topography on site is generally flat to gentle dipping. The slope of the area varies between three to eight percent (3 % - 8 %) and between zero to three percent (0% - 3%). The elevation ranges from 1,640 m to 1,660m above sea level, with the mining right at 1,660m. The contour lines are far apart which indicate flatness.

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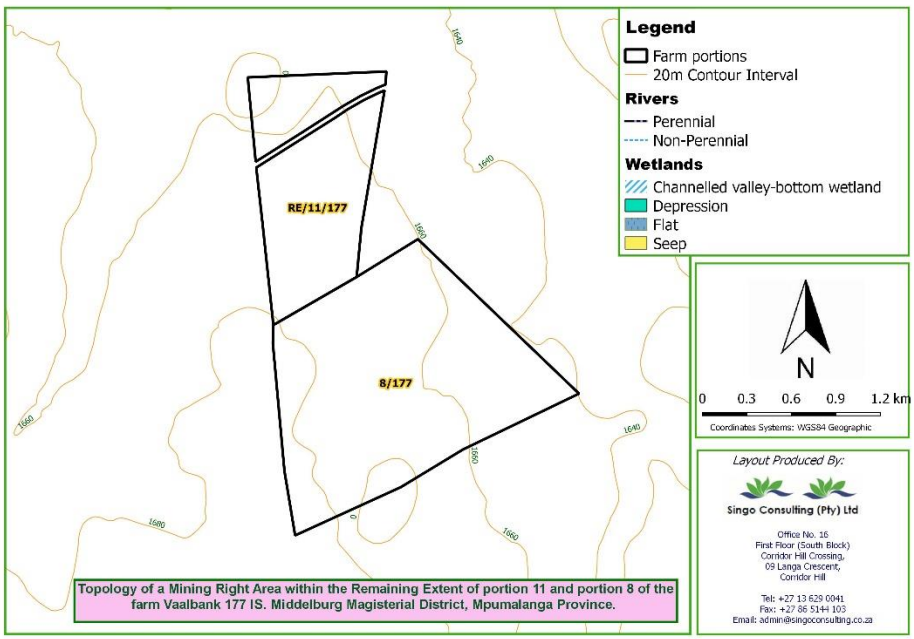

Figure 26: Area topology

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 project area is located in the Mpumalanga Highveld Priority Area, which has been declared as such by the Minister of Environment and Tourism in terms of Section 18 (1) and 57 (1) of the NEM:AQA. The area is situated near three power stations, namely; Komati, Hendrina and Arnot situated at 54.8km, 33.9km and 47.0km respectively. These three stations result a significant negative impact on air quality in the area and have specific air quality management actions rectifying the situation.

Ambient air quality in Mpumalanga is strongly influenced by regional atmospheric movements, as well as local climatic and meteorological conditions. The most important of these atmospheric movement routes are the direct transport towards the Indian Ocean and the recirculation over the sub-continents (Scholes, 2002). It is these climatic conditions and circulation movements that are responsible for the distribution and dispersion of air pollutants in Mpumalanga and between bordering provinces and countries.

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12 NOISE

Measurements of the existing noise climate in accordance with the relevant SANS 10103:2008Code of practice within the Project area were made at 5 defined positions around
the site.

In summary the results of the noise baseline indicated that existing sources of noise in the
Project area are:

• Natural sounds of the bush;

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

• Noise from roads (incl. domestic traffic as well as trucks carrying coal from the mines).

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 Carolina road (R38) construction of houses (Kwazamokuhle Ext 8) and blasting that will occur when extracting deeper resource.

Figure 27: Sources of noise near the proposed mining area.

13 WATER RESOURCES

Figure 29 illustrates the hydrology of the project area. Prior to the simulation of the mining and dewatering activities, a baseline (pre-mining) steady state groundwater flow model was set-up and calibrated. The objective of the steady state model was to simulate the undisturbed groundwater system in the region prior to commencement of mine dewatering. The impacts of mining activities can then be determined by comparing the transient state results with the steady state results. Groundwater flow model was developed to determine the flow direction as well as flow velocity of water before the mining activity could commence.

It can be deduced from the figure below that the flow direction in this area is towards the easterly direction with reference to the proposed mining permit area. The mine is located at a higher elevation and on the easterly side of the mine there is a river in a lower elevation meaning that soluble contaminants that move with water could move from the mining area towards the Klein Olifants River. Hence the development of transport model in this report.

Figure 28 below represents a groundwater flow model, the light blue thick line on the right represents a river and the red dot on a cell represents an abstracting well where samples analyzed were taken. The flow contours decrease towards the river, and big arrows represents higher velocities and higher velocities of water are near the river and the abstracting well.

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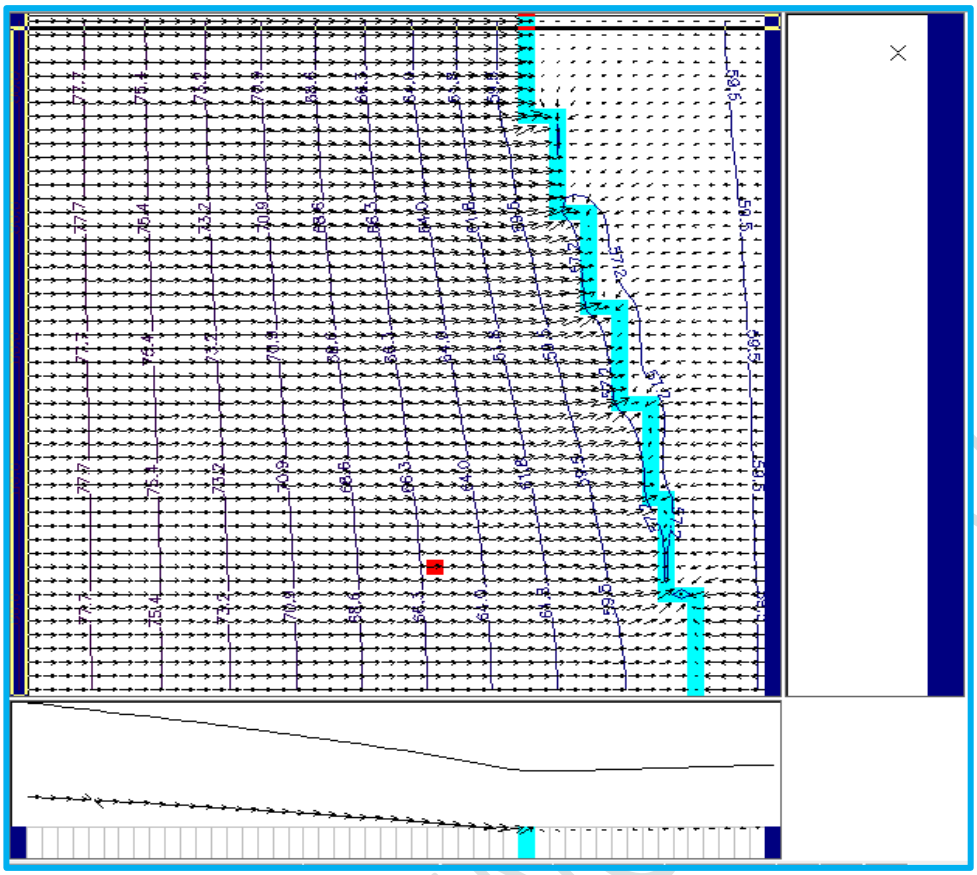

Figure 28: Groundwater flow model

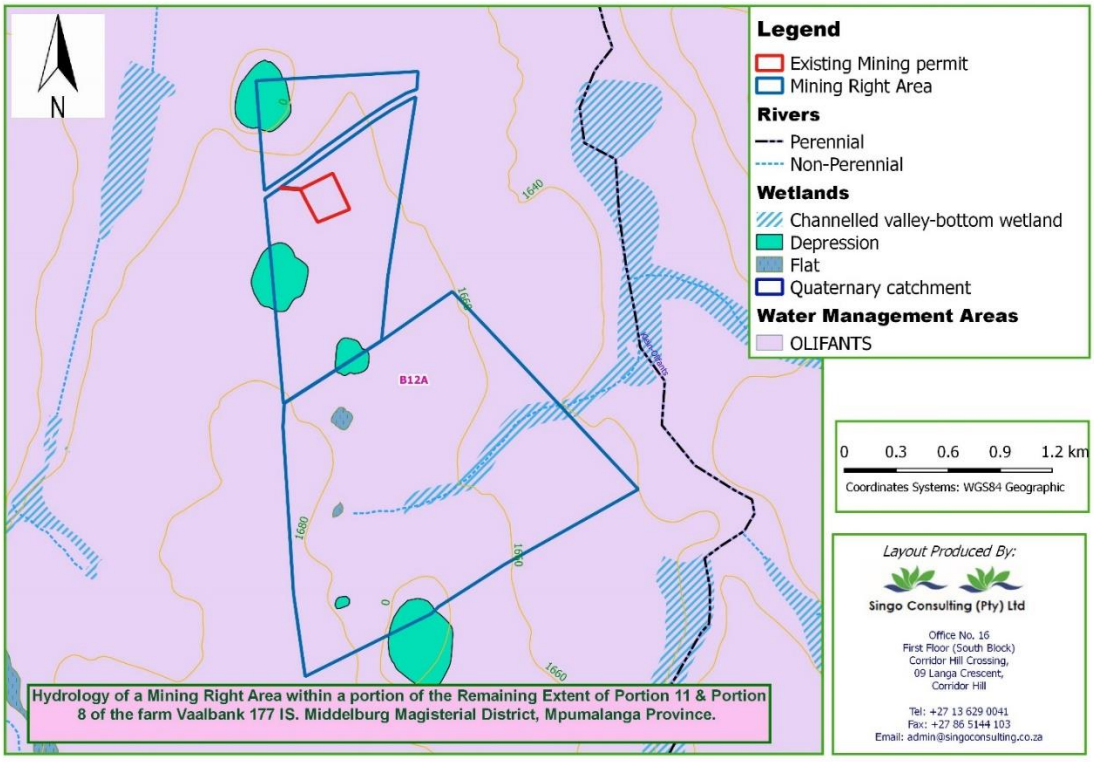

Figure 29: Hydrology of the area

The survey area falls within Klein Olifants catchment. It falls within the B12A quaternary catchment. The watershed associated with the survey area drains toward the Olifants which drains towards the southern direction. The area is enclosed with a lot of depressions within the mining area. The DWS has designated Present Ecological State (PES), Ecological Importance (EI) and Ecological Sensitivity (ES) for all of the catchment areas nationally.

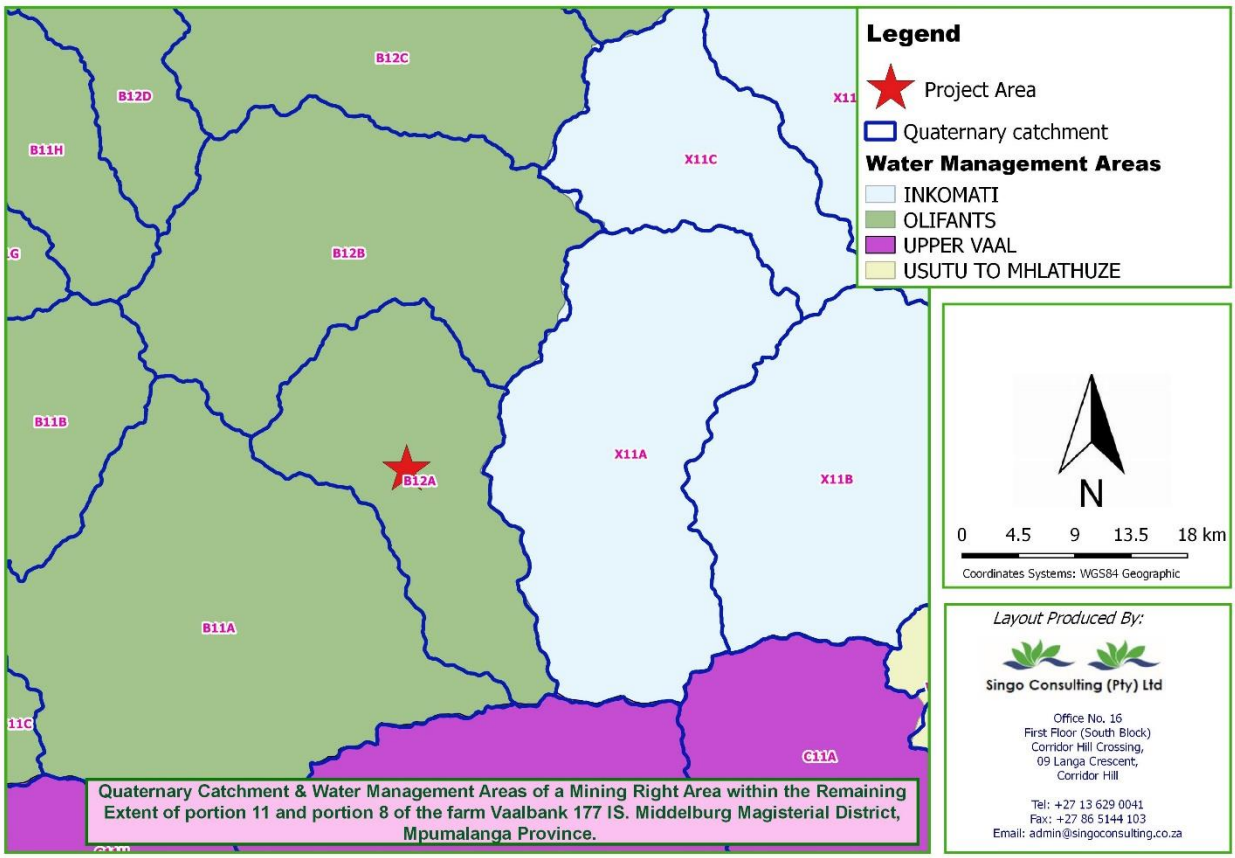

Figure 30: Water Management for Project area. (Quantenary Catchment B12A)

13.1 Hydrocensus

The primary objective of the Hydrocensus is to identify the baseline groundwater use and users within the study area. The Hydrocensus took place at the mining permit. The project site falls within B12A quaternary catchment area. Groundwater in the investigation area is mainly used for domestic and stock watering purposes and irrigation use visible, see Figure's 33 & 34. A detailed hydrocensus was conducted by Mwalimu Resources during the month of April 2018. During the hydrocensus important data pertaining to the current groundwater conditions and use were collected. These include:

- Borehole locality
- Owner and property details

- Borehole depth
- Rest water level
- Borehole usage
- Borehole status, drilling date and equipment
- Groundwater abstraction rates and
- Electrical conductivity, pH and groundwater sample details.

