



ENVIRONMENTAL & ENGINEERING

# DRAFT REPORT

## EYETHU COAL (PTY) LTD – BLESBOKLAAGTE COLLIERY

DMRE Reference Number: **MP30/5/1/2/2/10058MR | MP-00156-MR/102**

### INTEGRATED ENVIRONMENTAL AUTHORISATIONS – DRAFT SCOPING REPORT FOR PUBLIC REVIEW

REPORT REF: 21-1618 AUTH DRAFT SCOPING REPORT

(BLESBOKLAAGTE S102 EA IWUL+WL)



2022/07/11

VERSION BB



Updated- 15/7/2022

**Document and Quality Control:**

Document No:	21-1618-AUTH - (BLESBOKLAAGTE S102 IWUL+WL)			
AA – draft	08/07/2022	Marungwane Ramashapa		First draft for review / comments
BB – draft	11/07/2022	Riana Panaino		Technical review
CC– draft				Quality review
DD – draft				Client review
<b>Approved for Distribution:</b>				
0.0		Vernon Siemelink		Final report

**Quality Control By:**

Nature of Signoff:	Responsible Person:	Role / Responsibility	Qualification
Author	Marungwane Ramashapa	Environmental Consultant/ EAP	MSc Geography
Technical Review	Riana Panaino	Divisional Head – Environmental Authorisations	BSc Hons Biodiversity and Conservation SACNASP – Professional Natural Scientist (117170) EAPASA – Registered EAP (2021/4135)

**Disclaimer:**

This is a legally binding document and many of the actions and recommendations remain the responsibility of the client (as the owner/lessee of the property).

Eco Elementum (Pty) Ltd and the authors of this report are protected from any legal action, possible loss, damage or liability resulting from the content of this report. This document is considered confidential and remains so unless requested by a court of law. Please consider the environment and only print this document if necessary.

The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge, as well as available information. Information utilised and contained in this report is based on data/information supplied to Eco Elementum (Pty) Ltd by the client and other external sources (including previous site investigation data and external specialist studies).

Eco Elementum (Pty) Ltd exercises due care and diligence in rendering services and preparing documents, however it has been assumed that the information provided to Eco Elementum (Pty) Ltd is correct and as such the accuracy of the conclusions made are reliant on the accuracy and completeness of the data supplied.

No responsibility is accepted by Eco Elementum (Pty) Ltd for incomplete or inaccurate data supplied by the client and/or other external sources. Opinions expressed in this report apply to the site conditions and features that existed at the time of the start of the investigations and the production of this document. For this reason, Eco Elementum (Pty) Ltd accepts no liability, and the client by receiving and therefore accepting this document, indemnifies Eco Elementum (Pty) Ltd and its directors against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with the services rendered, directly or indirectly.



Updated- 15/7/2022

## DECLARATION OF INDEPENDENCE

I, Marungwane Ramashapa, declare that;

- I act as the independent specialist 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 the specialist report relevant to this application, 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 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:
  - o any decision to be taken with respect to the application by the competent authority; and
  - o the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.



08/07/2022

Signature

Ms MC Ramashapa  
MSc Geography

Date





**mineral resources**

Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

## SCOPING REPORT

### FOR LISTED ACTIVITIES ASSOCIATED WITH MINING RIGHT ACTIVITIES

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:** **Eyethu Coal (Pty) Ltd**

**TEL NO:** **(087) 654 1541**

**FAX NO:**

**POSTAL ADDRESS:**

**PHYSICAL ADDRESS:** **37 Schonland Drive,  
Ferrobank,  
Emalaheni**

**FILE REFERENCE NUMBER SAMRAD:** **MP30/5/1/2/2/10058MR | MP-00156-MR/102**



## IMPORTANT NOTICE

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

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

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

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

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



## OBJECTIVE OF THE SCOPING PROCESS

- 1) The objective of the scoping process is to, through a consultative process —
  - (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 alternative 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 level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent 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; and
  - (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.



**CONTENTS**

2.A	DETAILS OF:.....	12
2.a.i	<i>The EAP who prepared the report</i> .....	12
2.a.ii	<i>Expertise of the EAP</i> .....	12
2.B	DESCRIPTION OF THE PROPERTY .....	12
2.C	LOCALITY MAP .....	14
2.D	DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY. ....	15
2.d.i	<i>Listed and specified activities</i> .....	15
2.d.ii	<i>Description of the activities to be undertaken</i> .....	18
2.E	POLICY AND LEGISLATIVE CONTEXT .....	19
2.F	NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES .....	21
2.G	PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.....	22
2.H	DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED SITE.....	22
2.h.i	<i>Details of all alternatives considered</i> .....	22
2.h.ii	<i>Details of the Public Participation Process Followed</i> .....	23
2.h.iii	<i>Summary of issues raised by I&amp;APs</i> .....	24
2.h.iv	<i>The Environmental attributes associated with the sites</i> .....	24
	GEOLOGY.....	24
	TOPOGRAPHY.....	25
	CLIMATE.....	26
	WETLAND ECOLOGY.....	27
	AQUATIC ECOLOGY.....	31
	TERRESTRIAL ECOLOGY.....	33
	HERITAGE AND PALAEOLOGY.....	36
	SURFACE WATER.....	37
	GROUNDWATER.....	38
	BLASTING AND VIBRATION.....	41
	AIR QUALITY.....	42
	NOISE.....	47
	SOILS.....	49
	SOCIAL ECONOMIC.....	51
2.h.v	<i>Impacts identified</i> .....	55
2.h.vi	<i>Methodology used in determining the significance of environmental impacts</i> .....	56
2.h.vii	<i>The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.</i> .....	58
2.h.viii	<i>The possible mitigation measures that could be applied and the level of risk.</i> .....	58
2.h.ix	<i>The outcome of the site selection Matrix. Final Site Layout Plan</i> .....	59
2.h.x	<i>Motivation where no alternative sites were considered.</i> .....	59



Updated- 15/7/2022

2.h.xi	Statement motivating the preferred site.....	59
2.I	PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS .....	59
2.i.i	Description of alternatives to be considered including the option of not going ahead with the activity.....	59
2.i.ii	Description of the aspects to be assessed as part of the environmental impact assessment process .....	59
2.i.iii	Description of aspects to be assessed by specialists.....	64
2.i.iv	Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives..	64
2.i.v	The proposed method of assessing duration significance .....	64
2.i.vi	The stages at which the competent authority will be consulted.....	64
2.i.vii	Particulars of the public participation process with regard to the Impact Assessment process that will be conducted ...	64
2.i.viii	Description of the tasks that will be undertaken during the environmental impact assessment process.....	65
2.i.ix	Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.....	66
2.L	OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY.....	67
2.L.i	Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998) the EIA report must include the:-.....	67
2.L.ii	Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as Appendix 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein). .....	67
2.M	OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT.....	67
2.J	UNDERTAKING REGARDING CORRECTNESS OF INFORMATION.....	68
2.K	UNDERTAKING REGARDING LEVEL OF AGREEMENT.....	69

**Annexures**

ANNEXURE 1:	QUALIFICATION OF EAP .....	70
ANNEXURE 2:	EAP CV .....	71
ANNEXURE 3:	LOCALITY MAPS .....	72
ANNEXURE 4:	SITE LAYOUT AND INFRASTRUCTURE .....	73





Updated- 15/7/2022

**List of Figures**

Figure 2-1: Cadastral map showing Blesboklaagte 296 JS Ptn 109 in relation to existing MR boundary	13
Figure 2-2: Locality of the Proposed Blesboklaagte Colliery Section 102 MR Amendment	14
Figure 2-3: Proposed location where listed activities will occur	17
Figure 2-4: Typical Opencast Concurrent Roll Over Rehabilitation Mining Technique	19
Figure 2-5: Topography of the proposed MR extension area	26
Figure 2-6: Average Rainfall Graph by Month	27
Figure 2-7: Quaternary Catchment of the proposed MR extension area	28
Figure 2-8: NFEPA Rivers and Wetlands associated with the site	29
Figure 2-9: Relative Terrestrial Biodiversity Theme Sensitivity	33
Figure 2-10: Vegetation Type of the proposed MR extension area	34
Figure 2-11: Relative Archaeological and Cultural Heritage Theme Sensitivity	36
Figure 2-12: Blesboklaagte borehole localities	38
Figure 2-13: Groundwater level changes	39
Figure 2-14: Highveld Priority Areas (HPA)	42
Figure 2-15: Modelled frequency of exceedance of 24-hour ambient SO <sub>2</sub> and PM <sub>10</sub> standards in the HPA, indicating the modelled air quality Hot Spot areas	45
Figure 2-16: Land cover	53
Figure 2-17: Mpumalanga Biodiversity Spatial Plan	54
Figure 2-18: NFEPA data	55
Figure 2-19: S&EIR Process	64
Figure 2-20: Authorisation Process Overview	66

**List of Tables**

Table 2-1: Contact details of EAP	12
Table 2-2: Description of Property	12
Table 2-3: Listed and specified activities	15
Table 2-4: Policy and Legislative Context	19
Table 2-5: Rainfall Data	27
Table 2-6: Overall Wetland health score	30
Table 2-7: Summary of the Ecological Services of the three wetland systems in proximity of Blesboklaagte	30
Table 2-8: Summary of the Ecological Importance and Sensitivity of the wetland system associated with the Blesboklaagte	31
Table 2-9: <i>In situ</i> water quality results	32
Table 2-10: Overall IHIA instream and riparian results	32
Table 2-11: Important plant species of the Eastern Highveld Grassland	35
Table 2-12: Surface water quality results	37
Table 2-13: Water qualities compared to SANS 241-1:2015 guidelines for human consumption	39



Updated- 15/7/2022

Table 2-14: Total emission of PM <sub>10</sub> , NO <sub>x</sub> and SO <sub>2</sub> from the different source types on the HPA (in tons per annum), and the percentage contribution for each source category.....	43
Table 2-15: Exceedances at HPA sites based on historic and new monitoring data.....	44
Table 2-16: Airborne Particulate Sampling Results.....	46
Table 2-17: Four – band scale evaluation criteria for dust deposition (As Per Air Quality Bill).....	46
Table 2-18: Acceptable rating levels for noise in districts (SANS 10103, 2008).....	47
Table 2-19: Categories of community/group response (SANS 10103, 2008).....	48
Table 2-20: Blesboklaagte Daytime Baseline Noise Measurement Results.....	48
Table 2-21: Description of the dominant soils of the Blesboklaagte South Mining Permit Area.....	49
Table 2-22: Selected properties and derived characteristics of the dominant soils.....	49
Table 2-23: Limitations of map units influencing the suitability for selected land uses.....	50
Table 2-24: Land capability assessment of the map units of the Blesboklaagte South Mining Permit Area.....	50
Table 2-25: Land capability (Chambers of Mines' guidelines) of the map units of the Blesboklaagte Mining Permit Area.....	50
Table 2-26: Suitability of map units for selected non-agricultural land uses.....	51
Table 2-27: List of Preliminary Issues.....	55
Table 2-28: Severity.....	57
Table 2-29: Spatial Scale - How big is the area that the aspect is impacting on?.....	57
Table 2-30: Duration.....	57
Table 2-31: Frequency of the activity - How often do you do the specific activity?.....	57
Table 2-32: Frequency of the incident/impact - How often does the activity impact on the environment?.....	57
Table 2-33: Legal Issues - How is the activity governed by legislation?.....	58
Table 2-34: Detection - How quickly/easily can the impacts/risks of the activity be detected on the environment, people and property?.....	58
Table 2-35: Impact Ratings.....	58
Table 2-36: Specialist Scope of Work.....	60



## SCOPING REPORT



## 2. CONTACT PERSON AND CORRESPONDENCE ADDRESS

### 2.a DETAILS OF:

#### 2.a.i The EAP who prepared the report

Table 2-1: Contact details of EAP

<b>Name of the practitioner</b>	Marungwane Ramashapa
<b>Tel Number</b>	012 807 0383
<b>Fax Number</b>	086 714 5399
<b>Email Address</b>	<a href="mailto:maru@ecoe.co.za">maru@ecoe.co.za</a>

#### 2.a.ii Expertise of the EAP

##### 2.a.ii.1 The qualification of the EAP

The author, Marungwane Ramashapa, has obtained a MSc in Geography and 4 years' experience in Environmental Consulting. The technical reviewer, Riana Panaino has an Honours degree in Biodiversity and Conservation, is EAPASA and SACNASP Registered, and has more than 10 years' experience in Environmental Consulting. Refer to Annexure 2 for the CVs of both practitioners.

##### 2.a.ii.2 Summary of the EAP's past experience

Refer to Annexure 2 for the CVs of both practitioners.

### 2.b DESCRIPTION OF THE PROPERTY

Table 2-2: Description of Property

<b>Farm Name:</b>	Blesboklaagte 296 JS Ptn 109
<b>Application area (Ha)</b>	Approximately 56,00 ha
<b>Magisterial district:</b>	Emalahleni Local Municipality, Nkangala District Municipality
<b>Distance and direction from nearest town</b>	Situated approximately 5 kilometres north-west of Emalahleni.
<b>21-digit Surveyor General Code for the farm portion</b>	T0JS0000000029600109



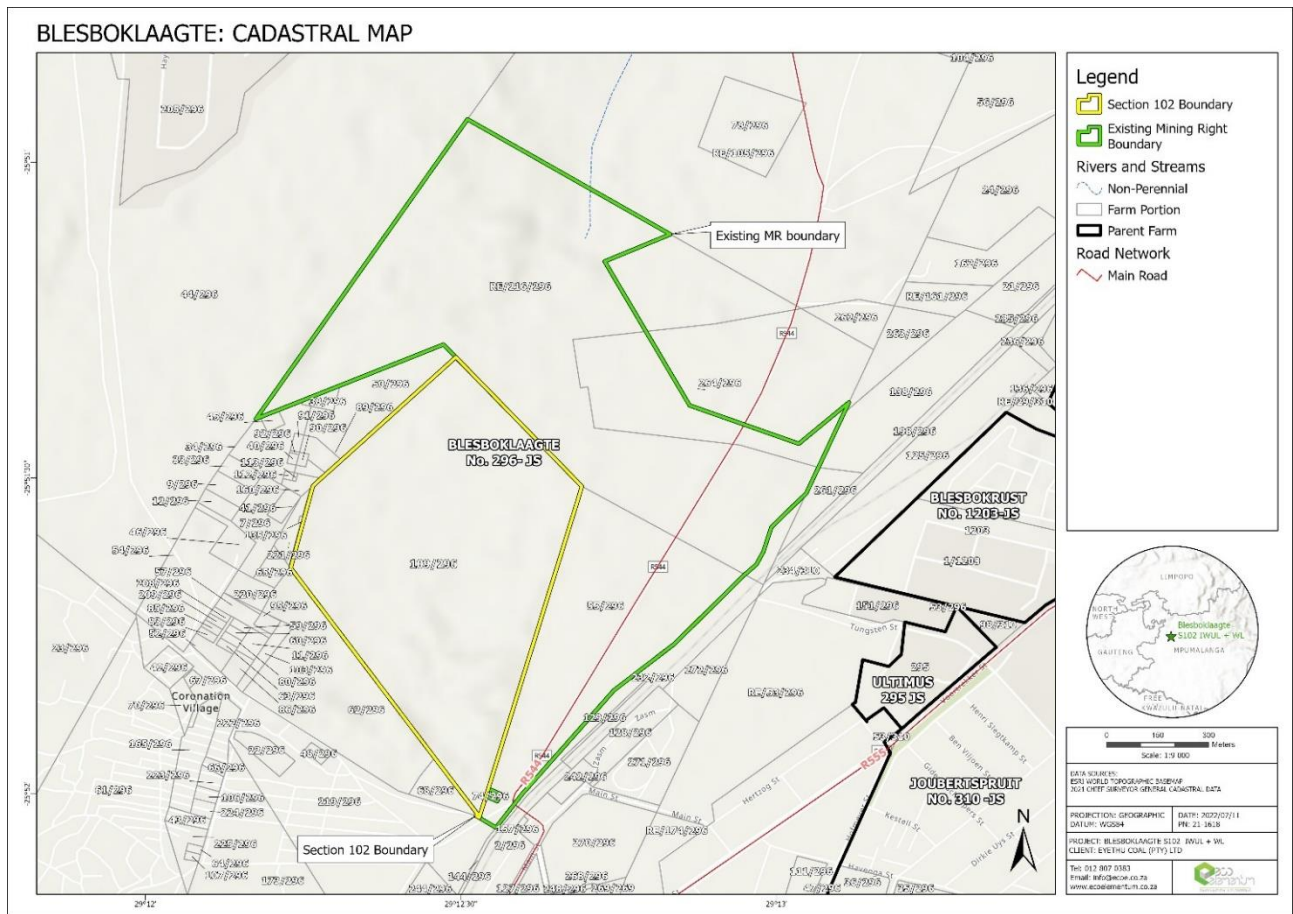


Figure 2-1: Cadastral map showing Blesboklaagte 296 JS Ptn 109 in relation to existing MR boundary



2.c LOCALITY MAP

(Show nearest town, scale not smaller than 1:250 000 attached as Appendix 3).