Table 13: Hydrocensus results (Mwalimu resources,2018)

BH ID	X	Y	Z	Usage	Sample
VLB-BH-1	29.738836	-26.170465	1681	Domestic, stock and irrigation	Sampled
VLB-BH-1	29.733333	-26.152183	1665	Domestic and stock	Sampled
VLB-BH-2	29.739477	-26.164254	1678	Stock	Not sampled
VLB-BH-3	29.739828	-26.171068	1675	Stock	Not sampled
VLB-BH-4	29.747362	-26.167819	1659	Stock	Sampled
VLB-BH-5	29.744094	-26.175670	1663	Stock	Not sampled

On the 19th February 2019, a Hydrocensus by Singo Consulting (Pty) Ltd consultants was conducted on the Colliery, as one of the methods to collect the data on the site. Various tools were used in collecting the data such as TLC, hand GPS, measuring tape and a bailer. These tools were used on various boreholes on the site. The hand GPS was used to determine the longitudinal, latitude and elevation for each borehole that was being observed. After recording the GPS coordinates, the measuring tape was used in taking all collar height measurements of the boreholes. The level meter together with a measuring tape in order to get the water level. The pictures below illustrate proof of the field work conducted on site:

Figure 31: Borehole and Stream sampling

- Groundwater Usage

Table 14:: Groundwater usage Results

Usage	%
Stock	66.67
Domestic and Stock	16.67
Domestic, Stock and Irrigation	16.67

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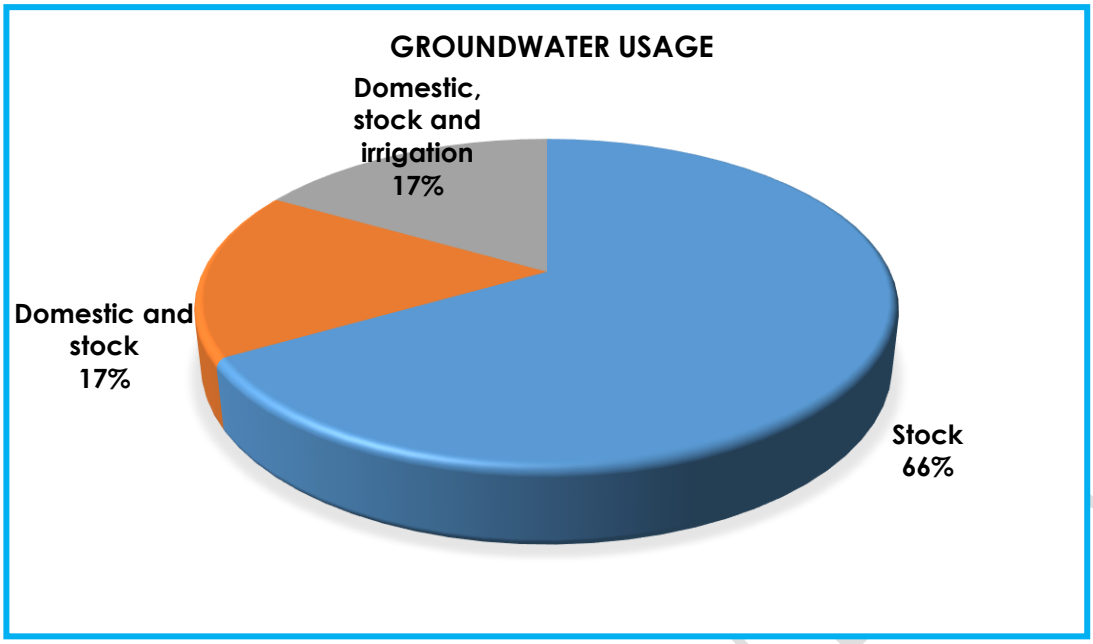

Figure 32: Groundwater usage

❖ Water Balance

✓ Groundwater Recharge

Highly variable recharge occurs over the project area, but values are generally between 1 and 3 % of MAP (Hodgson & Krantz, 1998) for undisturbed areas. Recharge to the weathered aquifer drains towards regional surface water courses and less than 60% of the recharge discharge in streams. The remainder is withdrawn through evapotranspiration from the weathered aquifer, recharge to the deeper fractured rock aquifers or abstracted through pumping. A low vertical permeability generally exists for the fractured aquifer in the Vryheid Formation and this aquifer is recharged by interflow from the weathered aquifer

✓ Base Flow

Base flow is not a measure of the volume of groundwater discharged into a river or wetland, but it is recognised that groundwater contributes to the base flow component of river flow. The total groundwater contribution to base flow in the quaternary catchment is estimated to be 45mm/a according to the Groundwater Resource Directed Measures (GRDM) data.

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- ✓ Flow direction and water level measurements

The water levels obtained from the NGA and measured during the hydrocensus ranges between 0.6m and 90.0m below ground level (mbgl). This corresponds to a piezometric head of between 1600.2 and 1800 mamsl. The relatively large water level variation over a relatively short distance may indicate that some of the boreholes are groundwater abstraction points measured after pumping and with no enough time to recover, or possibly from different aquifers. A comparison of the water level elevation with topography shows a good correlation of 97.1%. This confirms that groundwater elevation represents the topography and in the project area flows towards the east, this is also confirmed by the groundwater flow model.

- ✓ Abstraction

Total abstraction from groundwater resources in the quaternary catchment as estimated by GRDM is 0.02mm3/a. The exploration potential for this catchment is 3mm3/a thus making 2.98mm3/a available for use. From the Department of Water Affairs and Forestry (DWAF) Water Use Registering and Licensing Data Base (WARMS), indicate that a registered volume of 81 004 m3/a is being abstracted mainly agricultural use.

- ❖ Dewatering and re-watering of mining areas

- ✓ Dewatering of opencast mining areas

Dewatering of aquifers surrounding the opencast areas will occur as a result of groundwater flow under the influence of gravity to the bottom of the pit. The radius of influence from the pit areas is calculated as a function of the hydraulic conductivity (typically 0.1m/d in the coal seams (Hodgson & Krantz, 1998), storativity of the weathered aquifer (0.01), the depth of the pit (rather drawdown that will be achieved during life of mine) and the time that dewatering will take place.

A conservative approach was taken, where a one-year timeframe was used, and it was assumed that no inflow to the pit will take place during that year. The table below shows the values calculated for the dewatering cone of influence at the different pits. The calculated distance of the dewatering of the weathered aquifer around the opencast pit areas will be in the order of 400m. However, it should be noted that the precise depths of the pits are not known at the moment thus the maximum depth of the No. 2 coal seam was used for all calculations.

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Table 15: Radius of influence from dewatering at the opencast pit areas

Pit	Depth(m)	K(m/d)	Storativity(S)	Radius of influence (m)
OC	40	0.10	0.01	400

- ✓ Post-mine ingress into the back filled areas

It is necessary to calculate the annual recharge for the future mined out areas to determine the post mine ingress volumes after rehabilitation have been completed during the closure phase. The average rainfall obtained from the South African Weather Bureau for the area is 768mm/p.a. and the highest average rainfall was 1150mm/p.a. The National Resource Directed Measures (NRDM) programme was used to obtain the mean average recharge value of 54.46mm p.a. for the undisturbed areas. The recharge infiltration rate of 15% in previously back filled areas has been used in the following calculations from previous experience working in the Witbank Coalfield.

- ✓ Natural Recharge

The effective groundwater recharge from rainfall is the portion of rainfall that reaches the groundwater. The remainder of the rainfall comprises surface runoff, evapotranspiration and soil moisture. The percentage of recharge for this area is estimated to be between 1 – 3% under natural conditions. For the Vaalbank Coal Project, the average recharge will be 54.46 mm/a based on an average rainfall of 768mm/a.

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Figure 33: Groundwater is used for cattle feeding

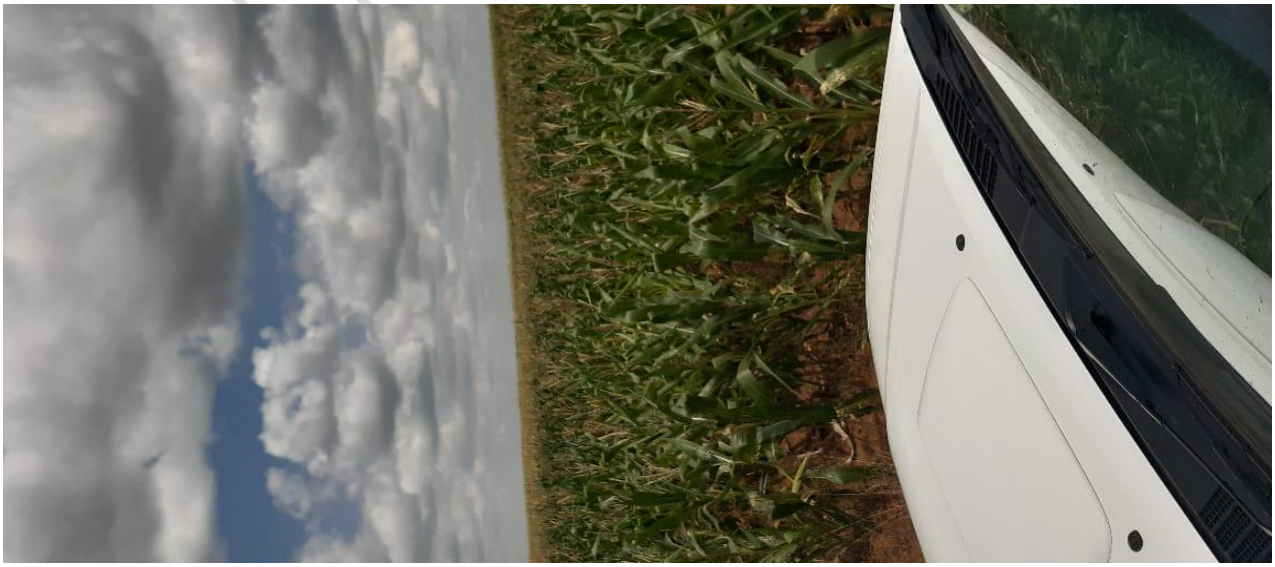

Figure 34: Crop Farming in the Mining Right Area.

13.2 Acid mine drainage generation capacity

Acid mine drainage (AMD) poses a serious threat at mines, especially coal mines where there is an abundance of sulphide minerals. AMD is expected to occur due to the extraction of sulphide ores like chalcopyrite, pyrite or arsenopyrite ores. As such, AMD studies must be included as one of the impacts to be mitigated in the mining area. The presence of AMD in a mining area is indicated by a drop in pH. The following equations show the process of AMD in four steps. This process is self-propagating until the ferric iron or pyrite is depleted. Generally, when pyrite combines with oxygen and water, AMD forms. If AMD gets into surface waterways, the acidity and metal content can produce significant environmental problems over large distances. Once AMD reaches surface water, the acidity may cause significant environmental problems over long distances and destroy the aquatic life.

1. Oxidation of Polysulfide to sulphate by O2

   $2FeS2 + 7O2 + 2H2O \rightarrow 2Fe2+ + 4SO42- + H+$

2. Oxidation of Fe2+ (ferrousiron) to Fe3+ (ferriciron) by O2

   $4Fe2+ + O2 + 4H+ \rightarrow 4Fe3+ + 2H2O$

3. Hydrolysis of iron (ferriciron→ferrichyfroxide, “yellowboy”)

   $4Fe3+ + 12H2O \rightarrow 4Fe(OH)3 + 12H+$

4. Oxidation of polysulfide to sulphate by Fe3+ at low pH

   $FeS2 + 14Fe3+ + 8H2O \rightarrow 15Fe2+ + 16H+$

Total: $FeS2 + 15/4\ O2 + 7/2H2O \rightarrow 2Fe(OH)3 + 2SO42- + 4H+$

AMD can be treated in various ways, including:

- An increase in pH or raising alkalinity. This can be achieved by adding lime or other alkaline materials to neutralise the acidity (like $NaCO_3$ or NaCl).
- Removing metals like iron, zinc and aluminium from water.
- Conducting passive (limestone leach beds) and active (treatment plants) AMD treatments.

The study area falls under the Karoo Basement and is fractured and influenced by dykes. For effective borehole yields, the boreholes must target the fracture zones in this area.

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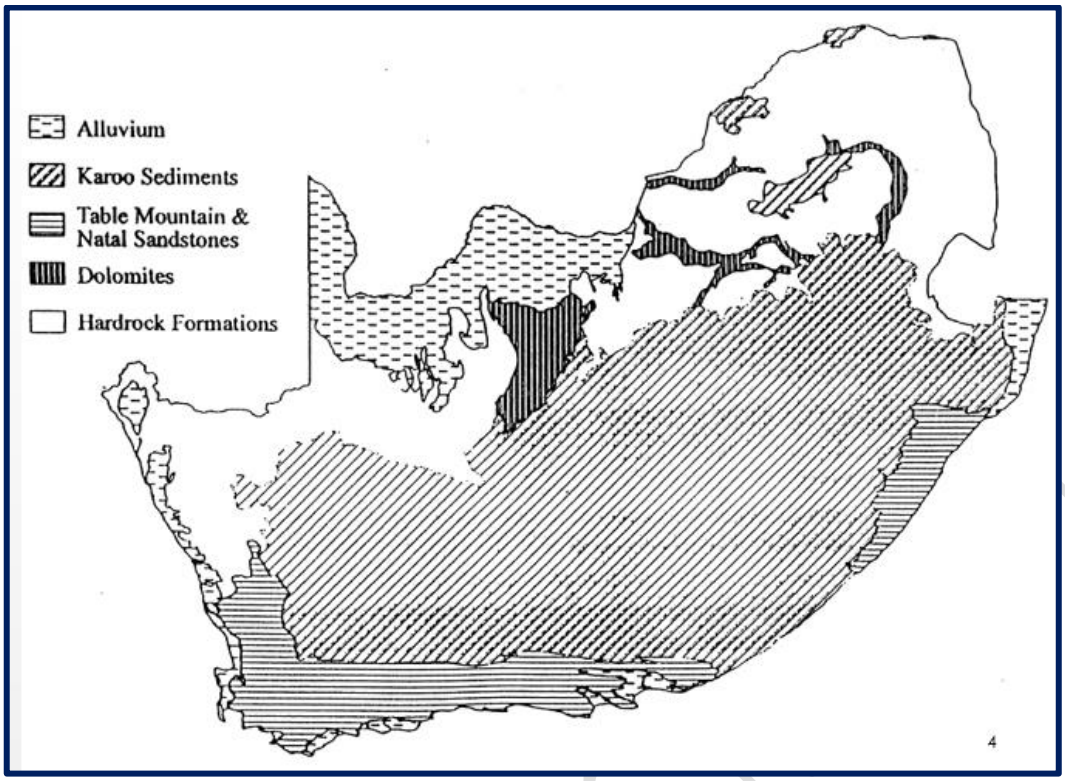

Figure 35: Aquifers of South Africa

The groundwater potential of the formations located in the project area is limited in their pristine state due to low permeability, storage and transmissivity. Secondary processes, like weathering, fracturing, etc., are required to enhance the groundwater potential.

13.3 Geohydrology

13.3.1 Regional Geohydrology

The natural geohydrological system within the Witbank Coalfield consists of three superimposed aquifers namely an upper weathered aquifer, a fractured Karoo aquifer and a fractured pre-Karoo aquifer (Hodgson & Krantz, 1998). The upper weathered aquifer consists of material weathered in situ and transported as part of the erosion process. The depth to weathering is generally between 1m and 15m from surface and the water level varies between 5m and 10m below ground level (mbgl). The flow mechanism within the weathered aquifer is porous flow (primary aquifer type). The water quality is generally good due to years of dynamic groundwater flow resulting in the leaching of soluble salts.

The fractured Karoo aquifer consists of the various lithologies of siltstone, shale, sandstone and the coal seams. The pores of the geological units are generally well cemented, and the principle flow mechanism is

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fractured flow along secondary structures e.g. faults, bedding plane fractures etc. The intrusion of the fractured aquifer by dolerite dykes and sills has led to the formation of preferential flow paths along the contacts of these lithologies due to the development of cooling joints. The intrusions of dykes crush the lithologies on which they intrude through, forming cracks where water can flow through.

The fractured pre-Karoo aquifer is separated from the overlying fractured Karoo aquifer by Dwyka tillites which act as an aquiclude where present. The flow mechanism is fracture flow as can be expected from the crystalline nature of the granite rocks. The water quality is generally characterized by high fluoride levels which restricts exploitation of this aquifer in combination with the general low yields, deep drilling and the low recharge (Grobbelaar et al, 2004). Mining of the coal seams has resulted in the establishment of an artificial aquifer system which generally dominates the groundwater flow on a local and regional scale. Below is a summary of the geohydrological system.

5.4.1.1 Karoo aquifers and aquiclude

a. Shallow weathered zone aquifers (Overburden/weathered)

b. Fractured aquifers

I. Upper fractured aquifer

II. Dolerite sill (aquiclude)

III. Deep fractured aquifer

c. Coal mine artificial aquifer

5.4.1.2 Shallow weathered Karoo aquifer (unconfined)

Overburden/Weathered Zone Aquifer

- The weathered zone of the Karoo sediments hosts the unconfined or semi-confined shallow weathered Karoo aquifer. Water levels are often shallow, and the water quality is good due to direct rainfall recharge and dynamic groundwater flow through the unconfined aquifer in weathered sediments, which makes it also easily exposed to contamination. Water intersections in the weathered aquifer is mostly encountered above or at the interface to fresh, where the vertical infiltration of water is typically limited by impermeable layers of weathering products and capillary forces, with subsequent lateral movement following topographical gradients.
- Localised perched aquifers may occur on clay layers or lenses at shallower depth (soil zone) but are due to their localised and detached nature of no further interest in the context of the present study.

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- Alluvial deposits occur in most valley bottoms associated with surface water courses, but their regional coverage is little. These unconsolidated alluvial sediments consist of of clay, sand, gravel and boulder sized grains.

Upper fractured aquifer unconfined to semi-confined

- The weathered aquifer is underlain by a deeper semi-confined to confined fractured aquifer in which fracture flow dominates. The fractured Karoo aquifer consists of the various lithologies of siltstone, shale, sandstone and the coal seams, where groundwater flow is governed by secondary porosities like faults, fractures, joints, bedding planes or other geological contacts, while the rock matrix itself is considered impermeable. Geological structures are generally better developed in competent rocks like sandstone, which subsequently show better water yields than the less competent silt or mudstones. Not all secondary structures are water bearing due to e.g. compressional forces from the neo-tectonic stress field overburden closing the apertures.
- Although the Karoo aquifer supports domestic and stock water requirements in the area, their physical and hydraulic characteristics preclude large scale groundwater exploitation for e.g. irrigation.
- The strike frequency analysis for the Karoo rocks indicates a predominant shallow groundwater occurrence, mostly in the first 50 meters below the water table (Woodford and Chevallier, 2002)

13.3.2 Local Geohydrology

The groundwater systems in the Mpumalanga coalfields have been discussed extensively by Hodgson et al (1998) and Grobbelaar et al (2004). Three distinct superimposed groundwater systems are present. They are the upper weathered Ecca aquifer, the fractured aquifers within the unweathered Ecca sediments and the aquifer below the Ecca sediments.

The following aquifer description extracted from the previously stated references is relevant to the project area:

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Table 16: Aquifer description of the project area

Aspect	Description
The weathered aquifer	The Ecca sediments are weathered to depths between 5 and 12m below surface throughout the area. The upper aquifer is associated with this weathered zone and water is often found within a few meters below surface. This aquifer is recharged by rainfall. The percentage based on work in other parts of the country by Kirchner et al. (1991) and Bredenkamp (1995). It should, however, be emphasized that in a weathered system, such as the Ecca sediments, highly variable recharge values can be found from one area to the next. This is attributed to the composition of the weathered sediments, which range from coarse-grained sand to fine clay. Based on the hydrogeological information obtained from the boreholes drilled at Hendrina, the thickness of the weathered zone was approximated to 15m.
Fractured Ecca Aquifer	The pores within the Ecca sediments are well-cemented and do not allow any significant flow of water. All groundwater movement therefore occurs along secondary structures, such as fractures and joints in the sediments. These structures are better developed in competent rocks, such as sandstone; hence the better water-yielding properties of the latter rock type. It should, however, be emphasized that not all secondary structures are water bearing. Many of these structures are constricted because of compressional forces that act within the earth's crust.
Coal Seam Aquifer	Hodgson et al. (1998) states that of all the unweathered sediments in the Ecca, the coal seams often have the highest hydraulic conductivity. Since the aquifer permeability and storativity of the seam will also be enhanced by mine excavation, it has been simulated as a separate aquifer with an

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	approximate permeability of 0.1m/d. This permeability is in the same order of magnitude estimated for the coal seams by Hodgson et al. (1998).

✓ WETLAND

Wetlands have been delineated beyond and between the three MRA's boundaries to show the connectivity of these ecosystems in the catchment areas. In the project area of channelled and unchannelled wetlands in the valley bottoms, significant hillslope seep wetlands are identified. Furthermore, pan wetlands were typically found in high lying areas on the catchment divide.

Table 17: Total areas of Wetland HGM units per MRA

Wetlands HGM Unit	Mooively East MRA (ha)	Mooivley West MRA (ha)	Hendrina South MRA (ha)	All MRAs (ha)
Klein Olifants River	3		200.4	255.7
Valley Bottoms	0.5	23.5	30.1	145.5
Pans	0.4	2.3	-	38.6
Total Wetlands (ha)	3.9	25.3	230.5	439.8

Therefore, the project area was found to be in line with the form of land and vegetation where Highveld grassland is the dominant terrestrial natural habitat and seasonal seep wetlands are present on the landscape's mid-to-lower slopes with (non) perennial permanent wetlands in the drainage lines. This is generalized in Figure below where a typical change in soil and floral composition characterizes the landscape. The next section discusses the ecological conditions of the wetlands and their functional role in the landscape.

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Figure 36: Wetlands Identified on around project Area

The Klein Olifants River Runs north-south on the eastern part of the application area. The River runs more than 500m away from the application area. A 100m buffer will be created around surface water sources such as the dam mentioned above. Pans have been identified on the border with Portion 11 and Portion 08. A 100m buffer will be created around these areas to ensure that no mining activities that place and no adverse environmental impact are caused.

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). C4 grasses dominate the biome, except at the highest altitudes where C3 grasses are more prominent.

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 Eastern Highveld Grassland (Gm 12). 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. See Figure 21 also climate diagram for Gm 12 Eastern Highveld Grassland.

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).

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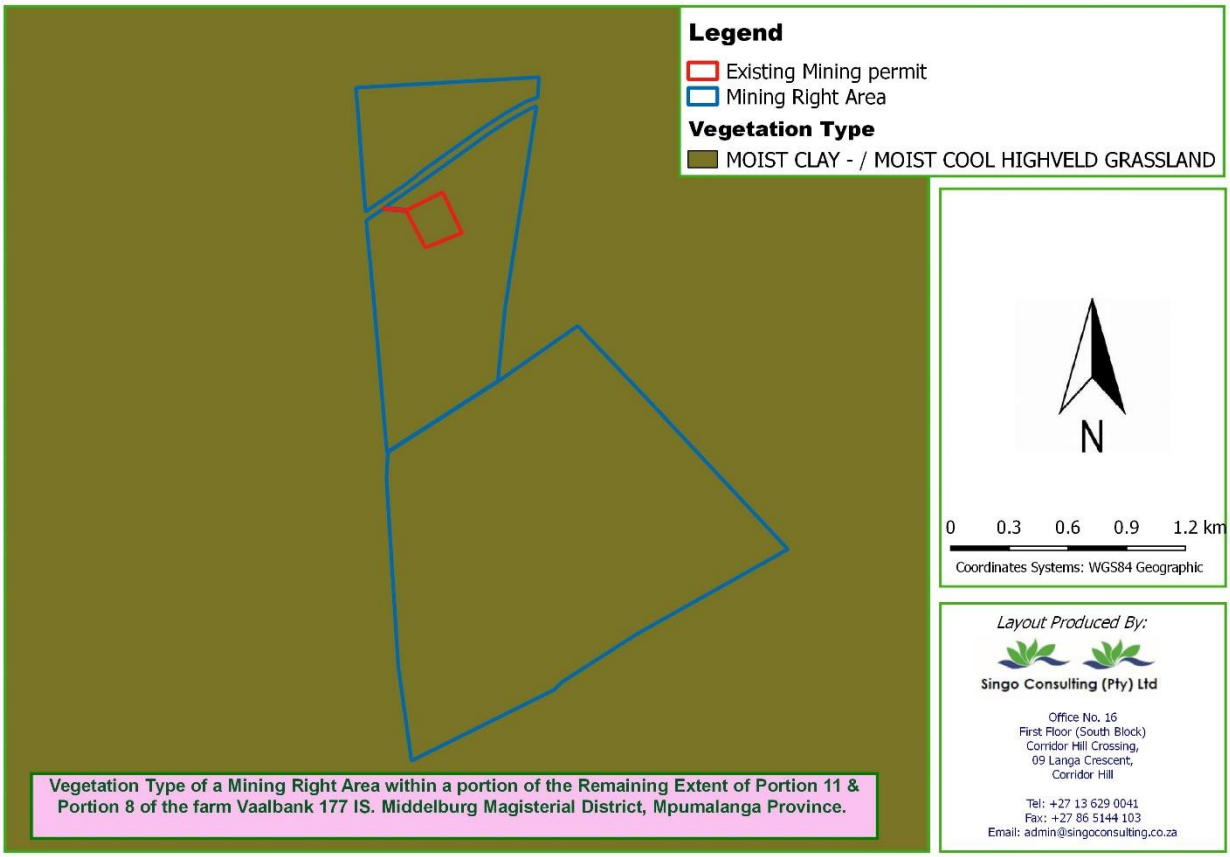

Figure 37: Broad vegetation classification for the site

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

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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 wetland 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. The site was then assessed on 18th of February 2020 in order to record the true floristic reflection of the study area.

14.3.2 Vegetation

The PRECIS list of plants recorded in the quarter degree grid squares (2629BB) was obtained from SANBI. This list was consulted to verify the record of occurrence of the plant species seen on site. A desktop study of the habitats of the red-listed and orange-listed species known to occur in the area was conducted prior to site assessment. The vegetation types of Mucina & Rutherford (2012) were also used as reference, but where necessary communities are named according to the recommendations for a standardised South African syntaxonomic nomenclature system (Brown, L.R., Du Preez, P.J., Bezuidenhout, H., Bredenkamp, G.J., Mostert, T.H.C., and Collins, N.B. 2013). By combining the available literature, stratification of vegetation communities was possible.

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14.3.3 Fauna survey

Most mammals and reptiles are either very secretive, nocturnal, hibernate (reptiles), migrate (birds) or prefer specific habitats, which made sampling and identification difficult.

14.3.4 Mammals

Records of all mammal species recorded in the quarter degree grid squares were obtained from the Virtual Museum (VM) website of the Animal Demographic Unit of University of Cape Town prior to the site visits. The site assessment was conducted for mammal species diversity by direct and indirect methods, like mammal sightings, burrows, holes and verification by mammal book (Skinner and Chimimba, 2005). No trapping was conducted during the field survey. The only mammals observed were cows.

14.3.5 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.

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14.4 Impact assessment methodology

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

Table 18: 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 19).

Table 19: 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.

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14.5 Assessment results

14.5.1 Habitant Found on Site

A large percentage of the project area has been transformed through agricultural activities. Almost 80% of the project area is currently used for agricultural purposes, either maize (Zea mays) or Soya Beans farming. However, at least 20% of the project area is under natural grassland. These are often associated with the Klein Olifants, its tributaries and the rocky outcrops. These natural areas are potential habitat for rare and threatened species.

Figure 38: Habitant Found on Site

Table 20: Broad habitat types found within the project area.

Habitat Types	Habitat Size	% Total Area	Conservation Importance
Transformed Areas			
Agricultural Fields	1800.96	47.96	Low
Alien Bush Clumps	61.6	1.64	Low
Transformed - Built-up	36.35	0.97	Low
Riverine and Aquatic			
River Systems – specifically the Klein Olifants and associated tributaries	212.02	5.65	High
Large Dams	50.03	1.33	Moderate
Grassland Habitat			
Hydromorphic Grasslands	463.46	12.34	Moderate-High
Rocky Outcrops	105.67	2.81	High
Natural Grassland	1024.72	27.29	Moderate-High

14.5.2 Vegetation on site

Three vegetation communities were identified during the site assessment (See Figure 39). They were recognised based on physiognomy, moisture regime and species composition and disturbance characteristics. These vegetation communities are:

- Cultivated/disturbed area
- Vegetation associated with watercourses (riparian and moist grassland)
- Natural (untransformed) grassland

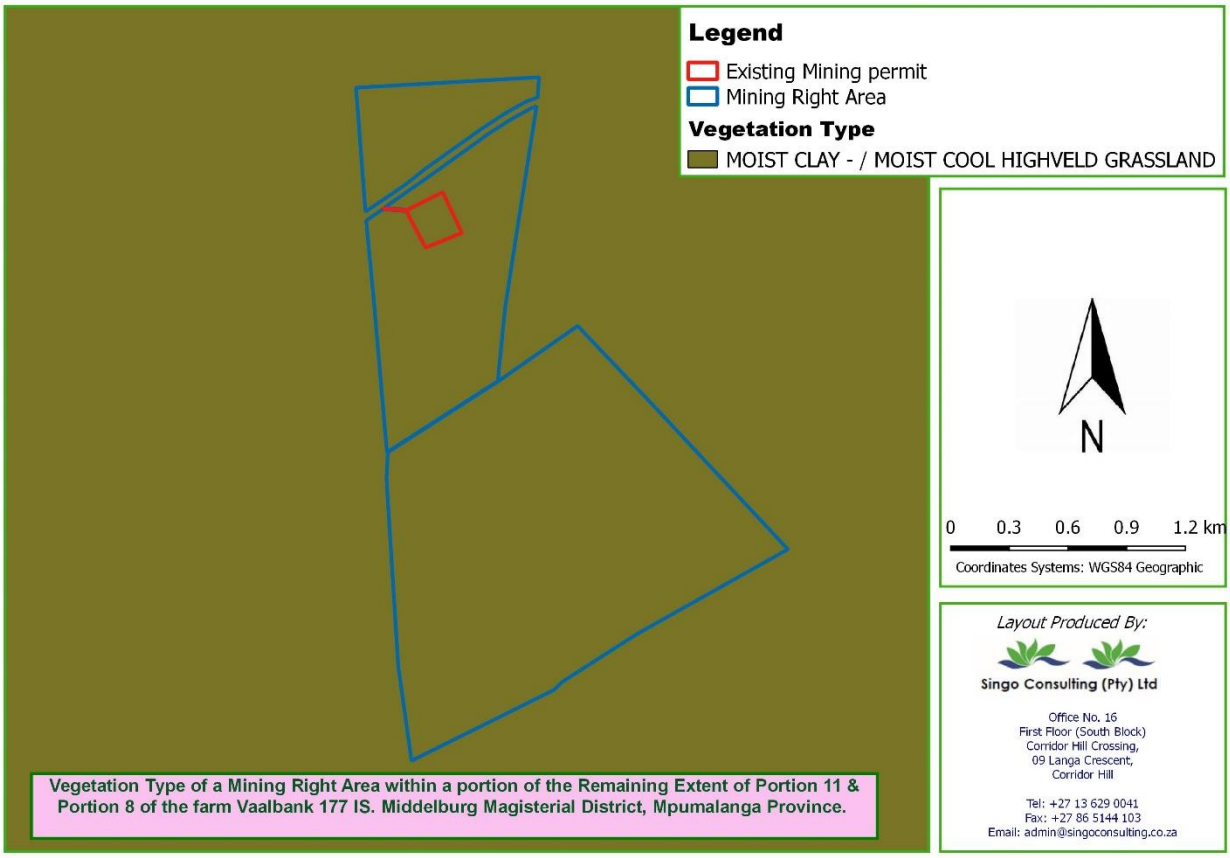

Figure 39: Onsite vegetation

The characteristics of each vegetation community are discussed in the following sections:

14.5.2.1 Cultivated/disturbed area

These areas are cultivated or used grazing of the land-owner's cows. At the boundaries of this vegetation community is a mixture of invasive, exotic plants, as well as pioneer and sub-climax indigenous grass species. Amongst these, common grasses noted include *Eragrostis curvula, Hyparrhenia hirta, Melinis repens* and

Panicum repens. Forb and herbs species include *Bidens pilosa, Datura stramonium, Tagetes minuta, Argemone Mexicana* and *Cosmos bipinnatus*.