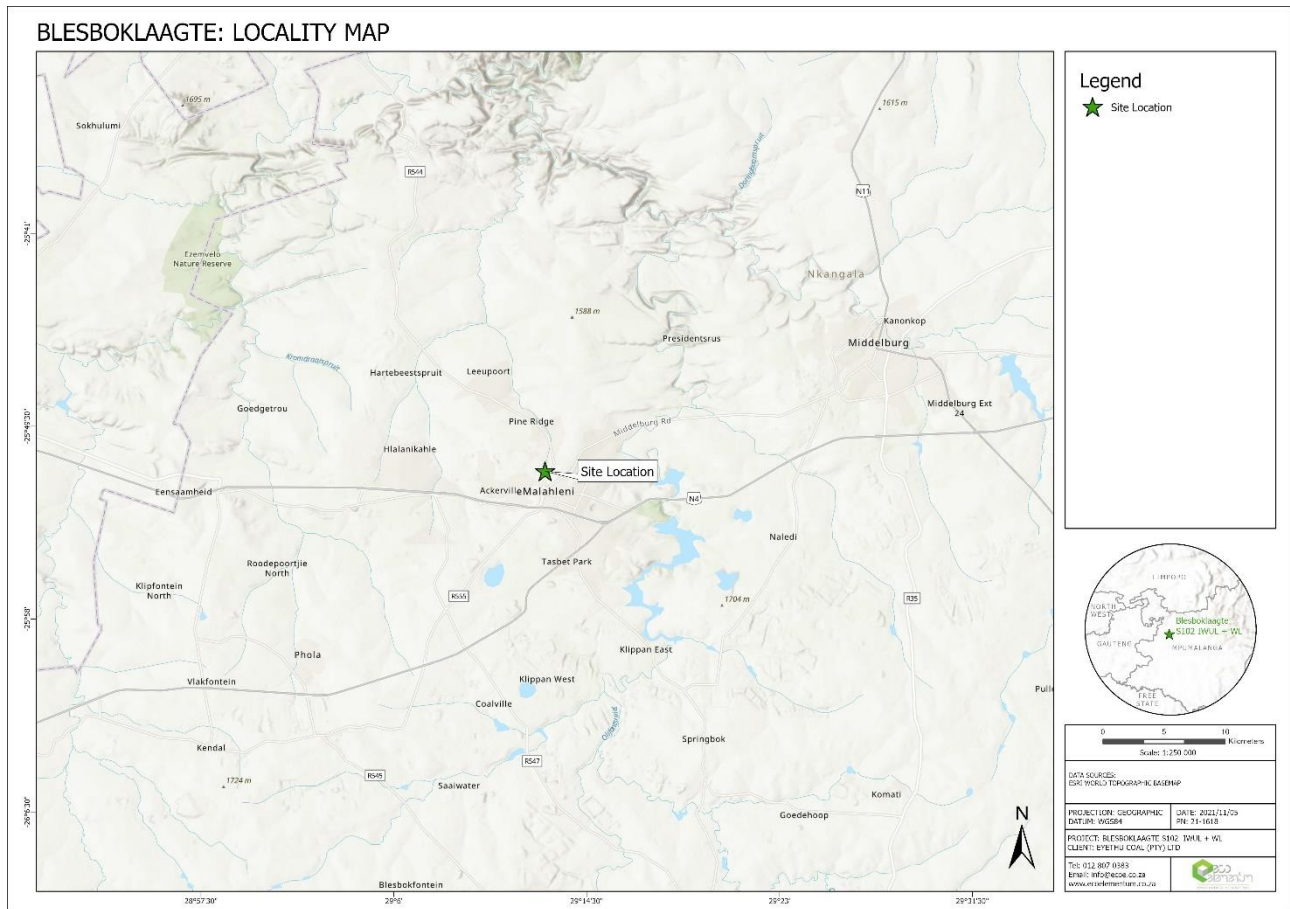


Figure 2-2: Locality of the Proposed Blesboklaagte Colliery Section 102 MR Amendment



2.d DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

2.d.i Listed and specified activities

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site and attach as Appendix 4.

The listed and specified activities entailed in the proposed Section 102 MR amendment of the Blesboklaagte MR are provided in Table 2-3. These activities will take place within the boundaries of Farm Blesboklaagte 296 JS, Ptn 109 and the existing MR, as shown in Figure 2-3. The map below further illustrates the proximity of the Blesboklaagte Colliery to Farm Portion 109.

Table 2-3: Listed and specified activities

Applicable Listing Notice (GNR 983, GNR 984 or GNR 985; as amended)		Name Of Activity
Listing Notice 1 (GNR 983)		
21D	Any activity including the operation of that activity which requires an amendment or variation to a right or a permit in terms of section 102 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity contained in this Listing Notice or in Listing Notice 3 of 2014, required for such an amendment	A Section 102 MR amendment for the mining of coal will be applied for. Amendment of Mine Works Programme (MWP) and Environmental Management Programme (EMPr) will be undertaken.
34	The expansion of existing facilities or infrastructure for any process or activity where such expansion will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions, effluent or pollution, excluding—  (i) where the facility, infrastructure, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies;  (ii) the expansion of existing facilities or infrastructure for the treatment of effluent, wastewater, polluted water or sewage where the capacity will be increased by less than 15 000 cubic metres per day; or  (iii) the expansion is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will be increased by 50 cubic meters or less per day.	The IWUL will be amended for inclusion of 21(g) for additional backfilling.  The addition of a Wash Plant will also require amendment to the WML
45	The expansion of infrastructure for the bulk transportation of water or storm water where the existing infrastructure—  (i) has an internal diameter of 0,36 metres or more; or  (ii) has a peak throughput of 120 litres per second or more; and  (a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or  (b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more;  excluding where such expansion—  (aa) relates to transportation of water or storm water within a road reserve or railway line reserve; or  (bb) will occur within an urban area.	Clean water pipelines and diversion channels will be extended to the new areas and Wash Plant.
46	The expansion and related operation of infrastructure for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes where the existing infrastructure—  (i) has an internal diameter of 0,36 metres or more; or  (ii) has a peak throughput of 120 litres per second or more; and  (a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or	Dirty water pipelines and diversion channels will be extended to the new areas and Wash Plant.



Updated- 15/7/2022

Applicable Listing Notice (GNR 983, GNR 984 or GNR 985; as amended)		Name Of Activity
	(b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more; excluding where such expansion— (aa) relates to the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes within a road reserve or railway line reserve; or (bb) will occur within an urban area.	
<b>Listing Notice 2 (GNR 984)</b>		
15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	Site clearance for operation purposes.
<b>Mineral and Petroleum Resources Development Act, 2002 (MRPDA)</b>		
102	Mining Right/Mining Permit/Prospecting Right/Section 102 EMP Amendment. (Refer to NEMA Activities above)	A Section 102 MR amendment for the mining of coal will be applied for Amendment of MWP and EMP will be undertaken.
<b>National Water Act, 1998 (NWA) Section 21 Water Uses</b>		
21g	Disposing of waste in a manner which may detrimentally impact on a water resource.	NWA Section 21 water uses include backfilling and construction of Wash Plant infrastructure.
21j	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.	NWA Section 21 water uses include removal of groundwater for safe continuation of mining.
<b>National Environmental Management: Waste Act, 2008 (NEM:WA) Category B</b>		
10	The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity).	The proposed Section 102 MR amendment activities will trigger NEMWA Category B: Activity 10, 11.
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 Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	





Updated- 15/7/2022

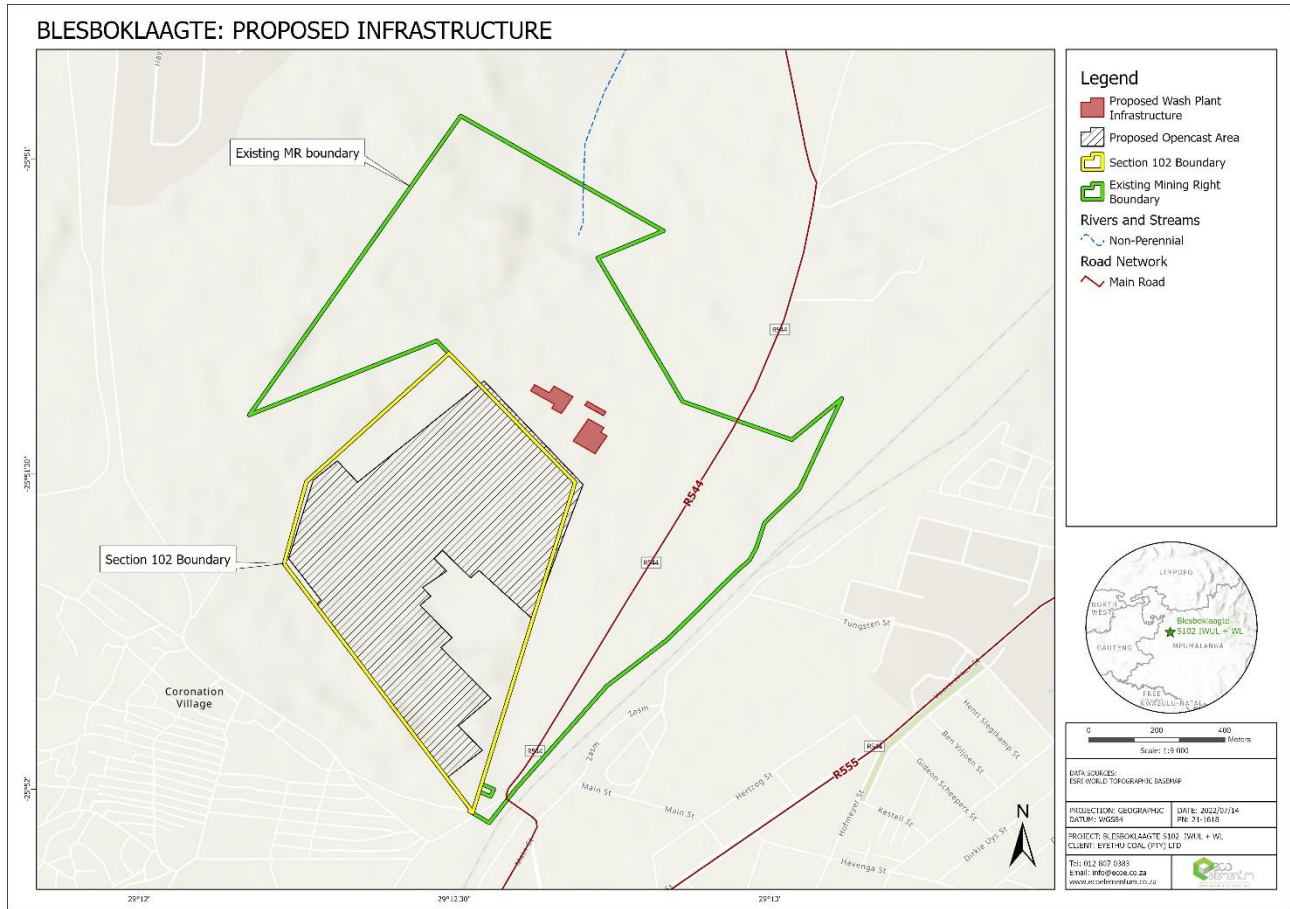


Figure 2-3: Proposed location where listed activities will occur



Updated- 15/7/2022

## 2.d.ii Description of the activities to be undertaken

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

### Infrastructure requirements

Surface infrastructure was erected during the construction phase of the Blesboklaagte Colliery. With the exception of the Wash Plant, no additional infrastructure will be required for the Project.

### Process description

Eyethu Coal (Pty) Ltd (hereinafter Eyethu Coal) proposes to incorporate an additional farm portion into its existing MR (MP30/5/1/2/2/10058MR) at Blesboklaagte Colliery, Mpumalanga. The current mining operations consists of the removal of coal from the No. 2 coal seam through opencast mining method. A Section 102 MWP and EMP amendment application is being applied for to incorporate the neighbouring coal resource into the existing MR area (MP30/5/1/2/2/10058MR) as well as include a Wash Plant for on-site beneficiation.

The current Blesboklaagte Colliery's Operational Phase consists of the following:

- The systematic removal of the coal seams by opencast mining methods;
- The stockpiling of ROM and transporting to an off-site beneficiation plant;
- The disposal of mine affected water into the pollution control dams;
- The transporting of coal products; and
- The utilization of mine infrastructure.

The proposed amendment will include:

- The extension of the pit area; and
- Addition of a Wash Plant

The Decommissioning Phase will begin once all economically exploitable coal reserves have been extracted. This phase of the mine is expected to take not more than three years and will consist of:

- The removal of all mine infrastructure;
- The filling of all remaining voids and final shaping of the rehabilitated opencast pit;
- The removal of the carbonaceous layer from the product stockpiling area and haul roads;
- The ripping of all infrastructure areas; and
- The seeding of ripped and rehabilitated surfaces.

The mine closure phase will be dedicated to the maintenance of rehabilitated areas as well as compiling a closure plan.

#### 2.d.ii.1 Mining Method - Open Cast Mining

The proposed amendment application involves the continuation of mining from the Blesboklaagte Colliery's current open cast pit to include an additional coal resource block. Open cast mining using the truck and shovel lateral sequential rollover mining method will continue to be undertaken (Figure 2-4). Mining has commenced from the initial box cut. A haul road has been extended from the nearby existing road and used as access to the mining area.

The soft overburden will be removed by mechanical methods. The hard overburden will be drilled and blasted and then removed by mechanical methods. The coal will be drilled and blasted prior to removal.

Replacement of overburden materials into the mining pit will be according to the following sequence:

1. Placement of hard overburden at base of pit.
2. Placement of soft overburden.
3. Final cover of topsoil (minimum 500 mm).



Updated- 15/7/2022

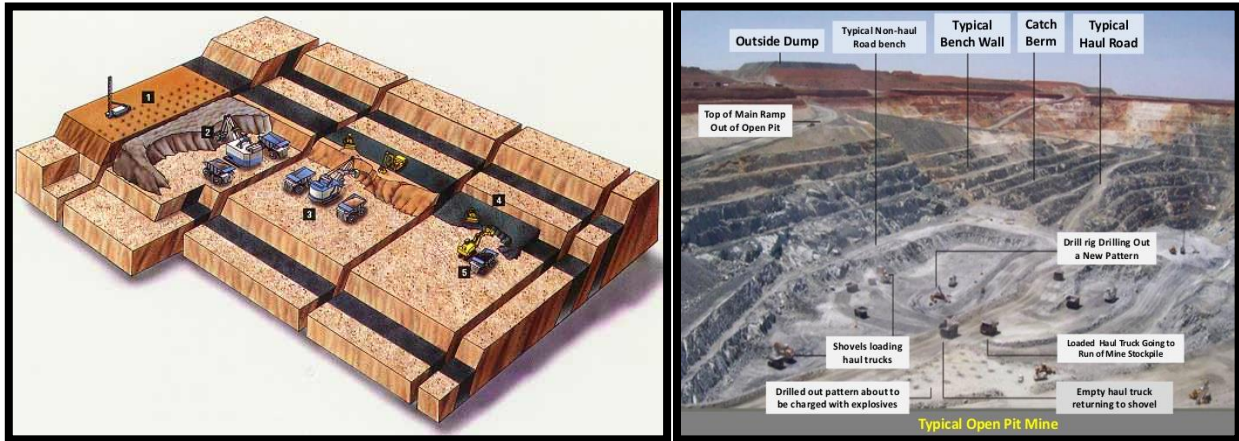


Figure 2-4: Typical Opencast Concurrent Roll Over Rehabilitation Mining Technique

**Run of Mine Coal and Coal Beneficiation**

Run of Mine (ROM) will be stockpiled on the current approved ROM platform. A Wash Plant will be added to the current surface infrastructure for on-site beneficiation, which will include crushing, screening and washing of the ROM.

**2.e POLICY AND LEGISLATIVE CONTEXT**

Table 2-4: Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);	REFERENCE WHERE APPLIED
<p><b>National Environmental Management Act (107 of 1998)</b></p> <p>The NEMA provides the overarching legislation for environmental governance in South Africa, giving effect to Section 24 of the Constitution of the Republic of South Africa. NEMA sets out the fundamental principles of Integrated Environmental Management that must be adhered to in order to ensure sustainable development.</p>	<p>A section 102 EMPr amendment application has been made to the DMRE.</p>
<p><b>Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)</b></p> <p>To make provision for equitable access to and sustainable development of the nation's mineral and petroleum resources; and to provide for matters connected therewith.</p>	<p>A section 102 MWP and EMPr amendment application has been made to the DMRE.</p>
<p><b>NEMA Environmental Impact Assessment (EIA) Regulations, 2014 (as amended)</b></p>	<p>A section 102 EMPr amendment application has been made to the DMRE.</p>
<p><b>The South African Constitution</b></p> <p>In terms of Section 24, of the Constitution of the Republic of South Africa (108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while prompting justifiable economic and social development.</p>	<p>An open and participatory public participation process will be followed. An EMP and awareness plan will be designed according to the issues raised during this process.</p>



Updated- 15/7/2022

<p><b>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);</b></p>	<p><b>REFERENCE WHERE APPLIED</b></p>	
<p><b>National Environmental Management: Biodiversity Act, 2004</b> The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA) provides for listing of threatened or protected species.</p>	<p>The fauna and flora prevailing in the proposed project site will be handled in terms of this Act and relevant ecological studies have already been initiated.</p>	<p>The mining footprint will be guided by the results of the ecological studies where possible. Permits will be applied for where and when necessary should any red data species be relocated.</p>
<p><b>National Environmental Management: Waste Act</b> The objectives of NEM:WA involve the protection of health, wellbeing and the environment by providing reasonable measures for the minimization of natural resource consumption, avoiding and minimizing the generation of waste, reducing, recycling and recovering waste, and treating and safely disposal of waste as a last resort. In terms of the NEMWA, all waste management activities must be licensed.  A distinction is made between Category A waste management activities, which require a basic assessment, and Category B activities, which require a full EIA, and Category C waste management activities which do not require a waste management license but compliance with relevant requirements or standards.  According to Section 44 of the Act, the licensing procedure must be integrated with an EIA process in accordance with the Regulations GNR 982.</p>	<p>In terms of the list of Section 19 waste management activities, an S&amp;EIR process is required. The process is part of the “one environmental system”.  GNR 633 includes the establishment or reclamation of a residue stockpile or residue deposit, resulting from prospecting or mining activities as a listed activity.</p>	<p>In terms of GN718 of 2009, under NEMWA, various Category B waste management activities are applicable to the proposed mining operation. The impacts and associated management and/or mitigation measures will be included in the EIA phase of the project.</p>
<p><b>National Heritage Resources Act (Act No. 25 of 1999)</b> The protection and management of South Africa’s heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999) (NHRA). The enforcing authority for this act is the South African National Heritage Resources Agency (SAHRA).</p>	<p>A Heritage and Paleontological study has been initiated to identify and assess the project in terms of heritage and paleontological resources. This is mandatory in terms of Section 38 of the NHRA.</p>	<p>The Heritage Report will be uploaded on the SAHRIS website for comment and the development guided by any findings of the Report.</p>
<p><b>National Water Act (Act No. 36 of 1998)</b> The NWA is the primary regulatory legislation, controlling and managing the use of water resources as well as the pollution thereof. This act provides for fundamental reformation of legislation relating to water resource use.  GN 704- Regulations on use of water for mining and related activities aimed at the protection of water resources.</p>	<p>An IWUL amendment will be submitted to DWS for consideration for the following Section 21 water uses including:  (g) <i>backfilling and Wash Plant infrastructure; and</i> (j) <i>removal of groundwater for safe continuation of mining.</i></p>	<p>The DWS will provide comment and an application will be lodged for their review prior to the undertaking of any water use activities on site.  Management Principles will be applied to the mining operations as per GN704.</p>
<p><b>National Environmental Management: Air Quality Act, 2004 (Act no.39 of 2004); and applicable Regulations, Standards and Notices published in terms of NEMAQA</b>  The promulgation of this Act marked a turning point in the approach to air pollution control and governance in South Africa, introducing the philosophy of Air Quality Management, in line with international policy developments and the environmental right, i.e. Section 24 of the Constitution (Act No. 108 of 1996).</p>	<p>Dust monitoring on site during operations</p>	<p>As part of the EMP dust suppression methods will be used.</p>
<p><b>Mine Health and Safety Act, 1996 (Act No. 29 of 1996);</b> The Mine Health and Safety Act (Act No. 29 of 1996) (MHSA) aims to provide for protection of the health and safety of all employees and other personnel at the mines of South Africa.</p>	<p>Health and Safety Policy of mine to be guided by this Act.</p>	<p>Risk Impact Assessment will be conducted to assess the amendment of the operation.</p>
<p><b>Mpumalanga Spatial Development Framework (SDF)</b></p>	<p>Used to identify the municipality’s long term spatial development plans. SDF to be considered in terms of the need and desirability.</p>	<p>The SDF will be consulted as part of the Socio-Economic Study’s Scope of Work.</p>



Updated- 15/7/2022

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);	REFERENCE WHERE APPLIED	
<p><b>National Development Plan (2012)</b></p> <p>The National Development Plan outlines what we should do to eradicate poverty, increase employment and reduce inequality by 2030. The Plan has the target of developing people’s capabilities to be to improve their lives through education and skills development, health care, better access to public transport, jobs, social protection, rising income, housing and basic services, and safety.</p>	<p>Used to identify project Need and Desirability and alignment with National Policy.</p>	<p>To form part of the project background and socio-economic evaluation.</p>
<p><b>Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) (PAIA)</b></p> <p>PAIA recognises that everyone has a right of access to any information held by the state and by another person when that information is required to exercise or protect any right.</p>	<p>The S&amp;EIR process is aligned with the PAIA and therefore fair and open public participation is undertaken.</p>	<p>NEMA Public Participation Process will be followed as per the 2014 EIA Guidelines.</p>
<p><b>Conservation of Agricultural Resources Act (act no. 43 of 1983) (CARA)</b></p> <p>CARA provides for control over the utilization of the natural agricultural resources in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants.</p>	<p>Principles of the Act to be included in the relevant specialist’s Scope of Work.</p>	<p>Mine Closure and Rehabilitation strategies will be informed by CARA and stakeholder engagement process.</p>

2.f NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

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

The mining sector has been described as the “Continuous Sunrise Sector” by President Cyril Ramaphosa at the ‘Investing in African Mining Indaba’ in Cape Town during May 2022, this due to the significant contribution which the sector continues to have on the country’s economy. Despite the many challenges created by the Covid-19 Pandemic, the mining sector continues to contribute substantially to export earnings, is a critical source of foreign direct investment and provides employment for a considerable number of people.

As the economic effects of the Covid-19 Pandemic begin to subside, the mining sector has significantly contributed to the recuperation of South Africa’s economy. In 2021, the mining sector registered a growth of 11.8%, the largest growth seen across all the industries in the economy. The sector was able to recover production close to pre-covid conditions.

In 2019 StatSA provided a report detailing the mineral production, finances, employment, exports and imports statistics for South Africa. The results of the census conducted confirmed that the South African Mining Industry is a critical pillar of our economy, with R527,5 billion in total sales generated in 2019. Of this R527,5 billion, 61% (R323,8 billion) was sourced from outside the country through exports. Coal dominates production in South African, covering about 75% of the total mass of all minerals produced. In 2019, 306 million metric tons of coal was produced. Almost two-thirds of mining sales are from abroad, with 39% of coal produced being exported.

The extracting and processing of minerals requires a great deal of machinery and workforce. The South African mining industry employed 514 859 individuals in 2019, with 39% employed in the platinum group metals sector, 21% in the coal sector and 20% employed in the gold sector. Recent statistics note that mining in South Africa still directly employs over half a million people post-covid.

At the 4<sup>th</sup> South African Investment Conference in 2022, investments of approximately R46 billion was pledged towards mining and mineral beneficiation, showing investor confidence in South Africa’s mining potential and operations.

The mining industry is identified as one of the key components toward Rapid Economic Growth in order to reduce poverty and minimise unemployment Growth (State of the Nation Address, 2019). The key issues include:



Updated- 15/7/2022

- The need for a strong capable state;
- Cost reduction for businesses and consumers;
- The need for reindustrialisation and a revitalised mining sector;
- Faster growth in tourism;
- Improved infrastructure;
- Better support for small businesses; and
- Marked reduction in unemployment.

Mining's contribution to provincial GDP (2020) is 25.9% and the sector employs 53 000 people. The activity of mining has numerous social and economic benefits in local, regional and national context. These include:

- Job creation.
- Skills development.
- SMME development.
- Local economic development.
- Contribution to local and national tax income (royalties, companies' tax etc.).
- Contribution to the national gross domestic product, and
- Future business opportunities.

The production of goods, supply of services or construction of infrastructure results in expenditure within a regional economy which has knock-on effects and results in additional expenditure which contributes to the regional economy.

## 2.g PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

A 10-year authorisation is requested.

## 2.h DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED SITE.

NB!! – This section is not about the impact assessment itself; It is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.

Eyethu Coal proposes to include the neighbouring farm into the approved MR in order to exploit the coal resource through open cast mining.

- GIS and spatial analysis will be used to categorise the environmental sensitivities of the proposed farm.
- The site layout will take into account the resource location, watercourse location, and location of built structures and graves.

### 2.h.i Details of all alternatives considered.

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

- the property on which or location where it is proposed to undertake the activity;*

The site location is limited to the current MR and available resource area as this is a Section 102 amendment application, with inclusion of an additional resource block that is directly adjacent to the current pit and will be a continuation thereof. The resource location further restricts the infrastructure layout. The area has also been impacted by historic shallow underground mining and large sections have already been transformed from its natural state. Therefore, no alternative properties were considered.



Updated- 15/7/2022

*b) the type of activity to be undertaken;*

Open cast or underground mining are the two alternatives for the activity to be undertaken. The area was previously mined underground however it was very shallow mining and large pillars were left to avoid subsidence. The only way to optimally remove the remaining coal resource will be via open cast mining. The rehabilitation of the open pits will also ensure a safer more stable surface area removing the risk of sinkholes from historic mining activities.

The current state of most of the land also does not lend itself to farming, and therefore coal mining was chosen as the economically preferred alternative.

*c) the design or layout of the activity;*

The mining layout is constrained by the current open cast pit, the location of other mining houses and residential areas. The resource location and the presence of a provincial road on the site further restrict the layout options. The addition of a Wash Plant is proposed for on-site beneficiation. The reason for now including a Wash Plant is due to the large quantities of coal that will be mined, which can now validate on site beneficiation.

*d) the technology to be used in the activity*

The technology proposed will be the most economically viable technology for the proposed operation. The choice between using a filter press or not using a filter press is guided by the operational cost in comparison to the life of Mine. The preferred most economical option is to not install an additional filter press.

*e) the operational aspects of the activity; and*

As per (d) above.

*f) the option of not implementing the activity.*

The option of not approving the activities will result in a significant loss of revenue and job creation to, and within the municipality. The coal resource will not be able to be mined in the most economical way and the Life of Mine (LoM) will be shortened, also leading to shorter employment life cycles.

Most of the land does not currently lend itself to crop farming due to the disturbed nature caused by historic mining activities, and therefore coal mining is a more viable economic alternative.

Rehabilitation after opencast mining will also ensure a safer more stable surface area removing the risk of sinkholes from historic mining activities, which would still be a present risk should the mine not be implemented.

## 2.h.ii Details of the Public Participation Process Followed

(Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB: the affected parties must be specifically consulted regardless of whether they attended public meetings. Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.)

Section 41 of NEMA Regulation 982 (specifically Chapter 6) set out the Legal and Regulatory Requirement for Public Participation. The Public Participation Process (PPP) aims to involve the authorities and Interested and Affected Parties (IAPs) in the project process. It further determines the stakeholder's needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process will/has been followed at all times and is based on reciprocal dissemination of information. The following was/will be undertaken during the PPP:

- Identification of I&APs;



Updated- 15/7/2022

- Consultation with selected landowners;
- Notification of IAPs regarding the proposed project via newspaper advert (in the Witbank News); the placing of 4 x site notices at conspicuous places, the sending of notices to affected parties via email (in the form of Background Information Documents) and sms'.
- A public information meeting (open day) with IAPs will be organised at a central, easily accessible location close to the stakeholders, such as the eMalahleni Library;
- Gathering comments, issues and concerns from IAPs;
- Responding to IAP comments, issues and concerns;
- Compilation and submission of results of consultation report to the DMRE; and
- Providing IAPs with the opportunity to review and comment on the Draft Scoping and EIA Reports.

### 2.h.iii Summary of issues raised by I&APs

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

Once comments are received this section will be populated.

### 2.h.iv The Environmental attributes associated with the sites

#### 2.h.iv.1 Baseline Environment

##### 2.h.iv.1.a Type of environment affected by the proposed activity.

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

## GEOLOGY

The investigated area falls within the 2528 Pretoria 1:250 000 geology series map and is situated approximately 5 km directly north-east of eMalahleni, Mpumalanga.