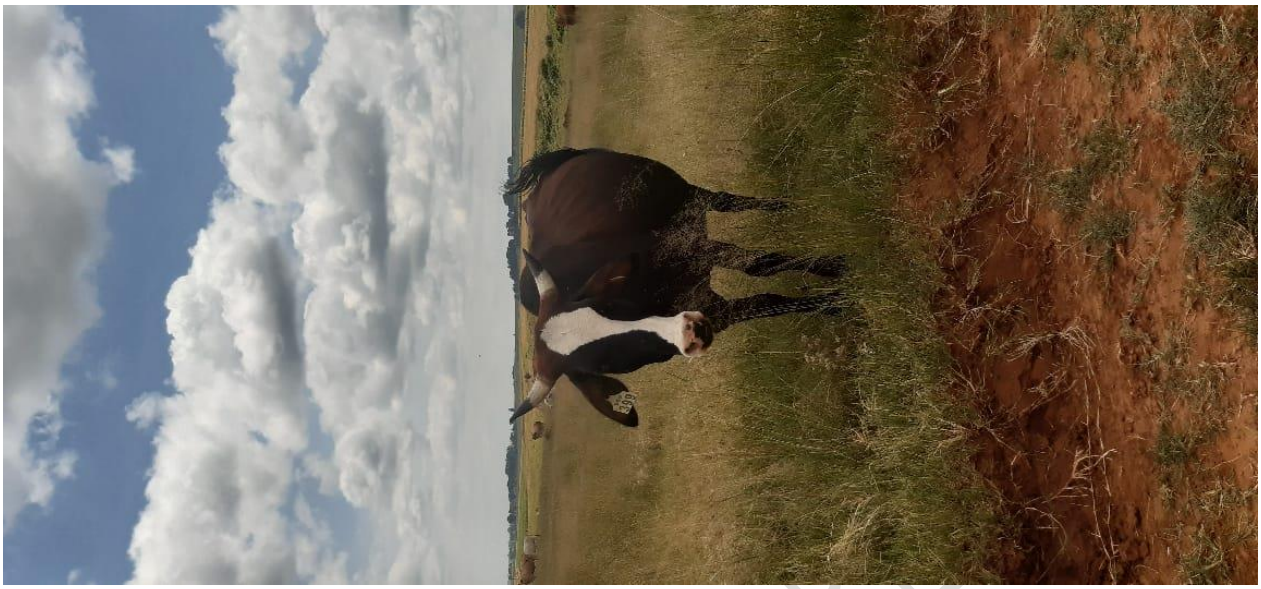

Figure 40: Grazing of for the land-owner's cow

14.5.2.2 Red data/endemic species

The Threatened Plant Species Programme (TPS) is currently revising all threatened plant species assessments made by Craig Hilton-Taylor (1996), using IUCN Red Listing Criteria modified from Davis et al. (1986). According to the TPS interim Red Data list of South African plant taxa, there are over 201 Red Data listed species within Mpumalanga Province, of which 14 species are Critically Endangered (CE), 19 Endangered (EN) and 59 are Vulnerable (VU). Although the project area is situated in an area that is currently been utilized mainly for crop cultivation and cattle farming, sufficient habitat for species of conservation significance do occur, specifically within the hydromorphic grasslands along the Klein Olifants River system. The following protected species have been recorded during the site visit:

- Eucomis autumnalis (Common Pineapple Lily) – Found within the Andropogon appendiculatus - Kyllinga erecta moist grassland.

- Crinum bulbispermum (Orange River Lily) – Found within the Andropogon appendiculatus - Kyllinga erecta moist grassland; Scirpoides burkei - Helichrysum aureonitens damp grassland; Sorghum versicolor - Monopsis decipiens and Fuirena pubescens - Centella asiatica wet grasslands.

- Gladiolus dalenii (African Gladiolus) – Found within the Tristachya leucothrix – Diospyros lycioides rocky outcrops

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• Disa woodii – Found within the Andropogon appendiculatus - Kyllinga erecta moist grassland and Fuirena pubescens - Centella asiatica wet grasslands. The following fern species were recorded within the Tristachya leucothrix – Diospyros lycioides rocky outcrops:

• Pellaea calomelanos;

• Cheilanthes quadripinnata;

• Blechnum austral;

• Cheilanthes viridis;

14.5.2.3 Vegetation associated with watercourses

This vegetation occurs along the wetland and drainage lines on site. Some of the plant species recorded include *Hemarthria altissima, Agrostis lachnantha, Arudinella nepalensis, Imperata cylindrical, Leersia hexandra, Sporobolus pyramidalis, Andropogon eucomus, Ischaemum fasciculatum, Paspalum distichum, Andropogon appendiculatus, Paspalum dilitatum, Paspalum scrobiculatum, Setaria sphacelata, Potamogeton thunbergii, Centella asiatica, Nymphoides thunbergiana, Watsonia densiflora, Cycnium tubulosum, Cyperus compressus, Cyperus denudatus, Cyperus laevigatus, Cyperus longus, Typha capensis, Isolepis sepulcralis, Pycreus nitidus, Kyllinga erecta, Eleocharis dregeana* and *Schoenoplectus corymbosus.*

Figure 41: Vegetation occurs along the wetland and drainage lines on site

Sensitivity aspects

- This vegetation unit in the study area has a high ecological functioning.

- The suitability of this community for red data/protected species is considered medium although no red data or protected species were recorded.
- The conservation importance of this community is considered medium to high. All the proposed buffer-zones as per the wetland assessment report should be considered to conserve this vegetation unit.
- Provides habitat for aquatic animals, as well as a water source for other animals.

Figure 42: Vegetation associated with watercourses onsite

Figure 43: Some of the Wetlands occurring on site

14.5.2.4 Natural/untransformed grassland

This vegetation covers approximately 55 to 60% of the site. Much of the natural habitat represented in the project area comprises untransformed grassland and occurs in areas where the grassland has never been disturbed. Dominant floral species in this community include *Eragrostis plana, Themenda triandra* and *E. racemose*. Other species include *Eragrostis lehmanniana, Aristida congesta, Melinis repens, Melinis nerviglumis, Alloteropsis semialata, Aristida junciformis, Cymbopogon pospischilii, Eragrostis chloromelas, E. gummiflua, Cynodon dactylon* and *Heteropogon contortus. Forbs* and *geophytes* are reasonably diverse and include species like *Helichrysum rugulosum, Hypochaeris radicata, Ipomoea oblongata, Acalypha villicaulis, Hilliardiella oligocephala, Indigofera hilaris, Eucomis autumnalis subsp. clavata* and *Ledebouria ovatifolia,* all of which were recorded scattered in the grassland.

Sensitivity aspects

- The open grassland has an ecological functioning of medium.
- The suitability of this community for red data/protected species is considered medium to high due to the presence of provincially protected plants.

Figure 44: Indication of the dry natural grassland still occurring on-site

14.5.3 Invasive alien plants

Declared weeds and invaders have the tendency to dominate or replace the herbaceous layer of natural ecosystems, transforming the structure, composition and function of natural ecosystems. Therefore, it is important that all these transformers be eradicated and controlled by means of an eradication and monitoring programme. Some invader plants may degrade ecosystems through superior competitive capabilities to exclude native plant species (Henderson, 2001).

According to the published Alien and Invasive Species regulations in terms of Section 97(1) of the NEM:BA, there are four categories of problem plants, namely:

- ***Category 1a****:* These plants are high-priority emerging species requiring compulsory control. All breeding, growing, moving and selling are banned.
- ***Category 1b****:* These plants are widespread invasive species controlled by a management programme.
- ***Category 2***: These plants are invasive species controlled by area. Can be grown under permit conditions in demarcated areas. All breeding, growing, moving, and selling are banned without a permit.
- ***Category 3***: These plants are ornamental and permitted on a property but may not be planted or sold.

Table 21 lists the alien species and the various NEM:BA categories for the alien species that have been recorded in the study. Their presence will have to be confirmed by a site walk-through (site survey).

Table 21: Alien species recorded in the study area

Scientific name	NEM:BA category
Acacia mearnsii	2
Agrimonia procera	1b
Amaranthus hybridus	
Bidens pilosa	
Datura stramonium	1
Hibiscus trionum	
Rumex acetosella	
Salix babylonica	2
Solanum elaeagnifolium	1b
Solanum nigrum	
Solanum sisymbriifolium	1b
Verbena bonariensis	1b
Xanthium strumarium	1b

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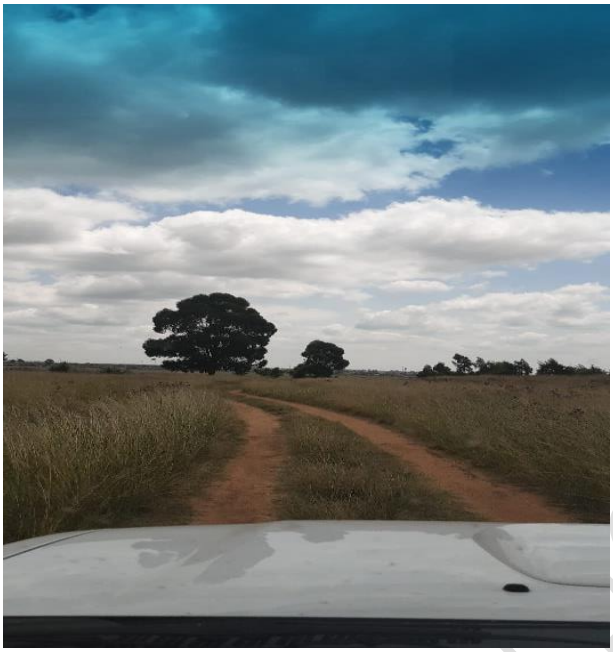

Figure 45: invader plant species recorded on site

14.5.4 Description of the CBAs

Critical Biodiversity Areas (CBAs) have terrestrial and aquatic landscape features that are critical in retaining biodiversity and supporting continued ecosystem functioning and services (SANBI, 2007). These form the key output of a systematic conservation assessment and are the biodiversity sectors inputs into multi-sectoral planning and decision-making tools.

The primary purpose of CBAs is to inform land-use planning and the land-use guidelines attached to CBAs' aim to promote sustainable development by avoiding loss or degradation of important natural habitat and landscapes in these areas and the landscape as a whole. CBAs can be used to inform protected area expansion and development plans. The use of CBAs here follows the definition laid out in the guideline for publishing bioregional plans (Anon, 2008):

- "Critical biodiversity areas (CBAs) are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses. "
- "Ecological support areas (ESA's) are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that

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support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for critical biodiversity areas."

The guideline for bioregional plans defines three basic CBA categories based on three high-level land management objectives.

Table 22: Framework for linking spatial planning categories (CBAs) to land-use planning and decision-making guidelines based on high-level land biodiversity management objectives

CBA category	Land management objective
PA & CBA 1	Natural landscapes: • Ecosystems and species fully intact and undisturbed. • These are areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern targets. If the biodiversity features targeted in these areas are lost, targets will not be met. • These are landscapes that are at or past their limits of acceptable change.
CBA 2	Near-natural landscapes: • Ecosystems and species largely intact and undisturbed. • Areas with intermediate irreplaceability or some flexibility in terms of area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising our ability to achieve targets. • These are landscapes that are approaching but have not passed their limits of acceptable change.
Ecological Support Areas (ESAs)	Functional landscapes: • Ecosystems moderately to significantly disturbed but still able to maintain basic functionality. • Individual species or other biodiversity indicators may be severely disturbed or reduced. • These are areas with low irreplaceability with respect to biodiversity pattern targets only.
Other Natural Areas (ONAs) and transformed Grassland	Production landscapes: manage land to optimise sustainable utilisation of natural resources.

According to the Mpumalanga conservation plan, the majority of the site is located in a disturbed area since cultivation is taking place on-site with the remainder of the site classified as a CBA. All-natural grassland, the rocky outcrop and vegetation associated with watercourses in the project area falls in CBAs according

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to the Mpumalanga Biodiversity Sector Plan (MBSP). These are the most sensitive habitats in the project area and represent areas where ecological impacts will be most significant. Sensitive areas will be buffered out and, as most of it is situated where coal is not present, these areas will be excluded to prevent negative ecological impacts. Terrestrial biodiversity assessments are expected to be performed by MPTA during consultation process undertaken by Singo Consulting (Pty) Ltd. According to records, no mining activities should be performed on critical biodiversity areas. As mining is a land use that compromise the biodiversity objectives of a priority biodiversity conservation area and not permissible.

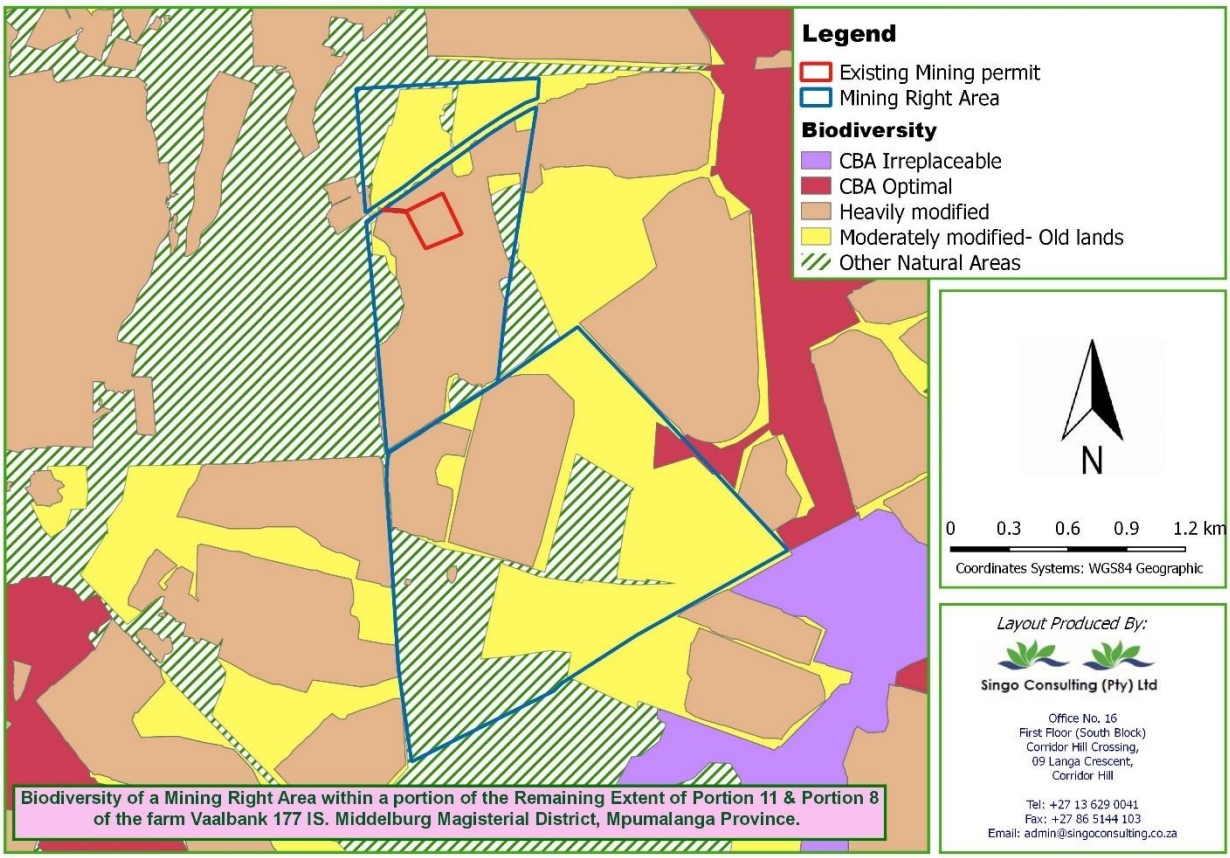

Figure 46: Sensitivity map

14.5.5 Mammals

This faunal survey focused mainly on the mammals and birds of the study area. The survey focused on the current status of threatened animal species occurring, or likely to occur in the study area, describing the available and sensitive habitats. Faunal data was supplemented by previous surveys conducted in similar habitats, literature investigations and historic data. Different habitats were explored to identify sensitive or endangered species. Mammal names are as used by Stuart and Stuart (1998), and Skinner and Chimimba (2005), and bird names are used as used by Hockey et al. (2005). *Amblysomus hottentotus, A.*

septentrionalis, Atilax paludinosus and *Potamochoerus larvatus* were previously recorded in the vicinity of the project area but were not confirmed during site assessment.

Table 23: Faunal species recorded during the site visit

Scientific name	Common name
Bos taurus	Cow
Cryptomys pretoriae	Highveld Mole Rat
Cynictis penicillata	Yellow Mongoose
Galerella pulverulenta	Small Gray Mongoose
Galerella sanguinea	Slender Mongoose
Lepus saxatilis	Scrub Hare
Procavia capensis	Rock Hyrax
Sylvicapra grimmia	Common Duiker
Struithio camelus	Ostrich

Figure 47: Cows grazing on site

14.5.6 Avi-fauna

Birds are good ecological indicators, since their presence or absence tends to represent conditions pertaining to the proper functioning of the ecosystem. Bird communities and ecological conditions are linked to land cover: as the land cover changes so do the types of birds in the area. The project area has the propensity to harbour red data bird species, but none were observed during the field surveys.