The proposed mining area is characterised by consolidated sedimentary layers of the Karoo Supergroup. It consists mainly of sandstone, shale and coal beds of the Vryheid Formation of the Eccca Group and is underlain by the Dwyka Formation of the Karoo Supergroup (Figure 2-5). The Karoo Supergroup are underlain at depth by sandstone and conglomerates from the Wilge River Formation of the Waterberg Group. This again is underlain by the felsitic lavas of the Selons River Formations of the Rooiberg Group and granite from the Lebowa Granite Suite of the Bushveld Complex. Vaalian dolerite intrusions (also previously known as diabase) are expected to occur in the area in the form of dykes and sills.

The Eccca Group, which is part of the Karoo Supergroup, comprises of sediments deposited in shallow marine and fluvio-deltaic environments with coal accumulated as peat in swamps and marshes associated with these environments. The sandstone and coal layers are normally reasonable aquifers, while the shale serves as aquitards. Several layered aquifers perched on the relative impermeable shale are common in such sequences. The Dwyka Formation comprises consolidated products of glaciation (with high amounts of clay) and is normally considered to be an aquiclude.

The generally horizontally disposed sediments of the Karoo Supergroup are typically undulating with a gentle regional dip to the south. The extent of the coal is largely controlled by the pre-Karoo topography. Steep dips can be experienced where the coal butts against pre-Karoo hills. Displacements, resulting from intrusions of dolerite sills, are common. Abundant dolerite intrusions are present in the Eccca sediments. These intrusions comprise sills, which vary from being concordant to transgressive in structure, and feeder dykes. Although these structures serve as aquitards and tend to compartmentalise the groundwater regime, the contact zones with the pre-existing geological formations also serve as groundwater conduits. There are common occurrences of minor slips or faults, particularly in close proximity to the dolerite intrusives. Within the coalfield, these minor slips, displacing the coal seam by a matter of 1 to 2 metres, are likely to be commonplace.





Updated- 15/7/2022

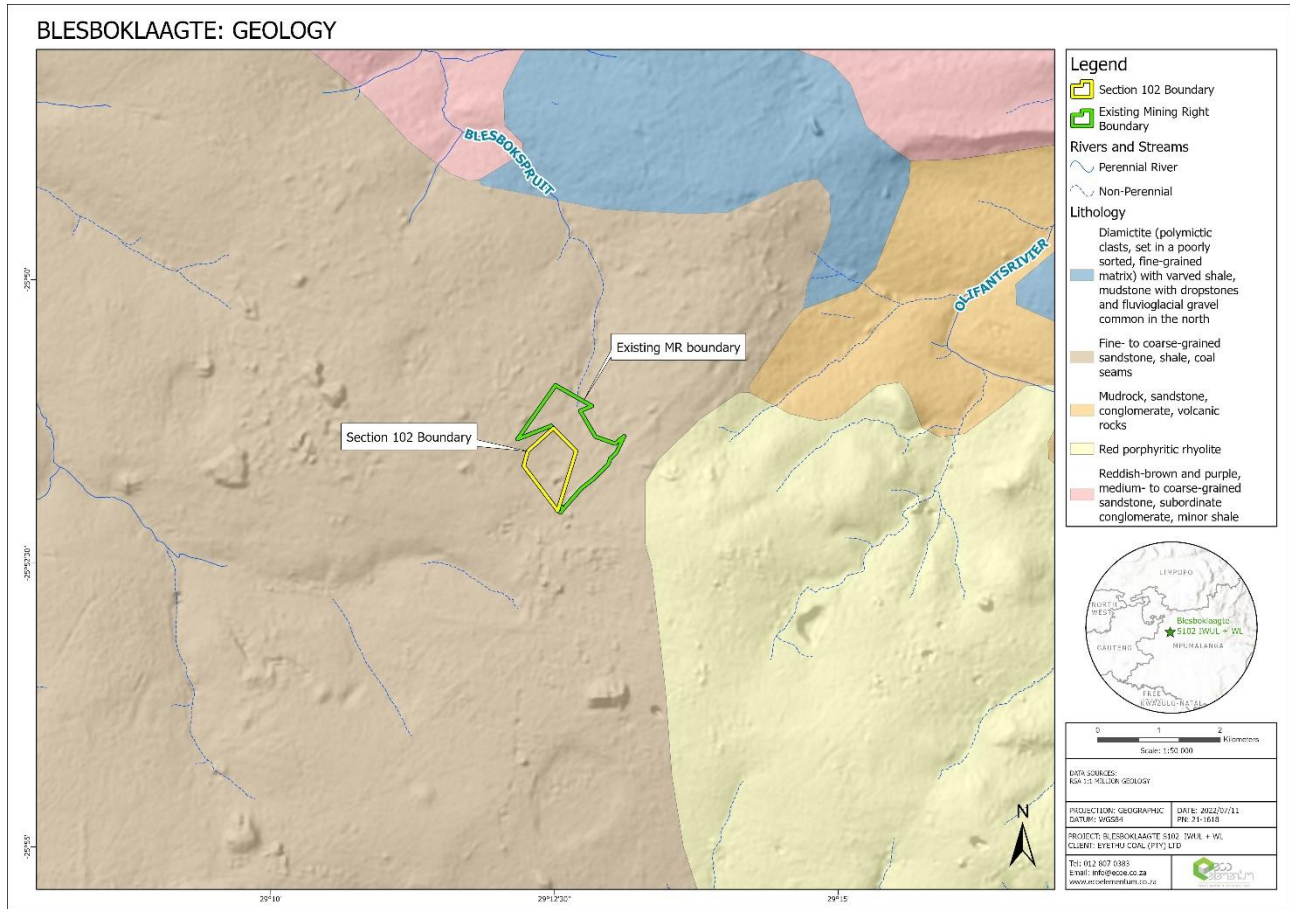


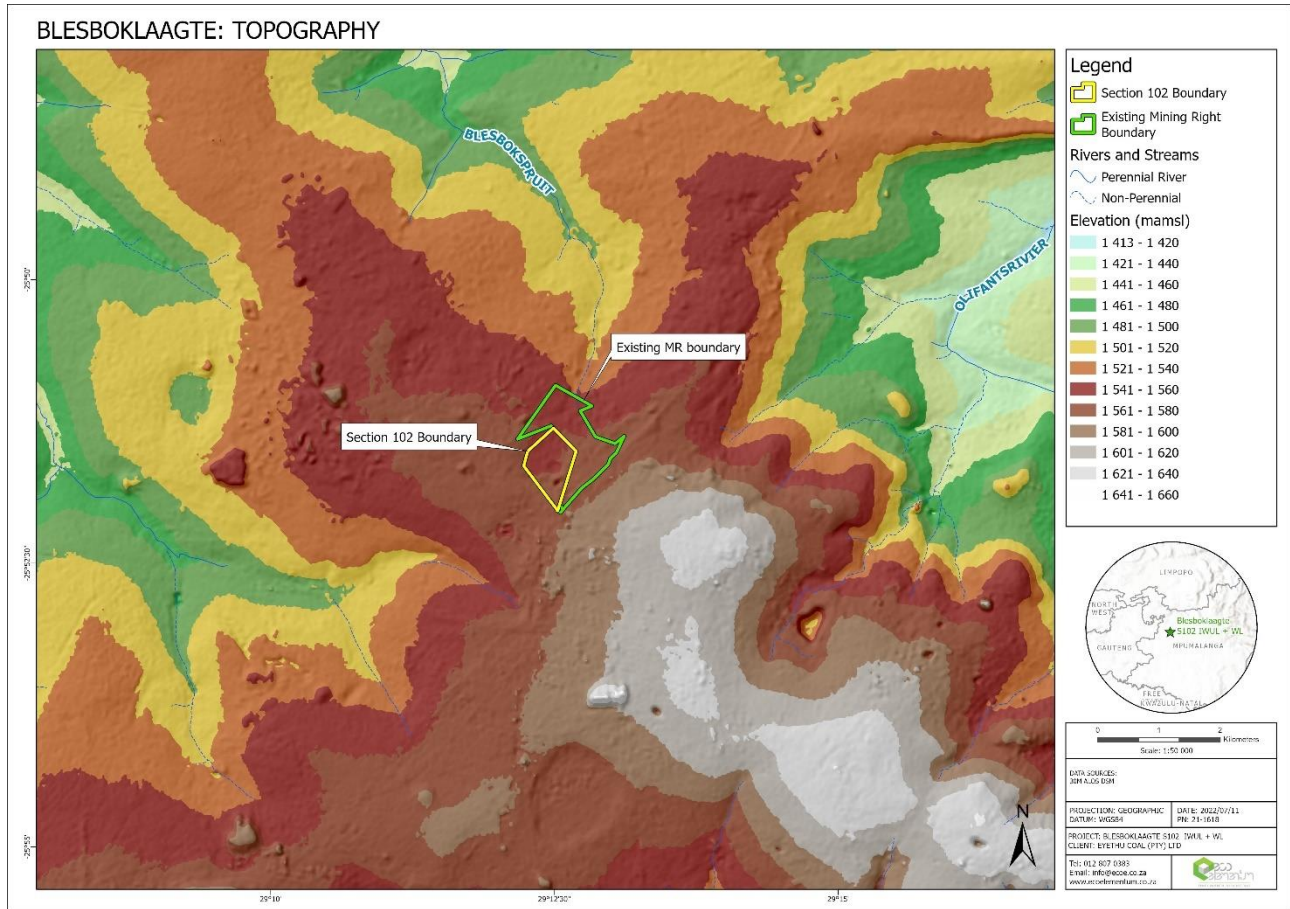
Figure 2-5 : Geology of the area

**TOPOGRAPHY**

Eastern Highveld Grassland is characterised by slightly to moderately undulating plains, including some low hills and pan depressions with an altitude 1 541–1 580 m.



Updated- 15/7/2022



## CLIMATE

Climatic data was obtained from the DWS weather station eMalaheni (rainfall data and evaporation data) at the Witbank Dam 1 (Table 2-5). The proposed mining site is located in the summer rainfall region of Southern Africa with precipitation usually occurring in the form of convective thunderstorms. The average annual rainfall (measured over a period of 70 years) is approximately 873.6 mm, with the high rainfall months between November and April (Figure 2-7). Recharge is estimated at an average of 3.5% of annual rainfall, i.e. 25 mm/a.



Table 2-5: Rainfall Data

Month	Average monthly rainfall (mm)	Mean monthly evaporation
January	127.5	166.3
February	92.1	139.4
March	73.1	130.6
April	40.4	97.6
May	14.1	79.9
June	6.0	65.7
July	3.0	72.2
August	8.3	98.6
September	21.2	136.7
October	76.3	163.2
November	120.4	158.7
December	115.5	164.2
Annual	697.3	1476.7

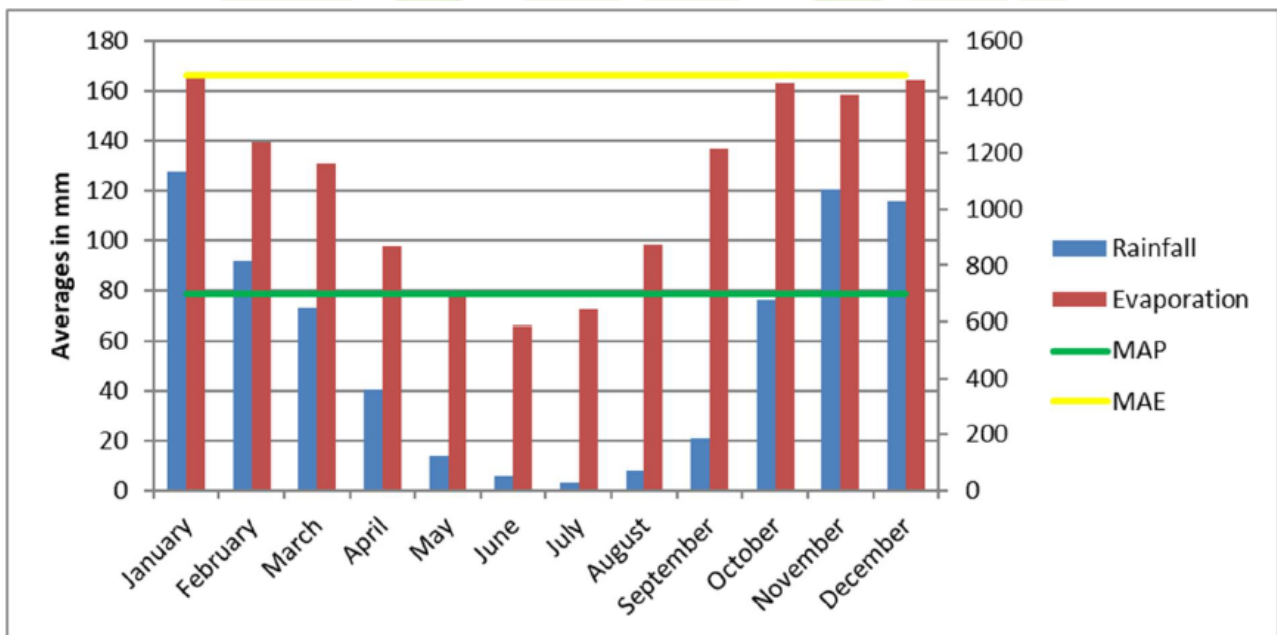


Figure 2-7: Average Rainfall Graph by Month

**WETLAND ECOLOGY**

A Wetland Assessment was undertaken in 2015, by Sazi Environmental Consulting of Blesboklaagte Colliery and its surrounding area. This study will be updated to a site-specific report and this will be included in the EIA.

**Catchment description**

The assessment area falls within the B11K quaternary catchment of the Upper Olifants Water Management Area (Figure 2-9). The main drainage feature of the catchment is the Klip River which drains northwards onto the Olifants River. Two major tributaries are found in the catchment including the Blesbokspruit and Klipspruit.



Updated- 15/7/2022

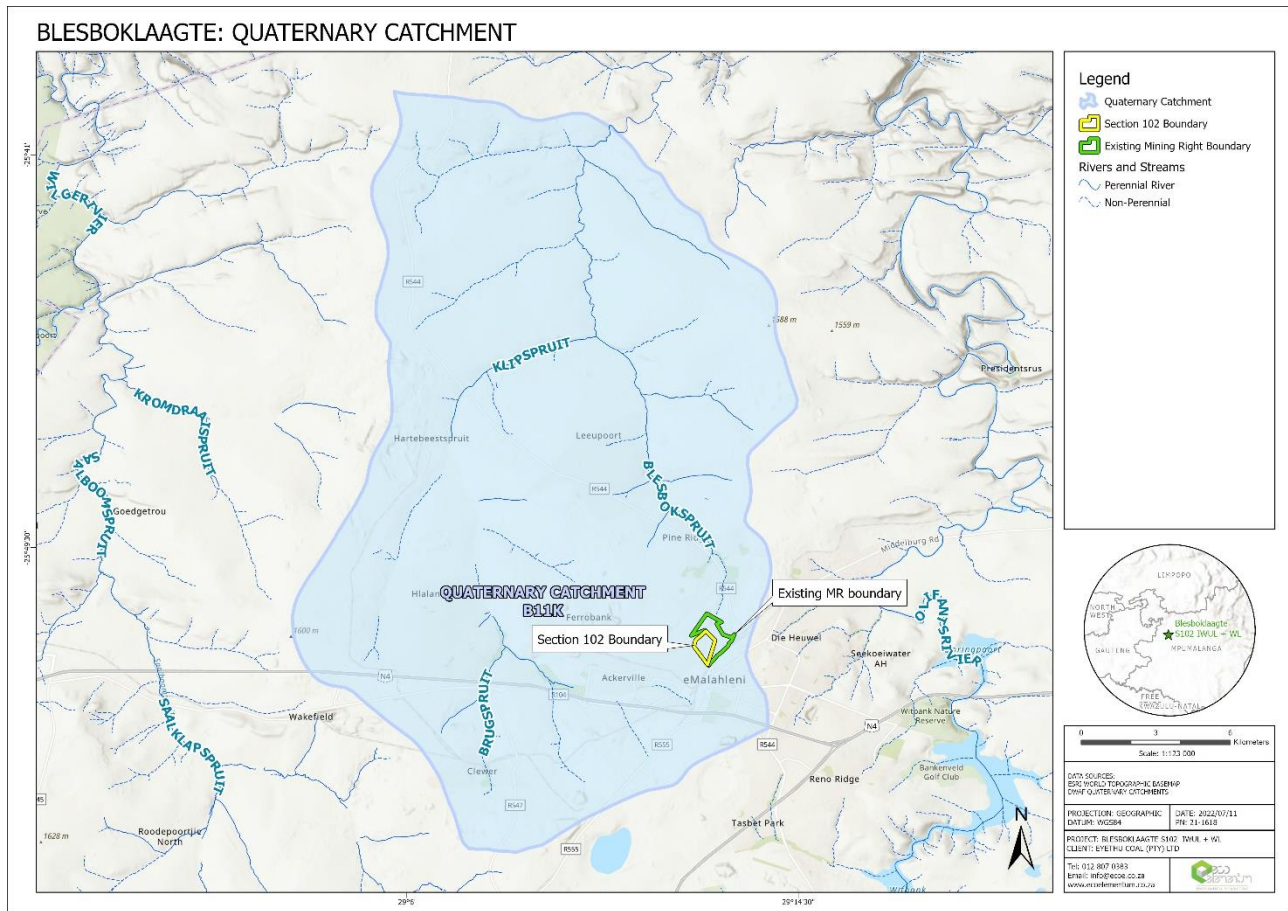


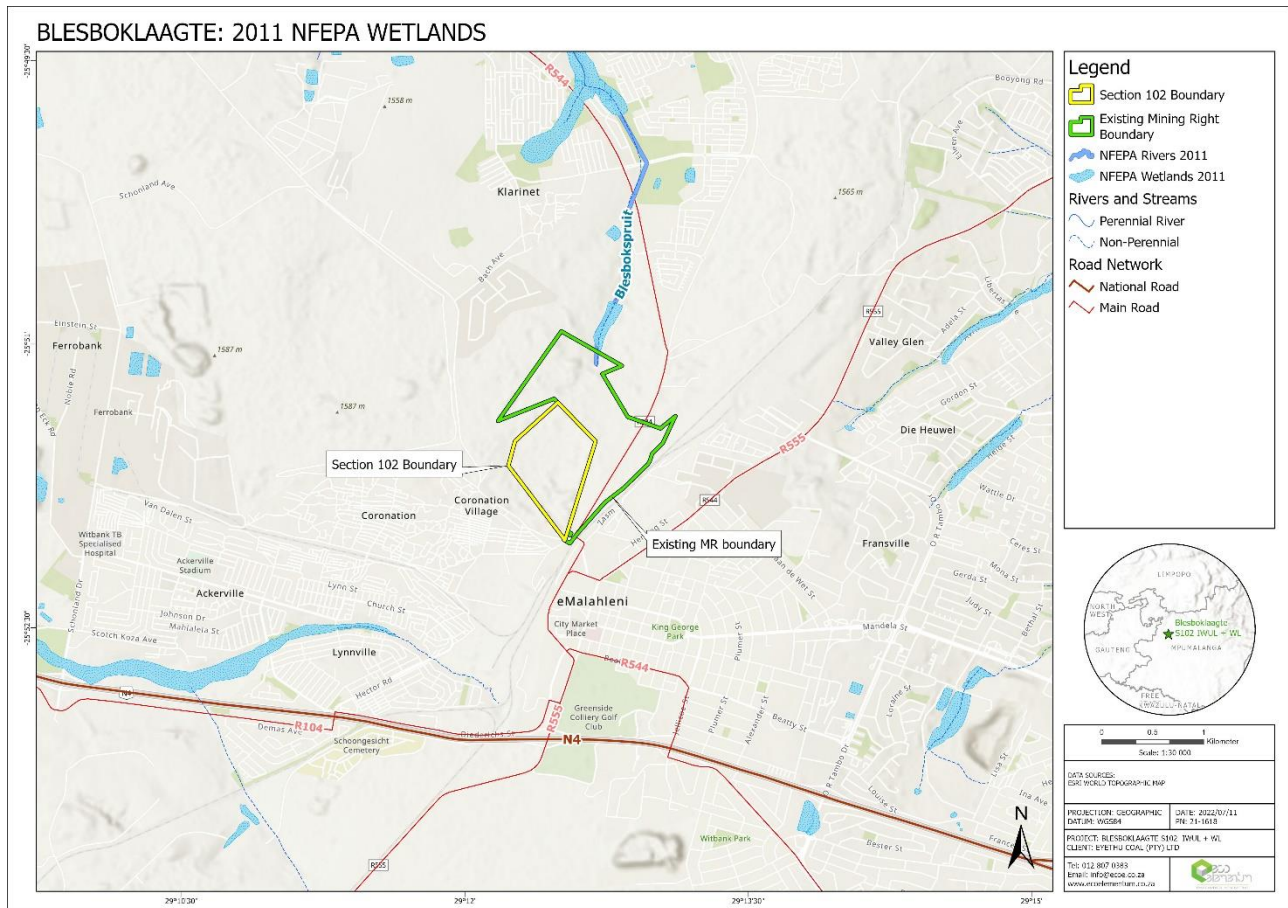
Figure 2-8: Quaternary Catchment of the proposed MR extension area

### Classification of wetlands

The proposed extension area lies south of the Blesbokspruit, a tributary of the Olifants River. The current Blesboklaagte Colliery and its associated infrastructure lies within 500 m of a channelled valley bottom wetland which forms the headwaters of the Blesbokspruit. Channelled valley bottom wetlands are characterised by their location on valley floors and the presence of a channel flowing through the wetland. Dominant water inputs to these wetlands are from/into a channel, in this instance an upstream source, flowing through the wetland either as surface flows resulting from flooding or as subsurface flow. Water generally moves through the wetland as diffuse surface flow although occasionally as short-lived concentrated flows during flood events (Kotze *et al.*, 2008; Ollis *et al.*, 2013). The figure below illustrates the NFEPA rivers and wetland observed around the site.



Updated- 15/7/2022



### Wetland Health Assessment

Wetland ecological status was assessed by considering impacts to wetland hydrology, geomorphology and vegetation. The channelled valley bottom wetland identified on site was associated with the Blesbokspruit, a tributary of the Olifants River. The channelled valley bottom wetland system was assessed in terms of health and was found to be categorised as seriously modified (Category E) (Table 2-6). Modifications to the systems and the resultant effect on the health of the wetlands is predominantly related to the extensive damming, mining, informal settlements, pollution, extensive alien invasive vegetation and erosion

Prominent land use features surrounding the delineated wetlands, and within the wetlands themselves, include: Four decant ponds; The R544 Road; Excavations; Underground mining (literature review); Township development (Klarinet); Alien invasive species; and past agricultural activities.

Extensive Eucalyptus infestation, damming, mining and erosion have had a negative impact on the basal cover of vegetation within the catchments associated with the channelled valley bottom wetland, leading to an increase in velocity entering the wetlands and the formation of erosion gullies in the majority of these systems. This results in a negative impact on the wetlands ability to maintain biodiversity. Despite the modified nature of the wetlands they still provide a number of functions to the larger landscape, particularly with regard to flood attenuation; sediment trapping; erosion control; the maintenance of biodiversity; and the provision of natural resources.



Updated- 15/7/2022

Table 2-6: Overall Wetland health score

HGM Unit	Hydrology Impact Score	Geomorphology Impact Score	Vegetation Impact Score	Overall Impact score	Health Category
Channelled valley bottom Wetland	6.7	7.3	6	6.6	E

**Wetland Ecological Importance and Sensitivity**

The ecological importance of the Blesbokspruit channelled valley bottom wetland was assessed based on terrestrial and aquatic biodiversity. According to the BGIS data source, the project area does not fall within a conservation area. In terms of aquatic biodiversity, the area is not expected to have high biodiversity. In terms of terrestrial biodiversity, the Mpumalanga Biodiversity Conservation Plan has marked the area as of least concern with large areas that lack natural habitat. The excavated areas (or collapsed undermining area) and open water of the decant ponds consisted of vegetation that is adapted to permanent inundation. These were mainly *Typha capensis*. The vegetation harbored bird species including, *Euplectes albonotatus*. The ponds open water included the *Podica senegalensis*. Based on these reasons, the ecological importance and sensitivity of the Blesbokspruit channelled bottom wetland was regarded as LOW.

The Ecological Importance and Sensitivity (EIS) of the wetlands has generally been recorded as moderate to low and the Ecological Services as intermediate (Figure 2-7 and Table 2-8). Although no red-data species were identified during the site investigation, the majority of channelled valley bottom systems usually, provide habitat for a number of floral and faunal species.

Table 2-7: Summary of the Ecological Services of the three wetland systems in proximity of Blesboklaagte

Condensed summary sheet	HGM 1	
	Overall score	Confidence rating
Flood attenuation	3	4
Streamflow regulation	1,3	3
Sediment trapping	3	2,1
Phosphate trapping	2	1
Nitrate removal	2	1
Toxicant removal	1	1
Erosion control	1	3
Carbon storage	2	3
Maintenance of biodiversity	1	2
Water supply for human use	1	3
Natural resources	1	3
Cultivated foods	1	4
Cultural significance	1	3
Tourism and recreation	1	3
Education and research	1	3
Threats	3	3
Opportunities	2	3
<b>Overall</b>	<b>1,71</b>	<b>2,82</b>

**Note:** <0.5 Low; 0.5-1.5 Moderately low; 1.5-2.5 Intermediate; 2.5-3.5 Moderately high; and >3.5 High



Updated- 15/7/2022

Table 2-8: Summary of the Ecological Importance and Sensitivity of the wetland system associated with the Blesboklaagte

Ecological Importance	Score (0-4)	Confidence (15)
<b>Biodiversity support</b>	<b>0,83</b>	<b>3,33</b>
Presence of Red Data species	0,5	3
Populations of unique species	0,8	3
Migration/breeding/feeding sites	1,2	4
<b>Landscape scale</b>	<b>0,86</b>	<b>3</b>
Protection status of the wetland	1	4
Protection status of the vegetation type	0,9	4
Regional context of the ecological integrity	0,7	4
Size and rarity of the wetland type/s present	0,5	3
Diversity of habitat types	1,2	3
<b>Sensitivity of the wetland</b>	<b>1,33</b>	<b>2,33</b>
Sensitivity to changes in floods	1,5	3
Sensitivity to changes in low flows/dry season	1,2	2
Sensitivity to changes in water quality	1,3	2
<b>ECOLOGICAL IMPORTANCE &amp; SENSITIVITY</b>	<b>1,01</b>	<b>2,89</b>
<b>HYDROLOGICAL/FUNCTIONAL IMPORTANCE</b>	<b>1,88</b>	<b>1,88</b>
<b>DIRECT HUMAN BENEFITS</b>	<b>1,67</b>	<b>4</b>
<b>OVERALL</b>	<b>1,5</b>	<b>2,92</b>

None, Rating = 0 rarely sensitive to changes in water quality/hydrological regime; Low, Rating =1 One or a few elements sensitive to changes in water quality/hydrological regime; Moderate, Rating =2 some elements sensitive to changes in water quality/hydrological regime; High, Rating =3 Many elements sensitive to changes in water quality/ hydrological regime; Very high, Rating =4 Very many elements sensitive to changes in water quality/ hydrological regime

**An updated Wetland Impact Assessment will be conducted and included in the EIA.**

## AQUATIC ECOLOGY

From the desktop assessment it was found that the combined aquatic biodiversity of the site was of low sensitivity. The river of high importance found in the area is the headwater of the Blesbokspruit. The headwater area consists of four dams used to catch decant water from old underground workings. This area is of high to very high sensitivity and occurs north of the expansion site.

During a site visit it was evident that alien invasive plant infestation and extensive mining activities affected water quality and were impacted by the upstream activities of the Blesbokspruit. It must be noted that the study sites had stagnant water in certain sections of the streams at the time at the assessment. Only a downstream site could be selected, due to the fact the Blesboklaagte Colliery occurring above the origin of the Blesbokspruit.

In situ water quality variables of the river were found to be within unacceptable limits compared to the Target Water Quality Ranges (TWQRs) for aquatic ecosystems of South Africa. The temperatures were relatively stable, where electrical conductivity levels were exceeding guideline levels and dissolved oxygen (DO) levels and pH were below guideline levels (Table 2-9). It must be noted that in situ water quality testing cannot identify specific chemicals for the basis for the health determination of a river system.



Table 2-9: *In situ* water quality results

Constituents	Guideline values (TWQRs)	Sample point 1
pH	6.5-9,5	3,57
Temp (°C)	5-30	24,0
Conductivity (µS/cm)	<700	2644
Dissolved Oxygen (%)	>80%	1,1
Dissolved Oxygen (mg/L)	>6	0,08

The IHIA results recorded the site within a seriously modified state (Category E). A category of E indicates that the loss of natural habitat, biota and basic ecosystem functions is extensively transformed from reference conditions. The predominant cause for concern was erosion, alien invasive plants, mining and water quality. The IHIA assesses the number and severity of anthropogenic impacts and the damage they potentially inflict on the habitat integrity of aquatic ecosystems. The results of the IHIA are presented below in Table 2-10.

Table 2-10: Overall IHIA instream and riparian results

INSTREAM CRITERIA	WEIGHT	Site 1	Score
Water abstraction	14	15	8,4
Flow modification	13	22	11,44
Bed modification	13	22	11,44
Channel modification	13	22	11,44
Water quality	14	22	12,32
Inundation	10	16	6,4
Exotic macrophytes	9	12	4,32
Exotic fauna	8	19	6,08
Solid waste disposal	6	15	3,6
TOTAL	100		24,56
RIPARIAN ZONE CRITERIA	WEIGHT	Site 1	Score
Indigenous vegetation removal	13	22	11,44
Exotic vegetation encroachment	12	22	10,56
Bank erosion	14	15	8,4
Channel modification	12	16	7,68
Water abstraction	13	15	7,8
Inundation	11	15	6,6
Flow modification	12	20	9,6
Water quality	13	22	11,44
TOTAL	100		26,48
<b>OVERALL</b>			<b>25,52</b>

The findings for the vegetation assessment revealed that riparian habitat of the area was seriously modified (Category E). The entire study area has, been disturbed as a result of mining, erosion, alien invasive plant species and damming in the marginal and non-marginal zones.

During the survey; no sensitive organisms was sampled. These results should be approached with caution as it is not a true representation of the site, due to a lack of suitable flow conditions as a result of upstream damming and water pollution. Sampled invertebrates included the *Corixidae*, *Gerridae*, *Gyrinidae*, *Dytiscidae*, *Hydrophilidae*, *Culicidae* and *Chironomidae*.