The desktop assessment indicates that about 136 bird species have been confirmed in the (Number of Quarter Degree Grid-Cells) QDGCs. The area considered during the desktop study is much larger than the area likely to be affected by the project. This approach is adopted to ensure that all species potentially occurring at the site, whether resident, nomadic, or migratory, are identified. Many avifaunal species are adaptable, as they are habitat generalists and can therefore accommodate a certain degree of habitat degradation and transformation (Harrison et al., 1997). Other species are extremely habitat-specific and rely on certain habitat units for breeding, hunting or foraging and roosting. It is the survival of these species that become threatened as they cannot adapt to changes to the habitat. Habitat-specific species are sensitive to environmental change, with destruction of habitat being the leading cause of species decline worldwide (Barnes, 2000).

It is widely accepted that vegetation structure, rather than the actual plant species, influences bird species' distribution and abundance (Harrison et al., 1997). The vegetation description used in the Bird Atlas does not focus on lists of plant species, but rather on factors relevant to bird distribution.

Alopochen aegyptiaca, Anas erythrorhyncha, Anas smithii, Anas undulata, Dendrocygna bicolor, Netta erythrophthalma, Oxyura maccoa, Plectropterus gambensis, Thalassornis leuconotus, Scleroptila levaillantii, Pternistis swainsonii, Pternistis natalensis, Coturnix, Numida meleagris and *Bubulcus ibis* are some of the bird species that are expected on site and area. Full ecology study will be presented during the EIA phase.

Figure 48: Ostrich found on the cultivated area

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15 SOILS, LAND USE AND LAND CAPABILITY

The project falls under soil type or association with class 1 to 4, namely undifferentiated structureless soil as stated in the soil classification map. Soils or lands with low to poor potential will be considered on the project and soils with high potential for agricultural activities will be preserved. The dominating land-use on-site is cultivation (Maize), soya beans and waterbodies. The land is capable for agricultural and mining activities. See Figure 49 and 50.

Figure 49: On-site land uses

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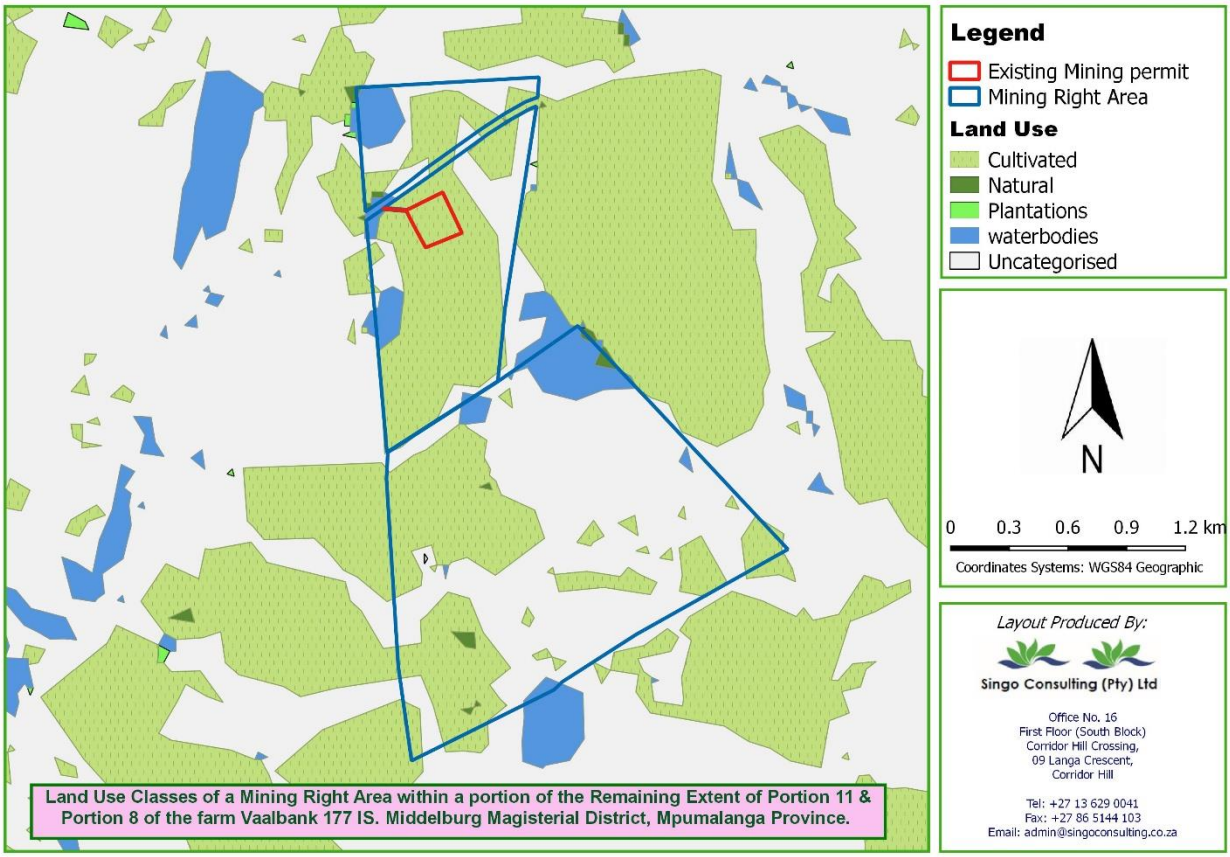

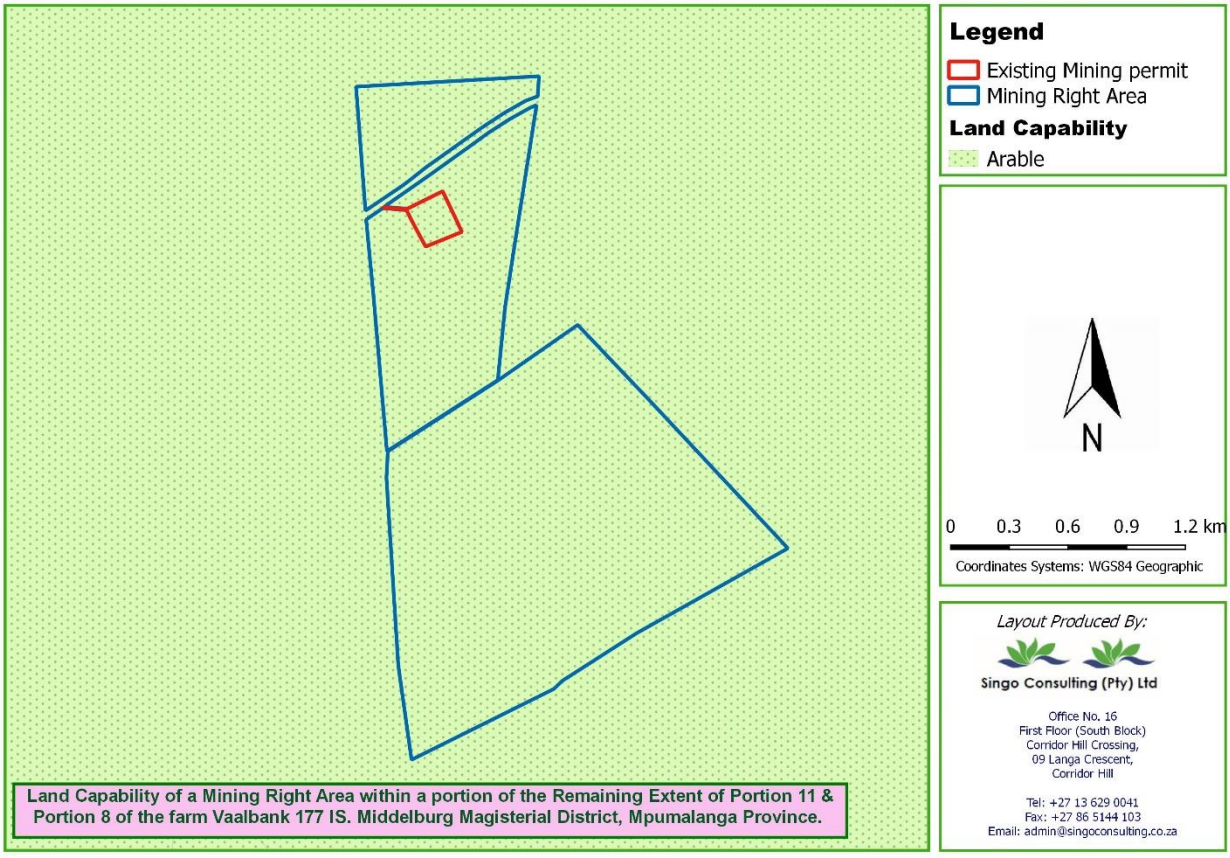

Figure 50: Land use and capacity on site

16 HERITAGE STUDY

16.1 Historical background

Singo consulting (Pty) Ltd will appoint a specialist to conduct heritage impact assessment for Vaalbank 177 IS, Portions 08 and 11. According to a desktop study, historical sites, including farming and mining sites, occur in the study area. The farming-related sites usually consist of farmsteads and farm cemeteries, either belonging to the landowners or their labourers (Pistorius 2006). Historical mining sites that exist in the broader study area include old Albion Colliery north-east of the study area, dating back to the 1940s (Van der Walt 2014).

The Late Iron Age Nguni communities engaged in the Indian Ocean Trade, exporting ivory and importing consumables like cloth and glass beads. The exporting point was Delagoa. This brought the Nguni-speaking community in touch with the Indo-Asian and first Europeans (Portuguese). With the arrival of the Dutch and the English traders who opened Delagoa Bay to more trade, the Nguni started engaging in extensive trade with the international traders (Huffman 2007). From the late 1700s, trade in meat to passing ships had increased substantially and by 1800 the meat trade is estimated to have surpassed the ivory trade. At the same time, the population was booming following the increased food production that introduced maize, which became the staple food. Naturally, there were signs that population groups had to compete for resources, especially along the eastern coastal regions. The KwaZulu-Natal coastal region has a special place in the history of the region and country at large.

This time was known as the Mfecane (wandering hordes) period, which came with tremendous insecurity and military stress, which eventually affected the entire Southern Africa, including modern-day Mpumalanga. Around the 1830s, the region witnessed the massive movements associated with the Mfecane. The causes and consequences of the Mfecane are well-documented elsewhere (e.g. Hamilton 1995; Cobbing 1988). In this context, new African kingdoms emerged, such as the Zulu Kingdom under Shaka in the second quarter of the 1800s AD. Military pressure from Zululand spilled onto the highveld by 1821 and various marauding groups of displaced Sotho-Tswana moved across the plateau in the 1820s. Mzilikazi raided the plateau extensively between 1825 and 1837. During the Difaquane, they fled to the south from the Ndebele of Mzilikazi, who established several settlement complexes in the Eastern Bankveld between Pretoria and Witbank (Bergh 1999: 10-11; 109).

Ethnographical and linguistic studies by early researchers like Ziervogel, Theal and Van Warmelo shed light on the cultural groups that have been living in the area since ca 1600. Historic and academic sources by Küsel and Bergh and Makhura and Webb were consulted.

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16.2 SAHRIS database and impact assessment reports in the proposed project area

Several archaeological and heritage studies were conducted in the broader project area and its vicinity since 2002; these studies investigated the nature and heritage of the area. Heritage Impact Assessments (HIA) were conducted in the Ermelo area, with Van Wyk Rowe (2014) conducting an impact assessment of Portion 2 of farm Langverwacht 293 in Ermelo.

This HIA discovered unmarked graves which Joseph Madonsela, a worker at the farm, pointed out to the archaeologist (this proves the importance of consultations when conducting fieldwork). No other archaeological sites were recorded in the study area. Roodt (2012) conducted an impact assessment for the proposed Overvaal coal mining in farms Vlakfontein 266 IT, Weltevreden 289 IT, Mooiplaats 290 IT, Adrianople 296IT and Buhrmansvallei 297 IT in Ermelo. The assessment discovered features associated with historic farming activities. Celliers (2013) conducted a phase 1 impact assessment on portion 22 of the farm Witpunt 267 IT in Ermelo. The survey yielded graves and farm worker dwellings, but no archaeological material was recorded.

G and Heritage Consultants (2011) conducted a study for the proposed extension of the Camden Ash Disposal facilities in Ermelo. The study recorded graves in the study area, but no archaeological signatures were detected. Another consultant, Digby Wells Environmental (2013), conducted surveys in a number of farm portions for the proposed Kusipongo Resource Mining Project in Ermelo. The study recorded graves, as well as stone walls that were deemed of very low significance. Jaco van der Walt (2014) conducted a study at Highveld Haven filling station close to Ermelo. No archaeological sites were detected, but a cemetery was recorded.

16.3 Intangible heritage

As defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003), intangible heritage includes oral traditions, knowledge and practices concerning nature, traditional craftsmanship and rituals and festive events, as well as the instruments, objects, artefacts and cultural spaces associated with group(s) of people. Thus, intangible heritage is better defined and understood by the particular group of people that uphold it. In the present study area, very little intangible heritage is anticipated on the development footprint because most historical knowledge does not suggest a relationship with the study area, even though many places in the general area do have intangible heritage.

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16.4 Results of the field study

Impacts to archaeological sites are generally direct, physical disturbances of the archaeological remains and their contexts. It is important to note that the heritage and scientific potential of an archaeological site depends on its geological and spatial context. This means that even though, e.g. a deep excavation may expose buried archaeological sites and artefacts, the artefacts are relatively meaningless once removed from their original position. Severe impacts are likely to occur during clearance, construction of access roads and other amenities for the mine, as well as foundation laying of buildings. Indirect impacts may occur during movement of mining equipment and vehicles. The excavation and clearance of top soil will result in the relocation or destruction of all existing surface heritage material.

The clearing of access roads will impact material that lies buried beneath the surface. Since heritage sites, including archaeological sites, are non-renewable, it is important that they are identified, and their significance assessed prior to mining. Due to the localised nature of archaeological resources, individual archaeological sites could be missed during the survey, although the probability of this is very low in the proposed mining right application sites.

Archaeological sites and unmarked graves may be buried beneath the surface and only be exposed during mining. The purpose of the AIA is to assess the sensitivity of the mining right application area in terms of archaeology and heritage as well as to avoid or reduce the potential impacts of the proposed mining development by means of mitigation measures. The study conducted for the site in question found that the impacts to archaeological resources will be negligible since the site has previously been cleared for corn fields and associated infrastructure, like irrigation infrastructure and farm roads. The following section presents the results of the field survey.

16.4.1 Archaeological heritage sites

Previous Phase 1 AIA and HIA studies conducted around the project area (e.g Mlilo 2019) highlight the potential for recovering LIA sites, especially in the Carolina area, which has potential to yield significant archaeological and cultural heritage resources. However, the proposed mining right application site did not yield any confirmable archaeological sites or material. Some sections of the affected landscape are heavily degraded from previous and current land use, including agriculture and associated infrastructure.

The proposed mining right site is located in a heavily disturbed landscape characterised by approximately 85% of the land being ploughed and 15% or less being used for livestock grazing, with few patches of thick bushes, farm tracks, power lines, farm dwellings and farm worker dwellings. This limited the chances of encountering significant *in situ* archaeological sites to be preserved. As such, the proposed mining

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development will be an additional development in the project area. It is the considered opinion of the authors that the chances of recovering significant archaeological materials has seriously been compromised and limited due to destructive land use patterns, like deep ploughing, road works and farm infrastructure, as well as dwellings that exist on the project area.

Based on the field study results and observations, the authors conclude that the receiving environment for the proposed mining development has a low to medium potential to yield of previously unidentified archaeological sites during subsurface excavations and construction work associated with the proposed mining development. In addition, the proposed mining development will not alter the entire land applied for this mining right. It should be noted that the lack of confirmable archaeological sites should rather be seen as a lack of research in the area and not as an indication that such features do not occur.