The SASS5 score were found to be in the seriously modified category (Category E/F). The presence of only highly pollution tolerant organisms indicates the pressure from extensive pollution upstream, with the complete absence of sensitive species.

**Where necessary, an Aquatic Impact Assessment will be updated and included in the EIA.**





Updated- 15/7/2022

TERRESTRIAL ECOLOGY

According to the Critical Biodiversity Areas datasets provided by SANBI (2019), the majority of the application area falls within CBAs as seen in Figure 2-10. These sections were confirmed to be transformed landscape during the site visit.

The Blesboklaagte MR expansion area’s terrestrial biodiversity has a very high combined sensitivity. This is due to the area falling into areas categorised as possible Critical Biodiversity Areas (CBAs) and Focus Areas for Protected Areas Expansion Strategies. However, the desktop study also revealed that the area is heavily to moderately modified. The area is known for historical underground mining disturbance, areas of subsidence and land with disturbed vegetation, with very little natural habitat left.

The majority of the study site consisted of alien invasive vegetation and very little indigenous vegetation. No red listed floral species were observed during the site visit.

Commonly observed grasses (dominant species) within the area of investigation comprised *Hyparrhenia hirta* (Thatching grass), *Melinos repens* (Natal red top) and *Pogonarthria squarrosa* (Herringboe grass). Beyond the reaches of the grasslands is extensive gumtree and black wattle invasion.

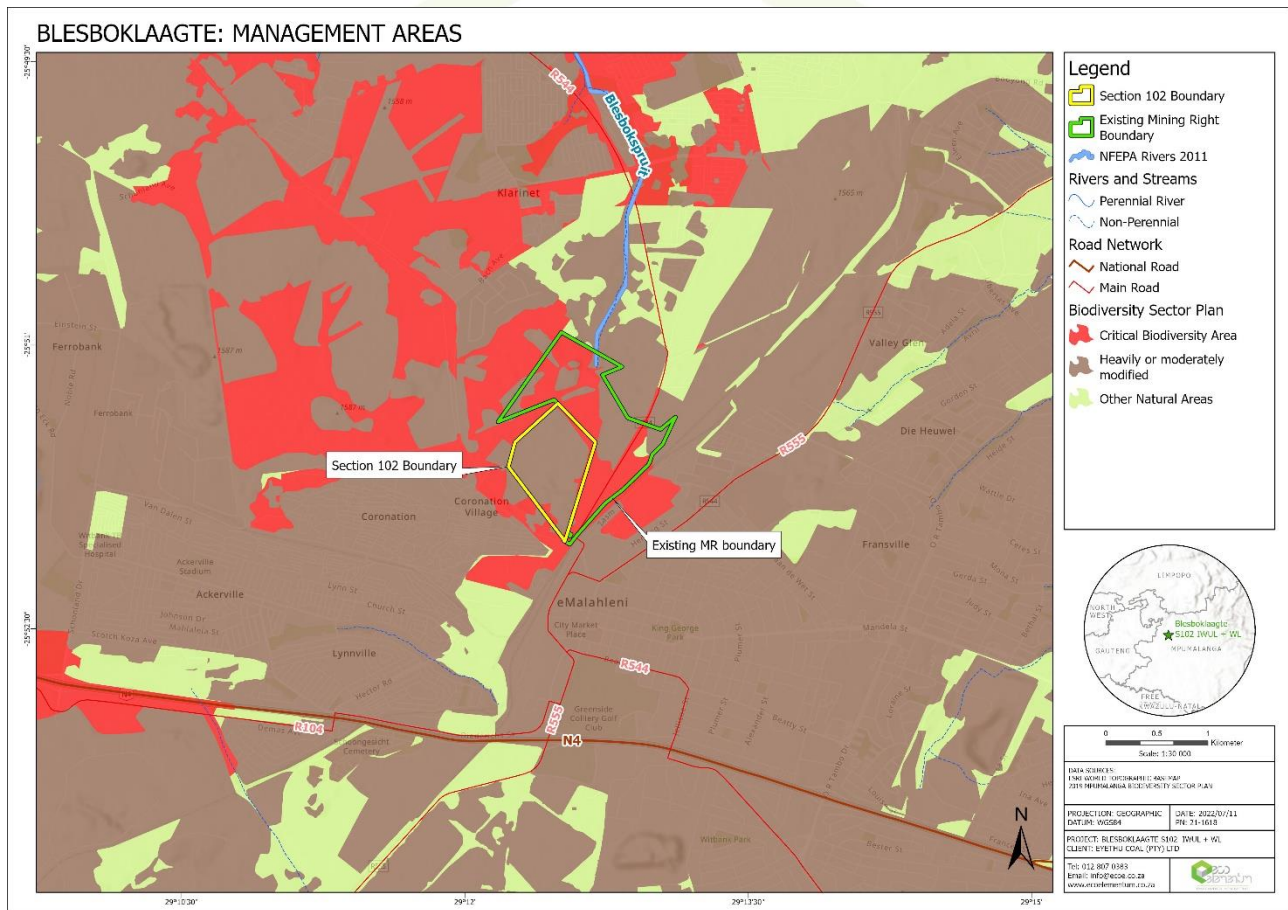


Figure 2-10: Relative Terrestrial Biodiversity Theme Sensitivity

**Eastern Highveld Grassland**

The site further falls within the Eastern Highveld Grassland vegetation type (Figure 2-11). This vegetation type corresponds partially with Bankenveld and North-eastern Sandy Highveld according to Acocks (1975) and also Moist Sandy Highveld Grassland as described by Low and Rebelo (1996).

This vegetation type occurs within the Gauteng and Mpumalanga Provinces on the plains in the areas between Belfast in the East and the eastern side of Johannesburg in the West and southwards to Bethal, Ermelo and West of Piet Retief.



Updated- 15/7/2022

The conservation status of this vegetation type is Endangered and the conservation target is 24%. By 2006 some 44% was already transformed primarily by cultivation, plantations, mining, urbanisation and building of dams. No serious invasions are reported, although *Acacia mearnsii* can become dominant in disturbed sites. Erosion is generally low. Only a small part of this vegetation type is conserved in the statutory nature reserves Nooitgedacht dam - and Jericho dam Nature Reserve of the Mpumalanga Tourism and Parks Agency and in Private Nature Reserves such as Holkranse, Kransbank and Morgenstond (Mucina and Rutherford, 2006).

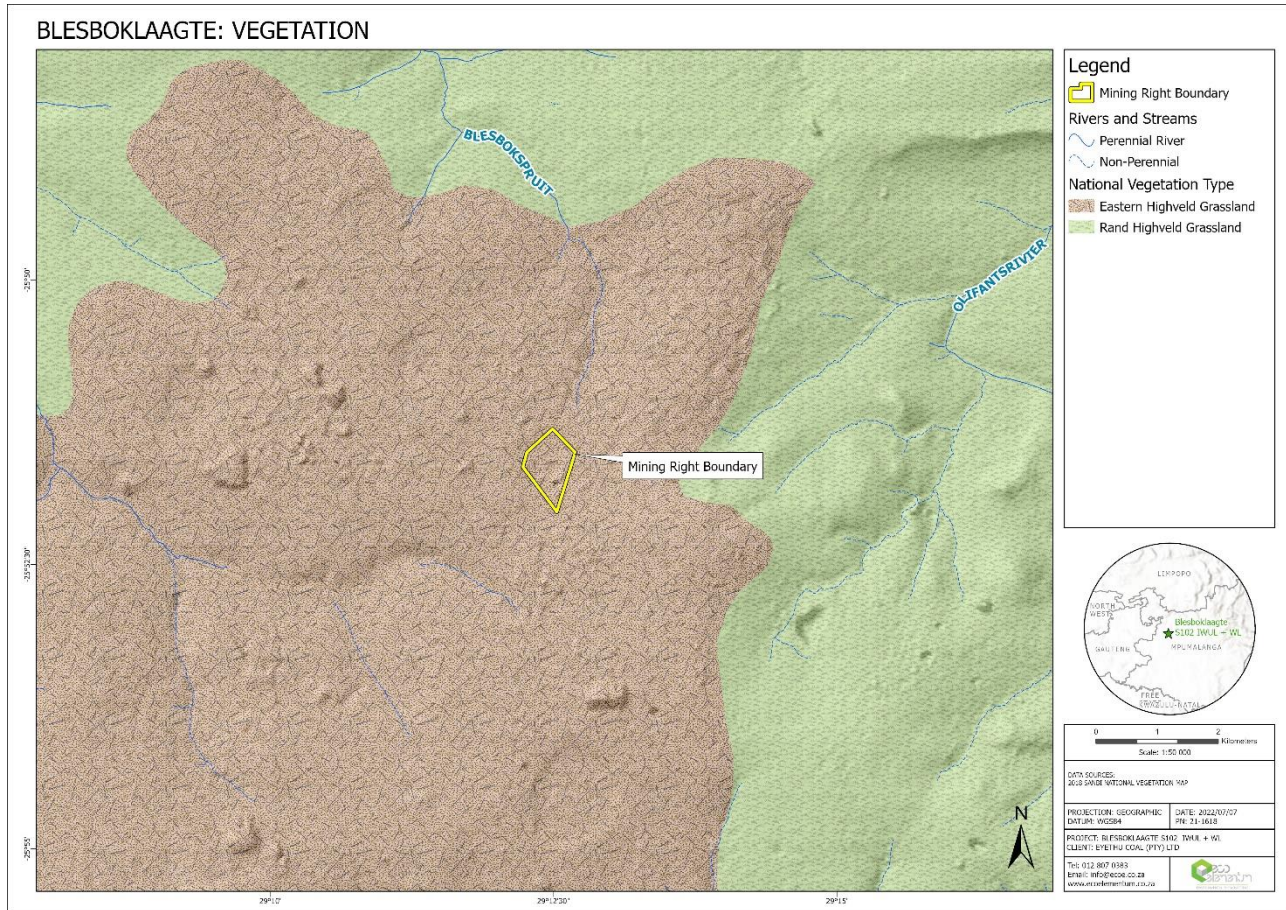


Figure 2-11: Vegetation Type of the proposed MR extension area

The conservation status of this vegetation type is Endangered and the conservation target is 24%. By 2006 some 44% was already transformed primarily by cultivation, plantations, mining, urbanisation and building of dams. No serious invasions are reported, although *Acacia mearnsii* can become dominant in disturbed sites. Erosion is generally low. Only a small part of this vegetation type is conserved in the statutory nature reserves Nooitgedacht dam - and Jericho dam Nature Reserve of the Mpumalanga Tourism and Parks Agency and in Private Nature Reserves such as Holkranse, Kransbank and Morgenstond (Mucina and Rutherford, 2006).

The important plant species of this vegetation type are given in Table 2-11.



Table 2-11: Important plant species of the Eastern Highveld Grassland

FAMILY	SPECIES	STATUS
POACEA	<i>Aristida aequiglumis</i>	D
POACEA	<i>A. congesta</i>	D
POACEA	<i>A. junciformis</i> subsp. <i>galpinii</i>	D
POACEA	<i>Brachiaria serrata</i>	D
POACEA	<i>Cynodon dactylon</i>	D
POACEA	<i>Digitaria monodactyla</i>	D
POACEA	<i>D. tricholaenoides</i>	D
POACEA	<i>Elionurus muticus</i>	D
POACEA	<i>Eragrostis chloromelas</i>	D
POACEA	<i>E. curvula</i>	D
POACEA	<i>E. racemosa</i>	D
POACEA	<i>E. sclerantha</i>	D
POACEA	<i>Heteropogon contortus</i>	D
POACEA	<i>Loudetia simplex</i>	D
POACEA	<i>Microchloa caffra</i>	D
POACEA	<i>Monocymbium ceresiiforme</i>	D
POACEA	<i>Setaria sphacelata</i>	D
POACEA	<i>Sporobolus africanus</i>	D
POACEA	<i>S. pectinatus</i>	D
POACEA	<i>Themeda triandra</i>	D
POACEA	<i>Trachypogon spicatus</i>	D
POACEA	<i>Tristachya leucothrix</i>	D
POACEA	<i>T. rehmannii</i>	D
POACEA	<i>Alloteropsis semialata</i> subsp. <i>eckloniana</i>	
POACEA	<i>Andropogon appendiculatus</i>	
POACEA	<i>A. schirensis</i>	
POACEA	<i>Bewisia biflora</i>	
POACEA	<i>Ctenium concinnum</i>	
POACEA	<i>Diheteropogon amplexens</i>	
POACEA	<i>Eragrostis capensis</i>	
POACEA	<i>E. gummiflua</i>	
POACEA	<i>E. patentissima</i>	
POACEA	<i>Harpochloa falx</i>	
POACEA	<i>Panicum natalense</i>	
POACEA	<i>Rendlia altera</i>	
POACEA	<i>Schizachyrium sanguineum</i>	
POACEA	<i>Setaria nigrirostris</i>	
POACEA	<i>Urelytrum agropyroides</i>	
ASTERACEAE	<i>Berkheya setifera</i>	D
ASTERACEAE	<i>Haplocarpha scaposa</i>	D
ACANTHACEAE	<i>Justicia anagaloides</i>	D
GERANIACEAE	<i>Pelargonium luridum</i>	D
EUPHORBIACEAE	<i>Acalypha angustata</i>	
FABACEAE	<i>Chamaecrista mimosoides</i>	
ASTERACEAE	<i>Euryops gilfillanii</i>	
ASTERACEAE	<i>E. transvaalensis</i> subsp. <i>setilobus</i>	
ASTERACEAE	<i>Helichrysum aureonitens</i>	
ASTERACEAE	<i>H. caespitium</i>	
ASTERACEAE	<i>H. callicomum</i>	
ASTERACEAE	<i>H. oreophilum</i>	
ASTERACEAE	<i>H. rugulosum</i>	
CONVOLVULACEAE	<i>Ipomoea crassipes</i>	
RUBIACEAE	<i>Pentanisia prunelloides</i> subsp. <i>latifolia</i>	
SCROPHULARIACEAE	<i>Selago densiflora</i>	
ASTERACEAE	<i>Senecio coronatus</i>	
ASTERACEAE	<i>Vernonia oligocephala</i>	
CAMPANULACEAE	<i>Wahlenbergia undulata</i>	
IRIDACEAE	<i>Gladiolus crassifolius</i>	
AMARYLLIDACEAE	<i>Haemanthus humilis</i> subsp. <i>hirsutus</i>	
HYPOXIDACEAE	<i>Hypoxis rigidula</i> var. <i>pilosissima</i>	
HYACINTHACEAE	<i>Ledebouria ovatifolia</i>	
ASPHODELACEAE	<i>Aloe ecklonis</i>	
RUBIACEAE	<i>Anthospermum rigidum</i> subsp. <i>pumilum</i>	
ASTERACEAE	<i>Stoebe plumosa</i>	

Mammal species that were identified onsite included the yellow mongoose (*Cynictis penicillata*) and ground squirrel (*Xerus* spp.). Bird species included White-fronted bee-eater (*Merops bullockoides*); Helmeted guinea fowl (*Numida meleagris*) Egyptian goose (*Alopochen aegyptiaca*) (Figure 24). Other species included Laughing dove (*Spilopelia senegalensis*), Indian myna (*Acridotheres tristis*), Southern



Updated- 15/7/2022

red bishop (*Euplectes orix*) and Southern masked weaver (*Ploceus velatus*). No red listed faunal species were observed during the site visit.