16.4.2 Burial grounds, graves and farm steads

Human remains and burials are commonly found close to archaeological and historical sites; they may be found in abandoned and neglected burial sites or occur sporadically anywhere as a result of prehistoric activity, conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Archaeological and historical burials are usually identified when they are exposed through erosion and earth-moving activities or infrastructure developments like powerlines and roads. In some instances, packed stones or stones may indicate the presence of informal pre-colonial burials.

The field survey recorded a cemetery closer to the boundary of portion 11. The site in portion 08 is associated with an existing historical farm stead. The burial site is located closer to the proposed mining right application site (see Figure 51 and 52). The cemetery is fenced with some graves well-secured by a sandstone block wall and others not well secured, however all have a mark of remembrance for the families. The farmhouse is vernacular architecturally done. The cemetery area(Land) was donated by Mr John Lloyd who is the landowner of the farm in question and the cemetery now belongs to the Community of Kwa-Zamokuhle.

The images displayed in the following figure are:

- Burial site.
- Fence of the Cemetery.
- Farmhouse in the vicinity of portion 11.
- Farmhouse in the vicinity of portion 08.

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Figure 51: Graves and farm steads encountered.

17 SOCIAL ASPECTS

The study area is located in Ward 03 of the Steve Tshwete Local Municipality (ALLM) within Nkangala District Municipality (NDM), Mpumalanga. The demographics, households, economics, education and service delivery aspects for Ward 21 are discussed in the following to provide a background of the area and initial insights for the socio-economic assessment that will be done and be presented in the EIA phase. The information was obtained from Statistics South Africa (Census, 2011) and Municipal Integrated Development Plan (IDP).

The socio-economic analysis is based on a desktop study of existing socioeconomic information and development strategies contained in the governmental national, regional and local databases (Statistics South Africa).

- ❖ Introduction

Critical the development of the 2017-22 IDP was to first understand the current Steve Tshwete's population, its relevant demographics as well as the anticipated trends in development for the 2017-2022 financial year.

- ❖ Population Profile

Statistical Premise The data used in this review of the analysis phase of the IDP was obtained from Statistics South Africa and the Municipal Demarcation Board.

- ❖ Population Size

It is imperative to note that population growth statistics was taken into consideration throughout the IDP planning processes of the municipality. Specific reference is made to the latest 2016 Community Survey in comparison to the Census 1996, 2001, 2007 Community Survey and 2011 Census in order to see the trend.

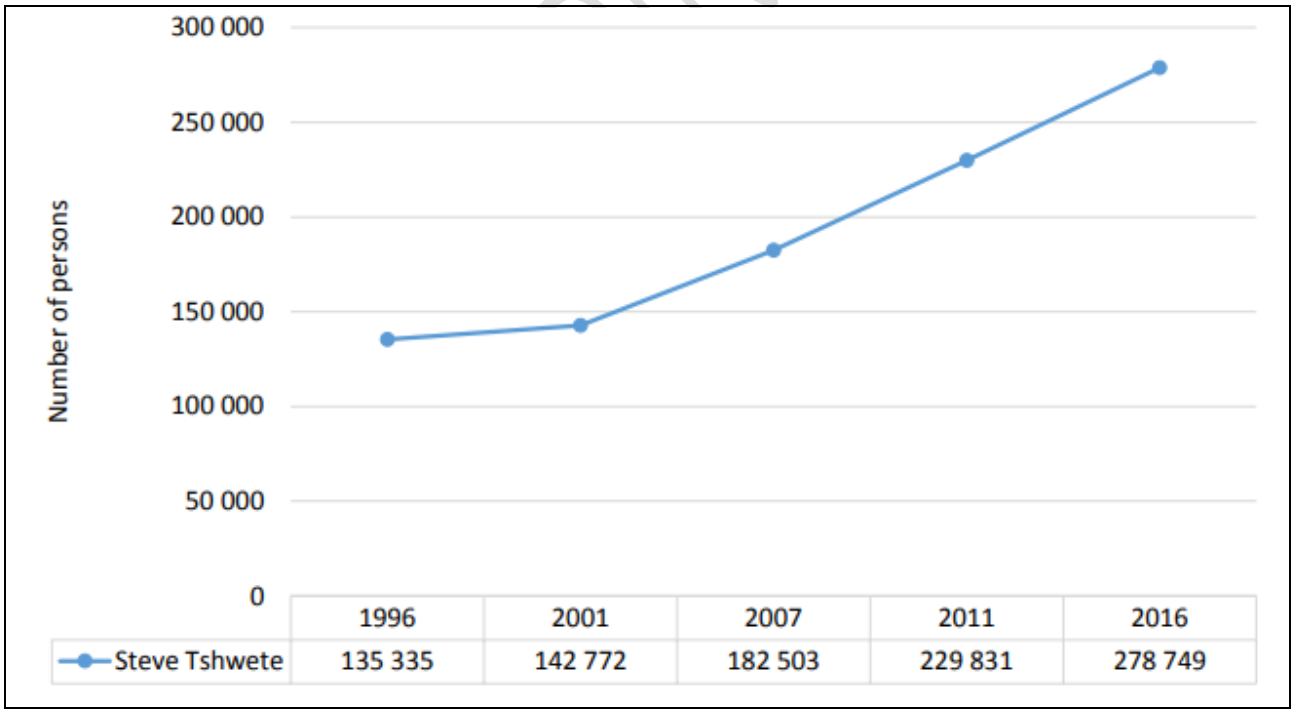

Figure 52: Population size of Chief Steve Tshwete (Source: Chief Steve Tshwete 2019 – 2020 Final IDP)

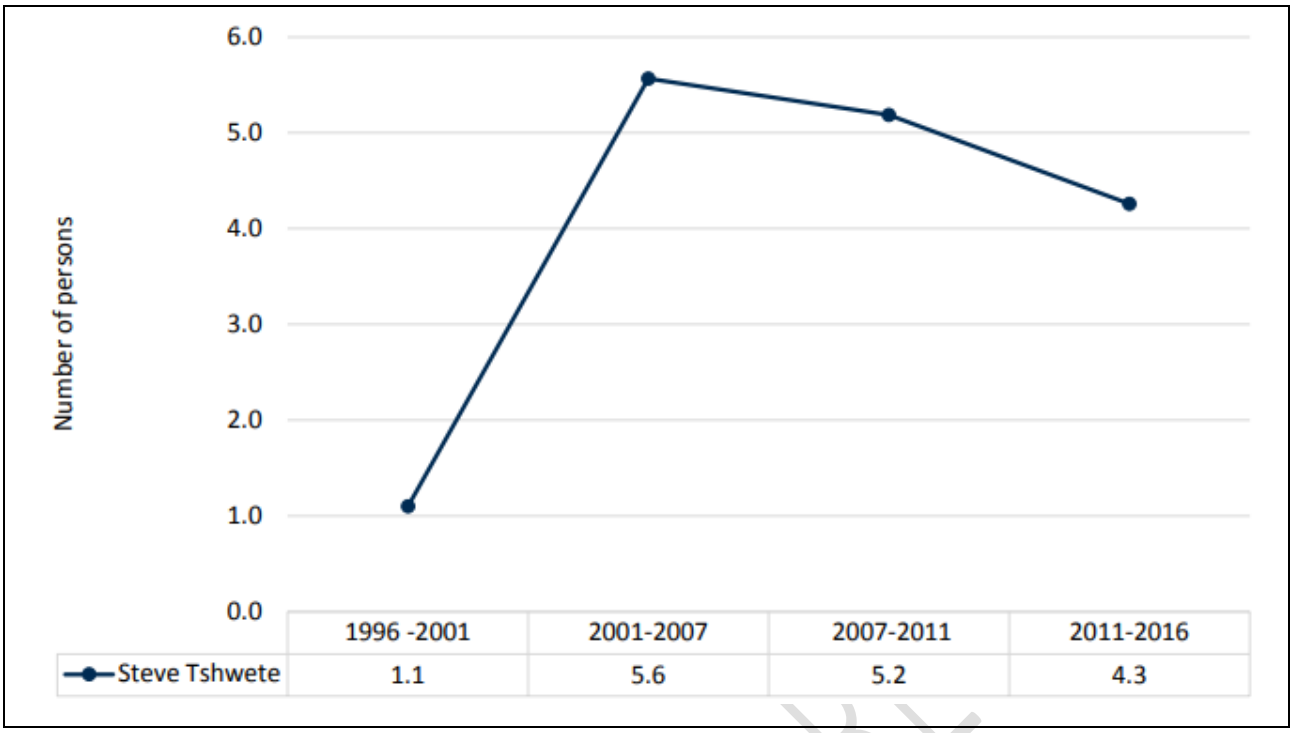

Figure 53: Population Growth Rate (%). (Source: Chief Steve Tshwete 2019 – 2020 Final IDP)

The figure 52 and 53 indicate that Steve Tshwete is increasingly under pressure due to population growth. In 2016, the total population in Steve Tshwete was 278 749. Population grew by 4.4 %. Over the nine-year period from 2007 to 2016, STLM's population increased by 9.7%. In 2016, the municipality ranked the 7th largest population in the province and 19.3% of total population of Nkangala as per the 2016 community survey. This could be attributed to the number of industries that were opened within the 10 years (2001-2011) that attracted workers into Middelburg. It is estimated that the population number for 2030 will be at more or less 509 000 people given the historic population growth per annum which will put pressure on the infrastructure and basic service delivery and eventually also sustainable job creation in the long run. (Chief Steve Tshwete 2019-2020 Final IDP).

17.1 Population Distribution

Population distribution is the arrangement or spread of people living in a given area according to variables such as age, race, or sex.

- Race

African/ black population continues to constitute the highest group followed by the white population since 1996 to date. Asian and coloured population constitute the minor population group.

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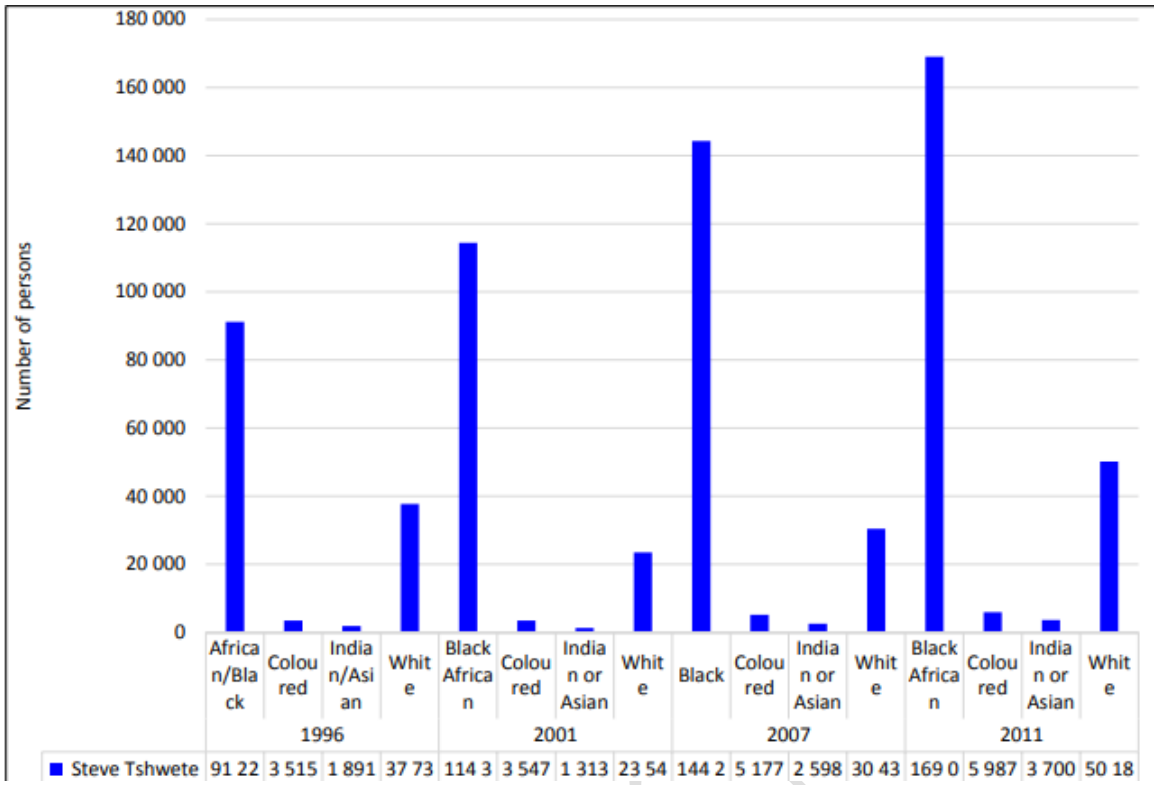

Figure 54: Population Group 1996, 2001 and 2011 (Source: Chief Steve Tshwete 2019 – 2020 Final IDP)

❖ Sex Ratio

The male population in Steve Tshwete is higher than female population in Steve Tshwete. Such an age structure is observed in population that attracts migrants due to lucrative employment opportunities. There are manufacturing, industrial and mining companies in Steve Tshwete that attract people from across the country and other African countries. According to the Census 2011 migration data, STLM attract people, particularly from Limpopo (8%), Gauteng (7%), KwaZulu Natal(4%) and regionally(4%).

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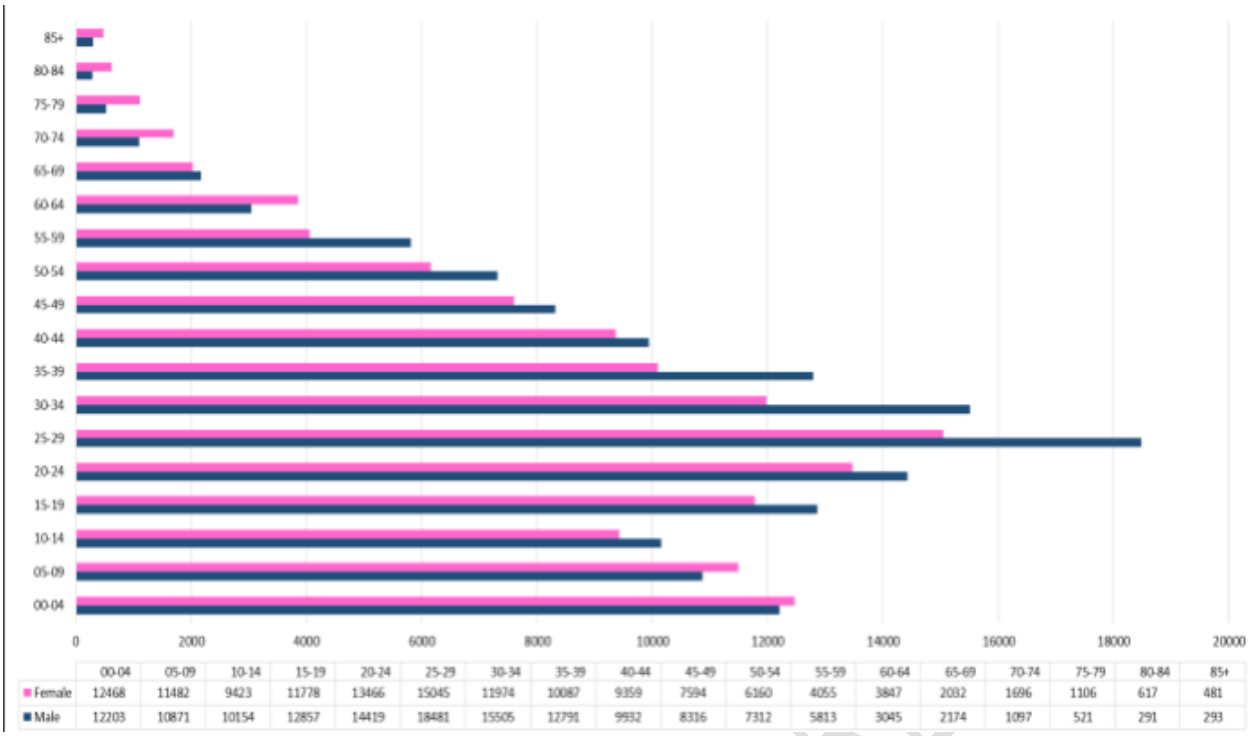

	00-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Female	12468	11482	9423	11778	13466	15045	11974	10087	9359	7594	6160	4055	3847	2032	1696	1106	617	481
Male	12203	10871	10154	12857	14419	18481	15505	12791	9932	8316	7312	5813	3045	2174	1097	521	291	293

Figure 55: Sex ratio 1996, 2001 and 2011 (Source: Chief Steve Tshwete 2019 – 2020 Final IDP)

❖ Age

It is highlighted in the pyramid that a significant portion of the population growth is between 20 and 34 cohort as well as the infants (0-4 cohort). In reference to figure 56 below, the most populous age group in 2016 were between ages 25 to 29. This could be the result of people migrating to the municipality seeking job opportunities as Steve Tshwete is considered to be one of the economic hub of Mpumalanga and is often the preferable choice of destination by job seekers across Mpumalanga Province. Figure 7 indicates that the Youth population (15-34 years) constitute about 40.7% of the total population and the share of the male population in 2016 according to the CS was 52.4% and females 47.6%.