**A Terrestrial Impact Assessment will be conducted and included in the EIA.**

**HERITAGE AND PALAEOLOGY**

The Karoo Supergroup is renowned for its fossil wealth. The Vryheid Formation (Pe, Pv), Eccca Group is rich in plant fossils such as the *Glossopteris* flora represented by stumps, leaves, pollen and fructifications. This formation is early to mid-Permian (Palaeozoic) in age and consists of sandstone, shaly sandstone, grit, conglomerate, coal and shale. Coal seams are present in the Vryheid Formation within the sandstone and shale layers. Fossils are mainly present in the grey shale which is interlayered between the coal seams (Kent 1980, Visser 1989). Borehole logs in the coalfields show the following layers; soil, shale and sandstone, shale and sandstone interbedded, sandstone, coal, conglomerate reworked diamictite, Dwyka Tillite, and the Pre-Karoo Basement.

Fossils in South Africa mainly occur in rocks of sedimentary nature and not in rocks from igneous or metamorphic nature. Therefore, if there is the presence of Karoo Supergroup strata the palaeontological sensitivity can generally be LOW to VERY HIGH, and here locally **VERY HIGH** for the Vryheid Formation (SG 2.2 SAHRA APMHOB, 2012).

The figure below shows the relative sensitivity of the area for Archaeological finds and Cultural Heritage (Figure 2-12). The map show low sensitivity for the expansion area.

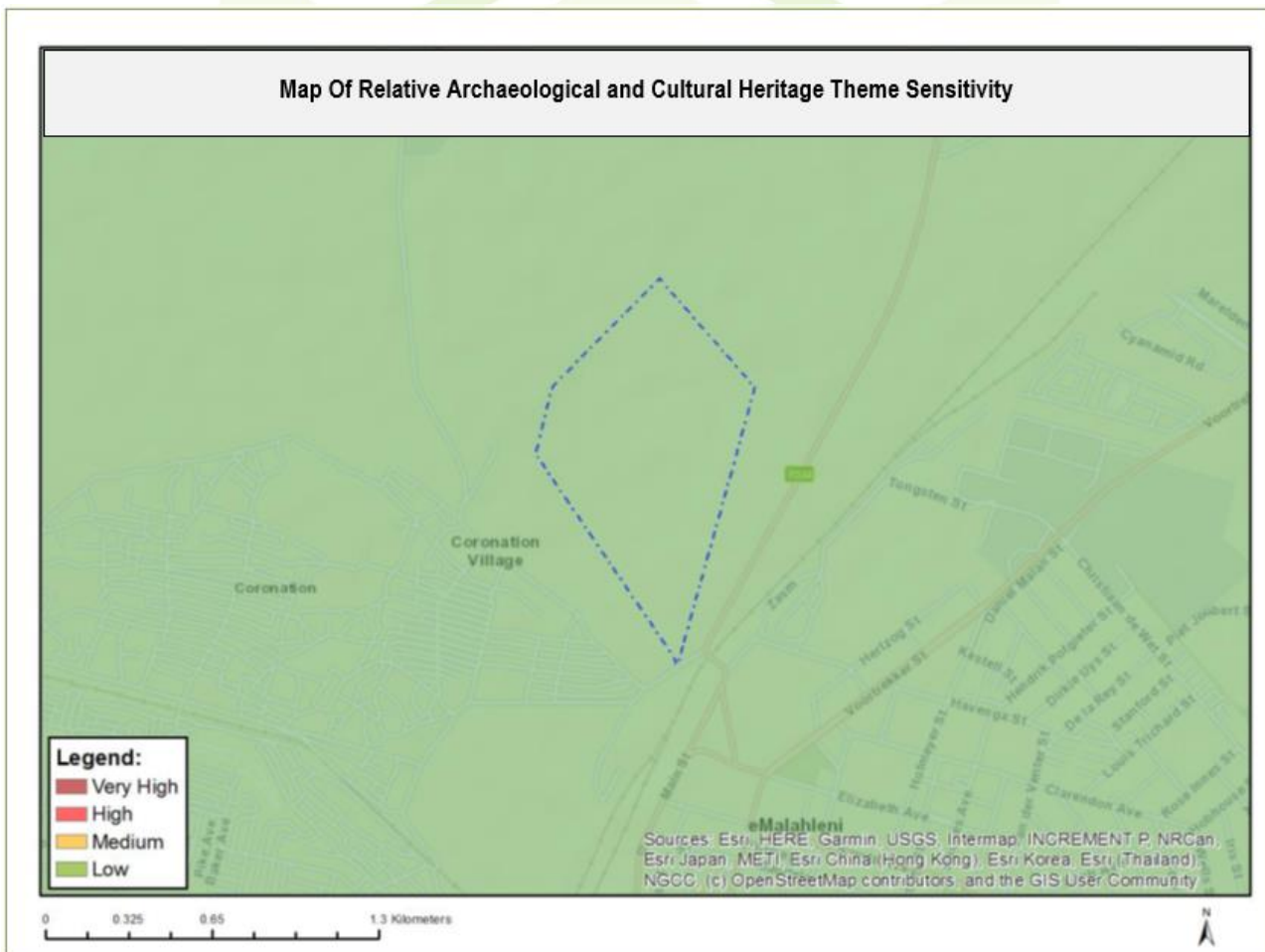


Figure 2-12: Relative Archaeological and Cultural Heritage Theme Sensitivity

**A Heritage Impact Assessment will be conducted and included in the EIA.**



**SURFACE WATER**

According to DWAF’s water management area delineations the proposed expansion area falls within the Olifants water management area, delineated as water management area No. 4, which subsequently falls under the B Primary drainage area. The Olifants water management area is divided into four major river catchments i.e. the Elands, Wilge, Steelpoort and Olifants catchments. The Blesboklaagte Colliery and its proposed expansion area falls within the Olifants catchment, within the B11 and B11K tertiary and quaternary drainage regions respectively, which drains into the Blesbokspruit. See Figure 2-8 for the location of the mine in relation to the tertiary and quaternary drainage regions.

**The Affected Sub-Catchment**

The potentially affected catchment is the origin of the Blesbokspruit as depicted in Figure 2-8. The catchment area of the affected stream measures approximately 1486 ha.

This stream has, despite the winter season; shown strong flows which suggest that it receives water from a source, probably decant water from the old underground workings to the west of the proposed mining area. The Blesbokspruit confluences with the Klipspruit several kilometres to the north of the proposed mining area. The Klipspruit which drains a number of small streams eventually drains into the Olifants River upstream of the Loskop Dam.

**Surface Water Quality**

Previous studies conducted on the surface water Blesbokspruit suggest that the water quality of the Blesbokspruit, approximately 1 km upstream of the mining site (BSW 01) is slightly of good quality but shown signs of unacceptable pH readings, manganese and Aluminium. The low pH can be ascribed to the seepage water emanating from the old underground workings, whereas the high concentration of Manganese and Aluminium can be attributable the local geology.

The quality of the water downstream of the proposed mining area (BSW 02) can be described as very poor and is typical of water contaminated by coal mining activities. The levels of certain indicator constituents are elevated well above the SANS. Refer to Table 2-12.

**Table 2-12: Surface water quality results**

Constituents (mg/l)	SANS Standard – 241 (2005)	BSW01 Up-stream Blesbokspruit	BSW02 Downstream Blesbokspruit
	Class I		
Total Dissolved Salts (TDS)	< 1000	484	1262
E. Conductivity (mS/m)	< 150	79	176
pH	5.0 – 9.5	3.50	3.86
Total hardness (as CaCO <sub>3</sub> )	Ns	161	458
Calcium hardness (as CaCO <sub>3</sub> )	Ns	95	244
Magnesium hardness (as CaCO <sub>3</sub> )	Ns	66	214
Calcium as Ca	< 150	38	98
Magnesium as Mg	< 70	16	52
Sodium as Na	< 200	61	91
Potassium as K	< 50	4	10
Alkalinity (as CaCO <sub>3</sub> )	Ns	0	0
Chloride as Cl	< 200	90	108
Sulphate as SO <sub>4</sub>	< 400	187	788
Fluoride as F	< 1.0	< 0.20	< 0.20



Updated- 15/7/2022

Constituents (mg/l)	SANS Standard – 241 (2005)	BSW01 Up-stream Blesbokspruit	BSW02 Downstream Blesbokspruit
	Class I		
Iron as Fe	< 0.20	< 0.01	42
Manganese as Mn	< 0.10	2.05	8
Aluminium as Al	< 0.30	2	49
Suspended solids (SS)	Ns	4	156
Nitrate as N	< 10	0.2	0.23

NS: Not specified

**A detailed Surface Water Impact Assessment will be conducted and included in the EIA.**

**GROUNDWATER**

**Groundwater Levels**

The groundwater levels for the Blesboklaagte Colliery MR and expansion area varied between a minimum of 3.4 m and a maximum of 16.7 m with 11 m as the average depth to water level. Water levels within the planned MR area are relatively stable, even though seasonal fluctuation should be expected due varying recharge potential influenced by seasonal rainfall patterns. Groundwater flow is mainly from topographical high to low areas, eventually draining westerly and north-westerly towards the Blesbokspruit. Figure 2-13 and Figure 2-14 provides the groundwater level statistics recorded from the boreholes identified in the hydrocensus of the area.

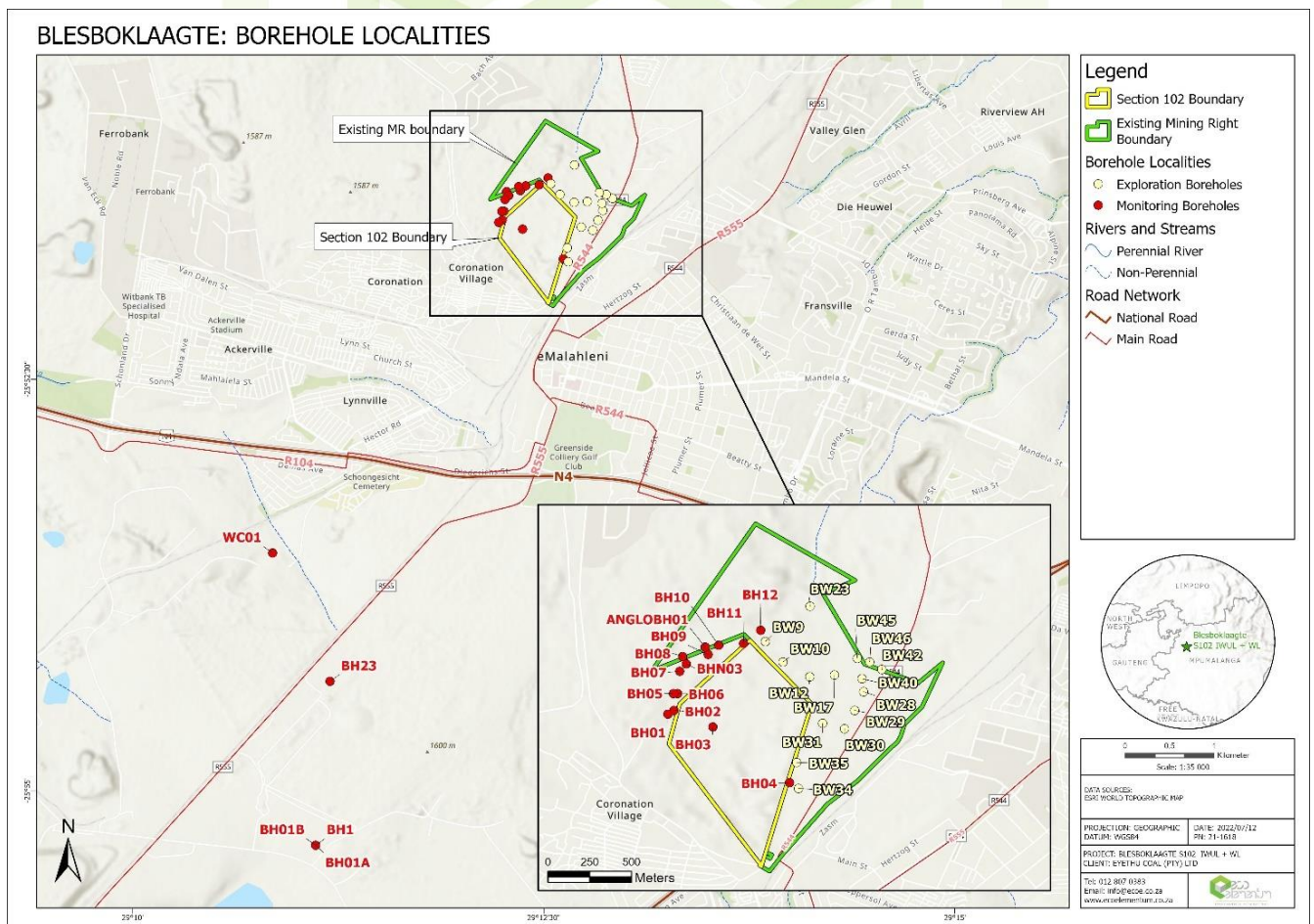


Figure 2-13: Blesboklaagte borehole localities



Updated- 15/7/2022

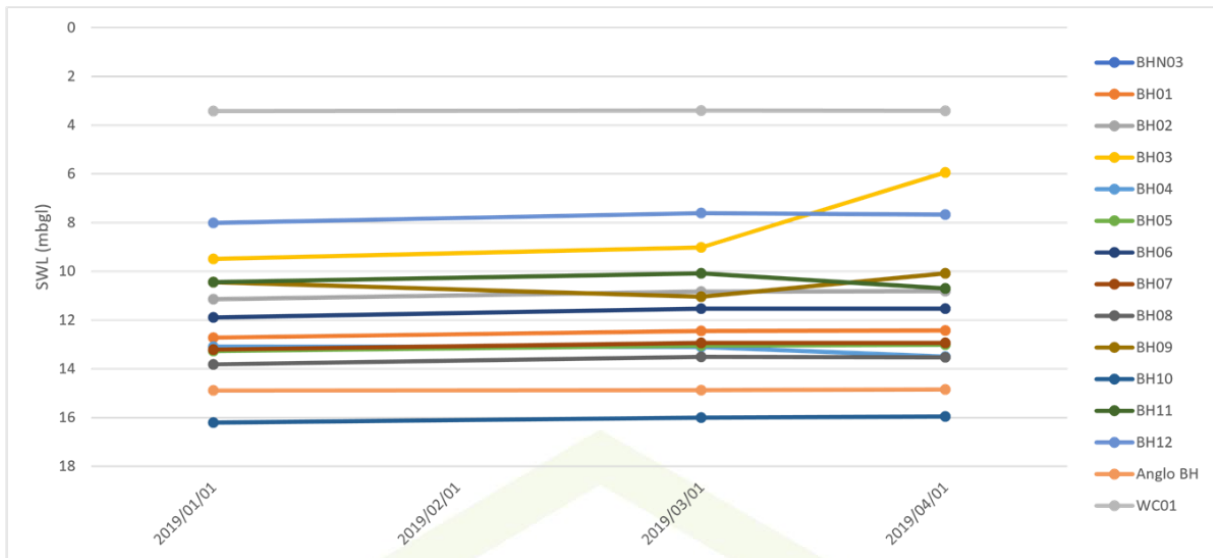


Figure 2-14: Groundwater level changes

### Water Quality

The results of the screening for groundwater were flagged against the SANS 241-1:2015 drinking water guidelines; the following observations were made:

- pH is acidic (<5) in samples, BW9 and BW12 (which intersect old underground mining sections).
- Combined nitrate and nitrite concentration exceeds the maximum allowable limit in samples BW12 and BW28.
- Iron concentration exceeds the maximum allowable limit in samples, BW9 and BW12.
- Aluminium concentration exceeds the maximum allowable limit in samples, BW9 and BW12.
- Manganese concentration exceeds the maximum allowable limit in samples, BW9 and BW12.
- Samples, BW9 and BW12 show acidic pH, metal mobilisation and high proportions of SO<sub>4</sub><sup>2-</sup>, Cl<sup>-</sup> and Na<sup>+</sup>, indicative of solute enrichment due to acid mine drainage in the defunct underground mine workings.