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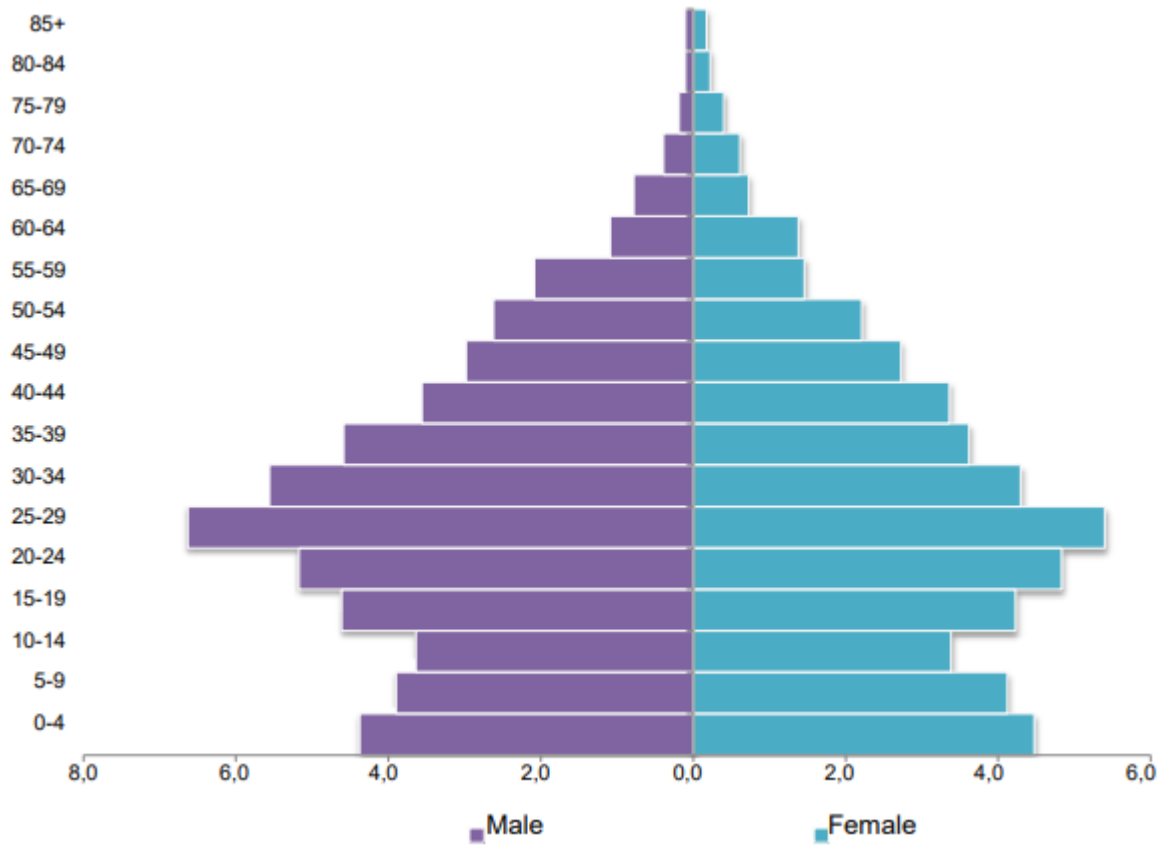

Figure 56: Distribution of Population by Age and Sex in 2016.

❖ Educational Attainment

In terms of education, the majority of the population of the municipality have some form of education with only 14.4. % of the population having no schooling as depicted in the diagram below (Census 2011). According to the 2016 Community Survey, the population in Steve Tshwete aged 20+ completed grade 12, increased from 73 793 in 2011 to 97 943 (increase of 24 150) in 2016 which translate to an increase of 32.7% in the relevant period. Steve Tshwete's grade 12 pass rate improved from 74.4% in 2011 to 86.3% in 2015 and became the 2nd highest of the municipal areas of the Province. The area achieved an admission rate to university/degree studies of 30.5% in 2015. In 2016, 22.9% grade 12s obtained admission to university/degree studies. A joint effort is needed between the municipality, department of education and private sector to ensure that the 66.3% learners who did not qualify for university admission get accommodated in other institutions such as TVET colleges and technikons.

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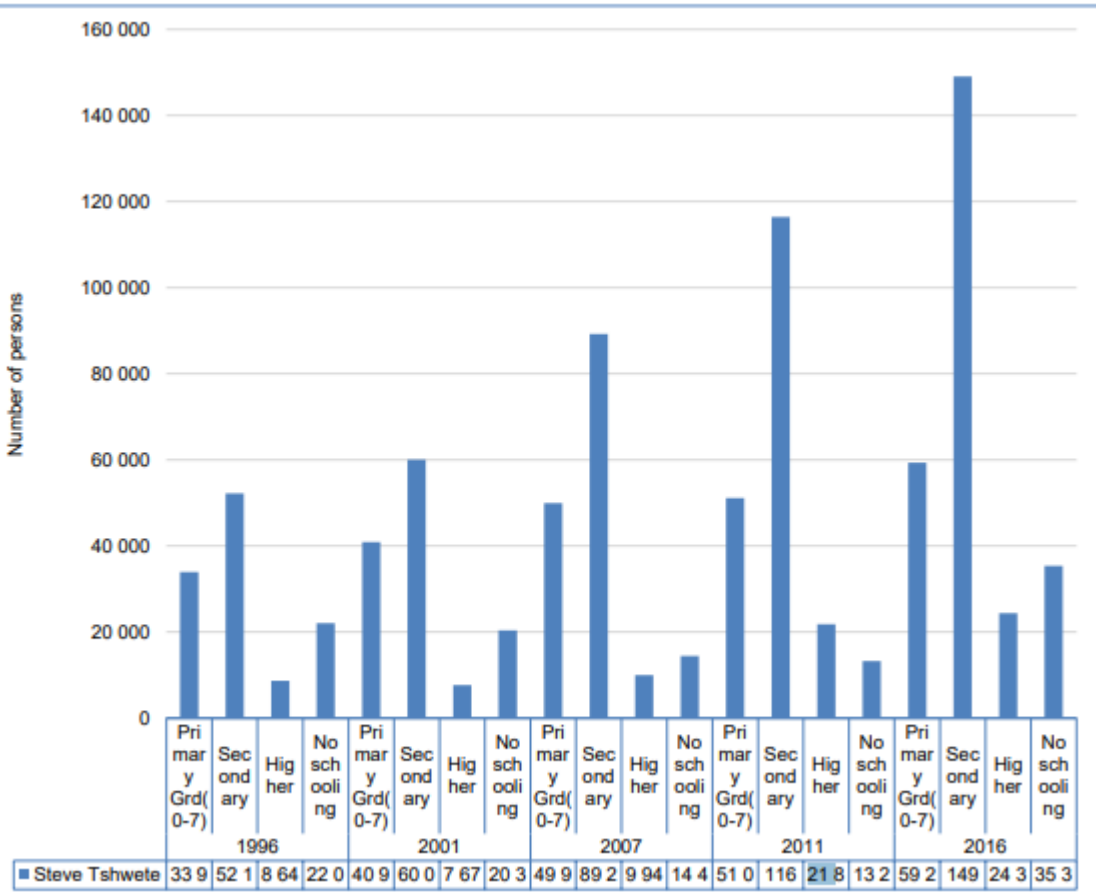

Figure 57: Highest Educational attainment (20+ years)

17.2 Socio Economic Analysis

The socio-economic analysis is specifically aimed at spatial related matters, i.e. employment, income and economic profile. This analysis is based on a municipal level to give a broader overview of the Municipality.

17.2.1 Poverty and Inequality

In the last ten years the municipality has made huge investments in infrastructure and housing development as a result of that, poverty and inequality has been decreasing steadily. However, the current rate of unemployment and poverty are key factors contributing to high inequality levels.

Table 24: Poverty in Steve Tshwete 2001, 2011 and 2016

INDICATORS	2001	2011	2015
Poverty rate	31.6%	25.9%	21%
Number of people in poverty	48 865	59 929	53 567
Poverty gap (R million)	R54	R110	R575

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According to the 2016 Community Survey of StatSA, the poverty headcount of Steve Tshwete increased from 4.3% in 2011 to 5.1% in 2016 which then made the municipality to be 4th lowest in the Province however the poverty intensity decreased slightly from 42.0% to 41.7% in the same period. In 2015, Steve Tshwete's share of population below the lower-bound poverty line was the 2nd lowest (favourable) among the municipal areas.

17.2.2 Human Development Index

Human Development Index (HDI) is defined as a standard measure of determining whether an area is developed, developing and developed. According to the SERO 2013 report, the HDI of the municipality was 0.70 in 2012. The predetermined life expectancy in South Africa is 65 and as a result that confirms the decline of the population group between the ages 65 and 85+ as depicted in the pyramid (figure 1). On the other hand, the high death rate within these population groups could be attributed to the top ten leading causes of death as listed by the STATS SA 2011, namely, influenza and pneumonia, other external causes of accidental injury, Tuberculosis, Intestinal infectious diseases, other forms of heart disease, Cerebrovascular diseases, Ischaemic heart diseases, Chronic lower respiratory diseases, Human immunodeficiency virus [HIV] disease, Diabetes mellitus.

- Social Grants

The table below shows the number of beneficiaries of social grants as per April 2018. Youth is generally not targeted by South Africa's social welfare system. Child Grants followed by the old age grants were the highest pay-outs for the department while R303 837 was paid out to Disablity Temporary Period.

Table 25: Social Grants Beneficiaries (April 2018)

NUMBER OF ACTIVE GRANTS PER LOCAL MUNICIPALITY PER GRANT TYPE		
Grant Type	**Total**	**Amount Paid**
Care Dependency Grant	481	R817 700
Child Support Grant	38 295	R15 700 950
Disability Grant	2 676	R4 549 200
Foster Care Grant	1 327	R1 273 920
Grant-In-Aid	231	R94 710
Old Age Grant	11 009	R18 768 460
Total	**54 019**	**R41 204 940**

Department of Social Security Agency, 2019

- Employment

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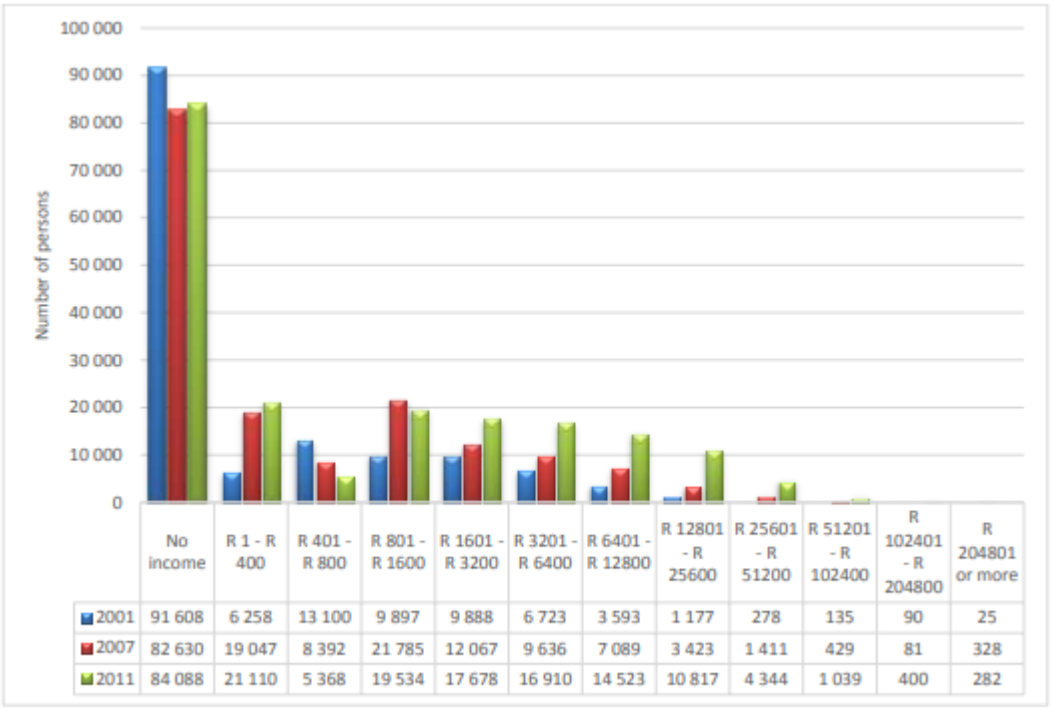
Steve Tshwete economy is one of the biggest economic areas and it is therefore expected that a significant number of employment opportunities are being provided in the area. Mining, trade and manufacturing are the major leading employment drivers in Steve Tshwete LM. The unemployment rate of Steve Tshwete decreased slightly from 19.7% in 2011 to 16.4% in 2015 and was the lowest among all the municipal areas of Mpumalanga. Unemployment rate for females 21.8% and that of males 12.9%.Youth unemployment rate according to the 2011 Census figures 27.1% - challenge with especially very high youth unemployment rate of females. The largest employing industries in Steve Tshwete are trade (including industries such as tourism), community/government services and mining. High labour intensity in industries such as agriculture, trade and construction.

Activity	Percentage of Employment	
	2001	2011
Mining	16.5%	22.7%
Trade	19.4%	22.6%
Community Services	12.7%	12.7%
Agriculture	9%	5.6%
Private Households	8.1%	7.2%
Construction	5.5%	6.7%
Finance	5.3%	6.75
Transport	3.5%	3.1%

Figure 58: Percentage of Employment

❖ Individual Income

According to the census, the number of people without an income has decreased from 91608 to 84088 between 2001 and 2011. The majority (63690) of Steve Tshwete individual earn within the R1-R 3200 followed by about 47 633 individuals who earn from R3200-R102 400 in 2011 There has been an increase This could be attributed to the number of mines and manufacturing industries located in STLM. Individual income distribution in Steve Tshwete is detailed in the table below:



	No income	R 1 - R 400	R 401 - R 800	R 801 - R 1600	R 1601 - R 3200	R 3201 - R 6400	R 6401 - R 12800	R 12801 - R 25600	R 25601 - R 51200	R 51201 - R 102400	R 102401 - R 204800	R 204801 or more
2001	91 608	6 258	13 100	9 897	9 888	6 723	3 593	1 177	278	135	90	25
2007	82 630	19 047	8 392	21 785	12 067	9 636	7 089	3 423	1 411	429	81	328
2011	84 088	21 110	5 368	19 534	17 678	16 910	14 523	10 817	4 344	1 039	400	282

Source: Statistics South AfricaCensus 2001 and 2011

Figure 59: Individual income distribution in Steve Tshwete 2001 and 2011

- Household income

According to Census 2011, the average annual household income increased from R 55 369 per annum in 2001 to R134 026 per annum in 2011. This represents an absolute increase in nominal terms over the 10-year period, which was the highest among the eighteen local municipalities in the province. This is closely related to its higher education levels and employment rates.

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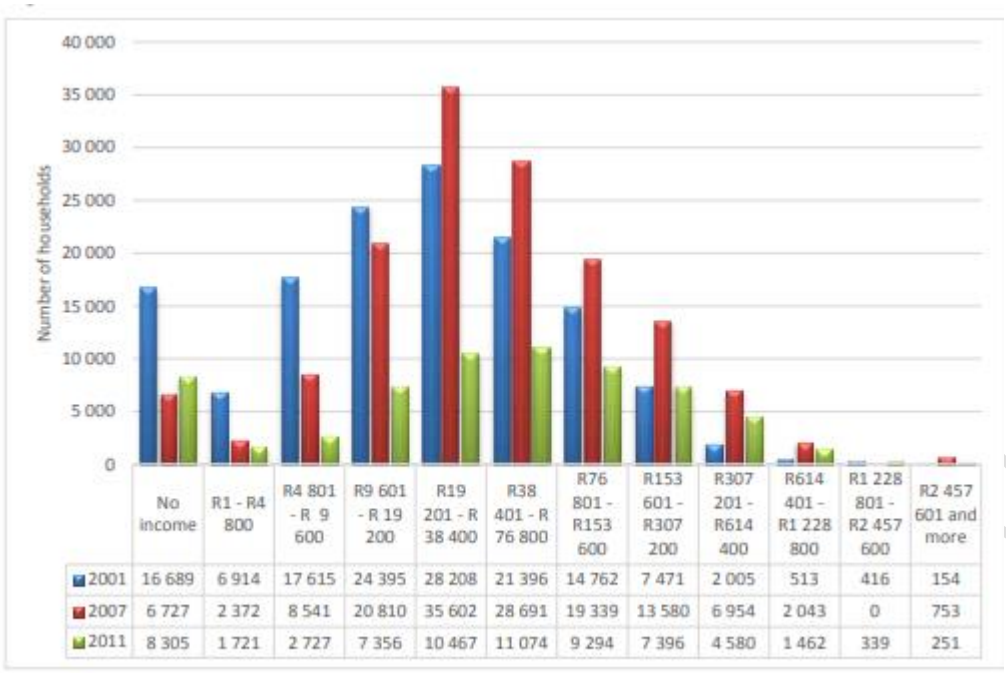

	No income	R1 - R4 800	R4 801 - R 9 600	R9 601 - R 19 200	R19 201 - R 38 400	R38 401 - R 76 800	R76 801 - R153 600	R153 601 - R307 200	R307 201 - R614 400	R614 401 - R1 228 800	R1 228 801 - R2 457 600	R2 457 601 and more
2001	16 689	6 914	17 615	24 395	28 208	21 396	14 762	7 471	2 005	513	416	154
2007	6 727	2 372	8 541	20 810	35 602	28 691	19 339	13 580	6 954	2 043	0	753
2011	8 305	1 721	2 727	7 356	10 467	11 074	9 294	7 396	4 580	1 462	339	251

Source: Statistics South AfricaCensus 2001 and 2011

Figure 60: Household Income 2001, 2007, 2011

❖ Health

When examining issues of health, statistics show that the number of people with HIV has begun to increase since 2010. HIV/AIDS has a devastating effect on the social and economic development of Steve Tshwete's population and Council will therefore persist with its efforts in this area. Thus Council has adopted an HIV/AIDS Strategy which is in line with the National and Provincial Framework.

✓ HIV/ AIDS Prevalence

HIV and AIDS is one of the biggest challenges the country is facing. The rate of infection is rapidly increasing and more and more people are getting ill and dying from AIDS. According to the 2013 Antenatal Care Survey, HIV prevalence rate has decreased from 52%- 43%. This positive change can be attributed to the active Aids Council, vagorous HCT compaigns and community awareness (see figure 8). HIV/AIDS has a devastating effect on the social and economic development of Steve Tshwete's population and the Council in collaboration with various stakeholder will continue to maximize its efforts in this area, in order to ensure that prevalence rates decreases.

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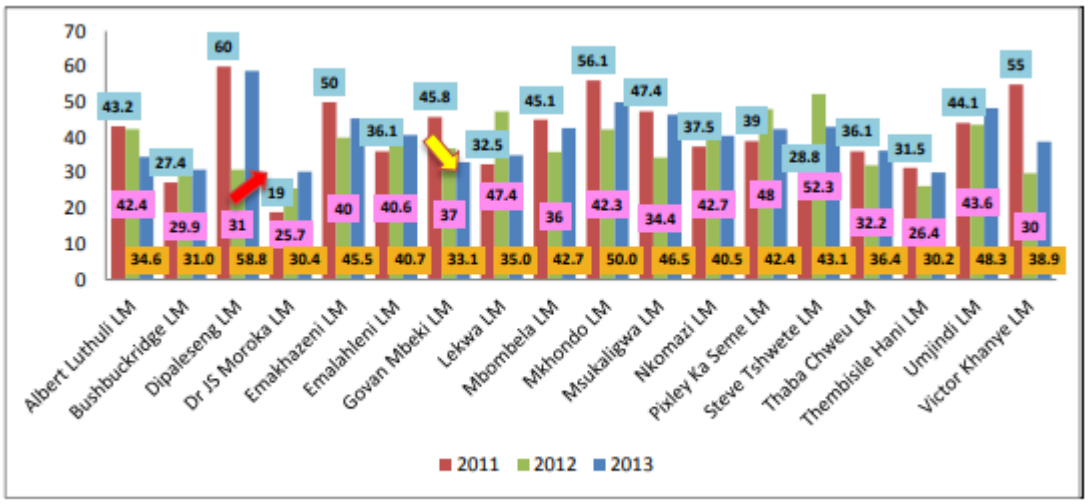


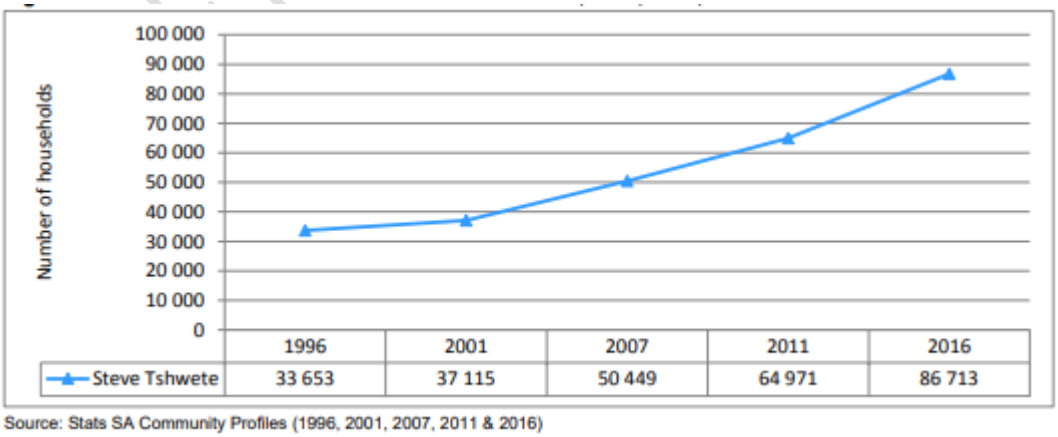
Source: 2013 Antenatal Care Survey

Figure 61: HIV Prevalence by Sub-district: 2011-13.

17.2.3 Household (HH) Profile and Services

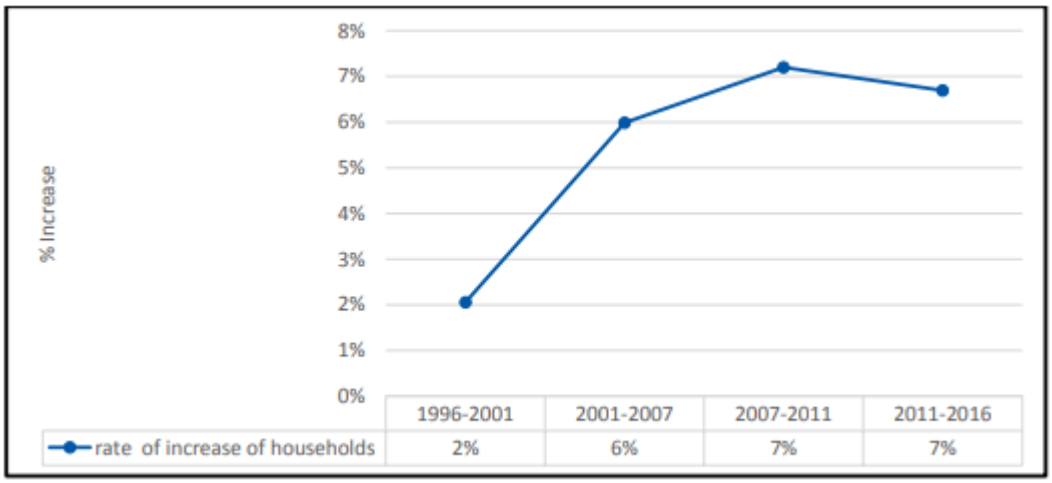
✓ Number of households

The constitution of South Africa states that all municipalities must construct and maintain a range of infrastructure that facilitates local economic activity and creates an enabling environment for economic growth. The following infrastructure categories are amongst the key within the municipality; water and sanitation, waste and electricity. The municipality provide services at household level rather than individual level. The number of households in Steve Tshwete increased from 64 971 in 2011 to 86 713 households (almost 22 000 households increase) in 2016 representing 20.6% of the Nkangala household figure. The household size declined from 3.5 to 3.2 in the same period.



Source: Stats SA Community Profiles (1996, 2001, 2007, 2011 & 2016)

Figure 62: Number of Households in Steve Tshwete 1996, 2001, 2007, 2011 and 2016.



Source: Stats SA Community Profiles (1996, 2001, 2007, 2011 & 2016)

Figure 63: Rate of Increase of Households

✓ Access to Household Services

Steve Tshwete Local Municipality has made great strides in providing this basic service to its communities. The table below reflect the progress made:

Table 26: Households with Access to Services 2011 and 2016

BASIC SERVICES	2011	2016
% of households with flush or chemical toilets	86.8%	81.9%
% of households with connection to piped (tap) water: on site & off site	98.2%	85.4%
% of households with electricity for lighting	90.8%	90.1%
% of households with weekly municipal refuse removal	84.7%	85%

Source: Stats SA Community Profiles (2011 & 2016)

17.2.4 Water and sanitation

Even though Access to water and sanitation remains fairly high in STLM, due to households increase between 2011 and 2016, the percentage of households with water and sanitation has decreased. The 2016 Community survey reveals that, 81.9 of households had access to potable water (household connections and communal stands) and 85.4% had flush and chemical toilets. In 2014, the Blue Drop Certified Systems awarded STLM a blue drop score of 97.1% (ranked 1st in the province, noting that the municipality continues to manage drinking water within their area of jurisdiction with distinction. STLM was ranked second in terms of wastewater services in the Green Drop Report which was at 61.9%.

17.2.5 Electricity

STLM is licensed to supply the following areas with electricity: Middelburg, Hendrina, Kwaza, Doornkop, Komati, Blinkpan and Koornfontein and comprises of the following divisions: Small consumer, Distribution and Planning and bulk connection. The provision of electricity within the municipality continues to decreased 0.7 between 2011 and 2016.

17.2.6 Refuse Removal

Census 2016 shows that the municipality continues to improve expanding the access to refuse removal. About 85% households had access to refuse removal atleast once a day. The municipal service extends to all the municipal towns but exclude the mining towns and rural areas which are self-serviced. Bulk containers and provided for places like Kranspoort. Somaphepha, Mafube and Doorenkop have a transfer station and big containers that are serviced by the municipality. Ion the area of Kwa-Zamokuhle, development is happening with new housing extension being constructed with indoor waste removals.

17.2.7 Roads and stormwater

In 2011, the municipality had about 826 km of total road network. Out of the 828 km about 660 km were tarred and about 162.4km were gravel roads. The 162.4km includes roads within farm areas which are privately owned and the municipality is unable to provide tarred roads. Streets at Kwa-Zamokuhle are being developed and the mine will take part if need be upon approval or both the mining right, environmental authorisation and social and labour plan proposed projects.

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).

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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 27: 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 28: 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 29: 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 30: 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 31: 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 34 and assigned a particular colour code in relation to its severity.

Table 32: 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 33: 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 Vaalbank 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)
- Mining permit outlier
- 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
- Traffic
- Watercourses (wetlands)
- Dust and air quality
- Blast and vibration
- Heritage and cultural resource
- Paleontological

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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)
- Aquatic ecology and surface water assessment and Floodline determination
- Terrestrial ecology including flora and fauna
- Civil engineering pollution control dam designs and storm-water management plan
- Blasting and vibration assessment
- Soils and land capability assessment
- Agricultural input assessment
- Traffic impact assessment
- Rehabilitation management plan
- Heritage impact assessment
- Hydropedological study
- Mine Work Programme
- Rehabilitation Plan
- 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 has not being conducted for certain studies expect for Heritage impact assessment, Ecology and Wetlands. The anticipated impacts can, however, be discussed to provide an indication of whether it will be positive or negative (Table 34).

Table 34: 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.

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		❖ 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 Klein 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 as according to Appendix C 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. • '' Noise level discussions have commenced between the Applicant (MBG Mining and Supplier (Pty) Ltd and neighbouring mine (Vaalbult mine) which has already conducted the studies and continuously monitor the noise level on the area at about 3km radius''. See Appendix 2.
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 are 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
Paleontological sites disturbed/destroyed	Negative	
Cultural places disturbed/destroyed	Negative	

		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 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. • '' Air quality discussions have commenced between the Applicant (MBG Mining and Supplier (Pty) Ltd and neighbouring mine (Vaalbult mine) which has already conducted the studies and continuously monitor the Air on the area at about 3km radius''. See Appendix 2.

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., however some recommendations as part of mitigations are listed in Table 28 .

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 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.
- ***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

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received, the final EIAr will be compiled and submitted to the competent authority (DMR) for review. This report will assist the DMR in making an informed decision.

- ***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 DMR.
- ***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:

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

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

- Public participation and consultation
- Environmental Management Programme
- 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 was not held with the DMR and DWS, however, draft Scoping reports were submitted to their offices (See Appendix 9). The purpose of the authority meeting is to explain the project in detail to authorities and clarify the process anticipated. Stakeholders include the district and local municipalities, ward councillors, and others. Thus a meeting was held with ward 21 counsellor and other stakeholders responded through emails with their comments based on the draft scoping report which was sent to them.

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 and **Error! Reference source not found.**. I&APs were notified of the proposed application via newspaper advertisement, emails, site and public notices. The PPP was undertaken in accordance with the NEMA process and the 2014 Regulations (as amended). A minimum of thirty days was provided to the public to register as I&APs and provide initial comments. Thirty days was provided to comment on the draft scoping

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report. The information submitted by I&APs was utilised Final Scoping and will be utilised more in detail during the Impact Assessment and compilation of the EIAr. Should the final scoping report be accepted by the competent authority, an EIA will be undertaken. During the EIA phase I&APs, stakeholders and the competent authorities will be notified of the process to be undertaken (as described in Section 7 and outlined in the NEMA regulations (2014, as amended). They will also be provided an opportunity to comment on the draft EIAr (which will include specialist studies) and attend public meetings.

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 prospecting phase register from the client, direct consultation and/or Title Deed search for the property was done. 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&AP'S will be notified of the following phase and acceptance of the Scoping Report.
- I&APs will be asked to provide their comments on the project, notified when the draft EIAr is 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 thirty days at the same public places in the project area that the scoping report will be made available. Report copies will be sent to stakeholders who request it.

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:

- 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

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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

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- 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 34: Anticipated impacts.

20.10 Financial Provision

Mwalimu Resources (Pty) Ltd has an agreement with the landowner Mr John Lloyd to purchase the farm and already a deposit has been taken out with its terms and conditions. The Company is being financed by Phiriphiri Trading Enterprise.

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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 depends on the results of the Social and Labour Plan. Full details will be made available during the EIA phase after the specialist studies and consultation with the community, stakeholders and other I&APs have been concluded. The proposed Vaalbank Coal Mine will provide employment opportunities, skills development, social development programmes, community upliftment and economic injection to the local area. Furthermore, impacts including 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.

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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.
- Not all specialist studies have been conducted for the scoping phase: only heritage, ecology and wetland studies have been conducted thus far. Descriptions of the environmental, economic and social environments are based on desktop studies 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.

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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.

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- 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

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APPENDIX SECTION CAN NOT BE INCLUDED DUE TO THE CAPACITY OF THE SPACE ON THE ONLINE SYSTEM.

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