Table 2-13: Water qualities compared to SANS 241-1:2015 guidelines for human consumption

SANS 241-1:2015 Guidelines	Risk	BW9	BW12	BW28	Tolerable Limit	Maximum Limit
pH	Operational	2.9	2.72	5.6	5	9.7
EC (mS/m)	Aesthetic	109	130	5.62		170
TDS (mg/l)	Aesthetic	760	913	39.3		1200
Alkalinity (mg/l CaCO <sub>3</sub> )	Not determined	BDL	BDL	11.6		
Ca (mg/l)	Not determined	18.4	18.3	2.57		
Mg (mg/l)	Not determined	9.39	8.26	1.45		
Na (mg/l)	Aesthetic	45.8	55.1	3.22		200
K (mg/l)	Not determined	4.96	3.16	2		



Updated- 15/7/2022

SANS 241-1:2015 Guidelines	Risk	BW9	BW12	BW28	Tolerable Limit	Maximum Limit
Cl (mg/l)	Aesthetic	55.1	61.3	3.32		300
NH3 as N (mg/l)	Aesthetic	1.22	0.616	BDL		1.5
NO2 as N (mg/l)	Acute health	0.008	0.006	0.008		0.9
NO3 as N (mg/l)	Acute health	BDL	1.5	0.313		11
NO3+NO2 (mg/l)	Acute health	0.541	6.68	1.4		1
PO4 as P (mg/l)	Not determined	0.017	0.049	0.002		
SO4 (mg/l)	Aesthetic/Acute health	313	318	6.34	500	250
F (mg/l)	Chronic health	1.06	4.26	0.112		
Fe (mg/l)	Aesthetic/Chronic health	25.8	11.9	BDL	0.3	2
Al (mg/l)	Operational	23.8	23.6	0.05		0.3
As (mg/l)	Chronic health	BDL	BDL	BDL		0.01
B (mg/l)	Chronic health	BDL	BDL	BDL		2.4
Ba (mg/l)	Chronic health	BDL	0.08	0.17		0.7
Cd (mg/l)	Chronic health	BDL	BDL	BDL		0.03
Cr (mg/l)	Chronic health	BDL	BDL	BDL		0.05
Cu (mg/l)	Chronic health	BDL	BDL	BDL		2
Mn (mg/l)	Aesthetic/Chronic health	0.73	0.47	0.16	0.10	0.4
Ni (mg/l)	Chronic health	BDL	0.05	BDL		0.07
Pb (mg/l)	Chronic health	BDL	BDL	BDL		0.01
Sb (mg/l)	Chronic health	BDL	BDL	BDL		0.02
Se (mg/l)	Chronic health	BDL	BDL	BDL		0.04
Zn (mg/l)	Aesthetic	0.20	0.30	BDL		5
Ag (mg/l)	Not determined	BDL	BDL	BDL		
Be (mg/l)	Not determined	BDL	BDL	BDL		
Bi (mg/l)	Not determined	BDL	BDL	BDL		
Co (mg/l)	Not determined	BDL	BDL	BDL		
Li (mg/l)	Not determined	0.05	0.05	BDL		
Mo (mg/l)	Not determined	BDL	BDL	BDL		
P (mg/l)	Not determined	0.08	0.10	0.12		
S (mg/l)	Not determined	128.00	127.00	2.13		





Updated- 15/7/2022

SANS 241-1:2015 Guidelines	Risk	BW9	BW12	BW28	Tolerable Limit	Maximum Limit
Si (mg/l)	Not determined	15.20	15.10	6.76		
Sn (mg/l)	Not determined	BDL	BDL	BDL		
Sr (mg/l)	Not determined	0.15	0.15	BDL		
SANS 241-1:2015 Guidelines	Risk	BW9	BW12	BW28	Tolerable Limit	Maximum Limit
Ti (mg/l)	Not determined	BDL	BDL	BDL		
Tl (mg/l)	Not determined	BDL	BDL	BDL		
V (mg/l)	Not determined	BDL	BDL	BDL		
Ion Bal (%)	Not applicable	-4.54	-9.59	1.16		
<b><i>pH or concentration deemed to present an unacceptable health risk for lifetime consumption</i></b>						
<b><i>BDL = Below detection limit</i></b>						

***A detailed Groundwater Impact Assessment will be included in the EIA.***

## BLASTING AND VIBRATION

The proposed opencast mining operation is located in the Witbank Coalfield which is well known for its abundant coal mining operations and lies in close proximity to several other mining operations, towns and other infrastructures. The coal seam in the proposed mining area is situated just below surface at between 8.22m to 18.55m deep. Softs in the area are generally thick and in excess of 5m, in some areas extending up to the coal seam contact. In these areas blasting will not be required to extract the coal. However, in other areas blasting will be necessary. This will increase the likelihood of subsidence occurring since mining will be conducted in previously mined underground workings. At these shallow depths subsidence is common.

The use of blasting as a method of coal extraction is a fundamental part of the mining method common in the industry. Ground vibrations and air blasts are undesirable outcomes of blasting.

The calculated outcomes of blasting indicate that buildings are more especially susceptible to blasting induced ground vibrations, while other structures are more resilient to the effects of blasting. There is a high probability of ground vibration induced damage to buildings and structures close to them in the proposed area.

Air blast represents another undesirable and unavoidable output of the blasting technique. Air blasts can also be referred to as 'air – overpressure'. The air blast damage and annoyance can be influenced by various different factors such as the blast design itself, the weather, field characteristics and human response (Aloui et al, 2016). An air blast disturbance propagates as a compression wave in the air.

Once mining commences a proper operational blast design and code of practice will be compiled, implemented, monitored, evaluated and improved. This approach will assist in ensuring that blasting has the minimal effect on the surrounding environment and structures.

***A detailed Blasting and Vibration Impact Assessment will be undertaken for the EIA.***



**AIR QUALITY**

The following baseline information was sourced from the Baseline Assessment, Problem Analysis and the Air Quality Management Plan for the Highveld Priority Area (2011).

The Highveld area in South Africa is associated with poor air quality, and elevated concentrations of criteria pollutants occur due to the concentration of industrial and non-industrial sources (Held et al, 1996; DEAT, 2006). The Minister of Environmental Affairs and Tourism, Martinus van Schalkwyk, therefore, declared the Highveld Priority Area (HPA) on 23 November 2007. The priority area covers 31 106 km<sup>2</sup>, including parts of Gauteng and Mpumalanga Provinces, with a single metropolitan municipality, three district municipalities, and nine local municipalities (Figure 2-15).

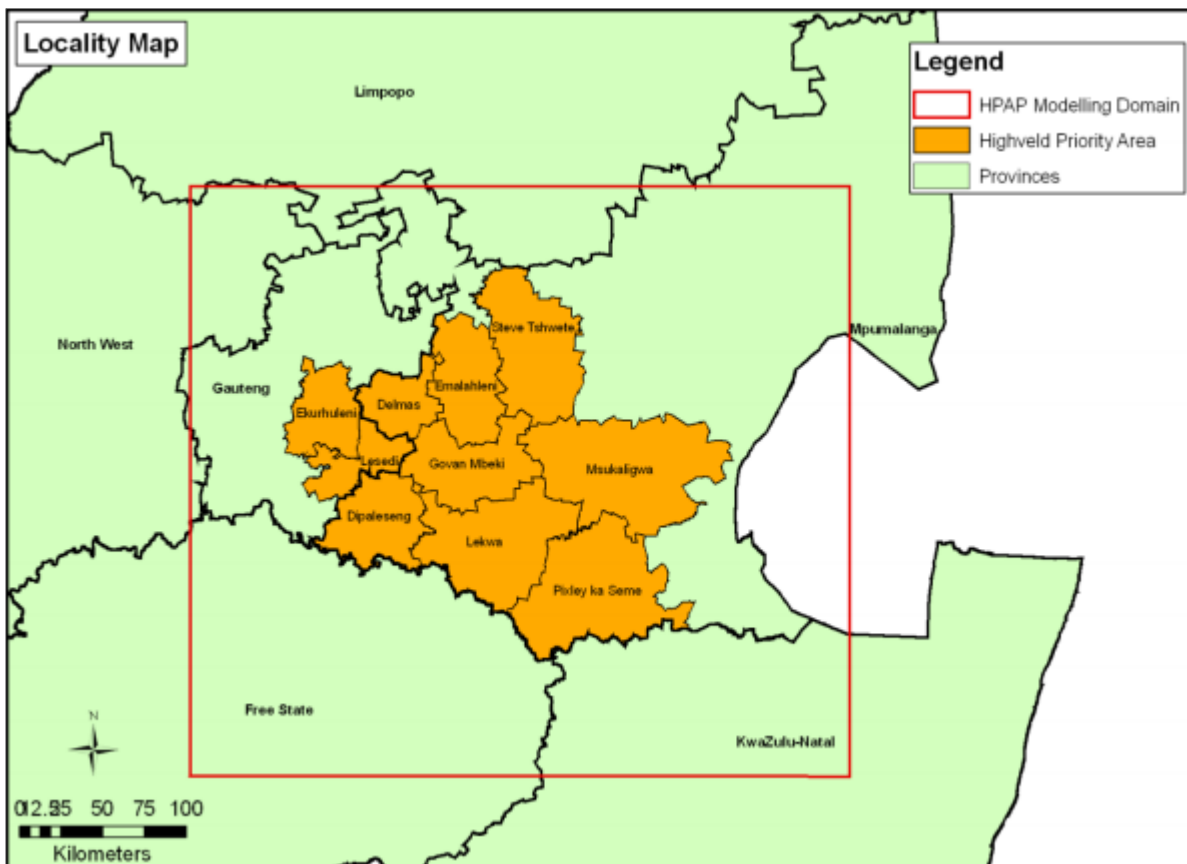


Figure 2-15: Highveld Priority Areas (HPA)

The total estimated annual emissions of fine particulate matter (PM<sub>10</sub>) on the HPA is 279 630 tons, of which approximately half is attributed to particulate entrainment on opencast mine haul roads. The emission of PM<sub>10</sub> from the primary metallurgical industry accounts for 17% of the total emission, with 12% of the total from power generation. By contrast, power generation contributes 73% of the total estimated oxides of nitrogen (NO<sub>x</sub>) emission of 978 781 tons per annum and 82% of the total estimated sulphur dioxide (SO<sub>2</sub>) emission of 1 633 655 tons per annum. The emission inventory for industrial sources was relatively complete and included all industries on the HPA with scheduled processes in terms of the APPA.

Industrial sources in total are by far the largest contributor of emissions in the HPA, accounting for 89% of PM<sub>10</sub>, 90% of NO<sub>x</sub> and 99% of SO<sub>2</sub>. Major industrial source contributors were grouped into the following categories:

- Power Generation;
- Coal Mining;
- Primary Metallurgical Operations;
- Secondary Metallurgical Operations;



Updated- 15/7/2022

- Brick Manufacturers;
- Petrochemical Industry;
- Ekurhuleni Industrial Sources; and
- Mpumalanga Industrial Sources.

Table 2-14 provides the total emission of PM<sub>10</sub>, NO<sub>x</sub> and SO<sub>2</sub> from the different source types on the HPA (in tons per annum), and the percentage contribution for each source category.

**Table 2-14: Total emission of PM<sub>10</sub>, NO<sub>x</sub> and SO<sub>2</sub> from the different source types on the HPA (in tons per annum), and the percentage contribution for each source category**

Source Category	PM10 t/a	%	NOx t/a	%	SO2 t/a	%
Ekurhuleni MM Industrial (incl. Kelvin)	8 909	3,00	15 636	2	25 772	2
Mpumalanga Industrial	684	0,00	590	0	5 941	0
Clay Brick Manufacturing	9 708	3,00	-		9 963	1
Power Generation	34 373	12,00	716 719	73	1 337 521	82
Primary Metallurgical	46 805	17,00	4 416	0	39 582	2
Secondary Metallurgical	3 060	1,00	229	0	3 223	0
Petrochemical	8 246	3,00	148 434	15	190 172	12
Mine Haul Roads	135 766	49,00	-		-	-
Motor vehicles	5 402	2,00	83 607	9	10 059	1
Household Fuel Burning	17 239	6,00	5 600	1	11 422	1
Biomass Burning	9 438	3,00	3 550	0	-	-
<b>TOTAL HPA</b>	<b>279 630</b>	<b>99*</b>	<b>978 781</b>	<b>100</b>	<b>1 633 655</b>	<b>101*</b>

\* Total Percentage does not count to 100% due to rounding of figures.

### Ambient air quality

Most of the HPA experiences relatively good air quality, but ambient air quality standards for SO<sub>2</sub>, PM<sub>10</sub> and ozone (O<sub>3</sub>) concentrations are exceeded in nine extensive areas. These “hot spots” are illustrated in Figure 2-15 by the number of modelled exceedances of the 24-hour SO<sub>2</sub> and PM<sub>10</sub> standards, and are confirmed by ambient monitoring data (Table 2-15). The air quality hot spots result mostly from a combination of emissions from the different industrial sectors and residential fuel burning, with motor vehicle emissions, mining and cross boundary transport of pollutants into the HPA adding to the base loading.

Available monitoring data confirms that the areas of concern are in the vicinity of Witbank 2, Middelburg, Secunda, Ermelo, Standerton, Balfour, and Komati where exceedances of ambient SO<sub>2</sub> and PM<sub>10</sub> air quality standards occur (Table 2-15).



Updated- 15/7/2022

Table 2-15: Exceedances at HPA sites based on historic and new monitoring data

Municipality	Area	NO <sub>2</sub> 1-hr (88)	O <sub>3</sub> 8-hr (11)	PM <sub>10</sub> 24-hr (4)	SO <sub>2</sub> 24-hr (4); 1 hr. (88)
Emalahleni LM	Kendal 2	1	<b>58</b>		<b>34; 343</b>
	Phola	0		3	7; 27
	Witbank	<b>37</b>	<b>9</b>	<b>9</b>	<b>4; 51</b>
	Witbank 2		<b>17</b>	<b>25</b>	<b>1; 11</b>
Steve Tshwete LM	Columbus				
	Komati 2			<b>26</b>	1; 14
	Hendrina	1	<b>22</b>	3	1; 2
	Middelburg	71	<b>60</b>	<b>7</b>	1; 4
	Middelburg 2		1	<b>7</b>	0; 1
Govan Mbeki LM	Sasol Club	1		0	0; 25
	Langverwacht	1		0	2; 78
	Bosjesspruit				2; 27
	Elandsfontein	0	<b>73</b>	3	4; 33
	Leandra				6; 114
	eMbalenhle	2	4	<b>39</b>	0; 1
Msukaligwa LM	Camden	0	<b>24</b>	1	0; 4
	Ermelo	1	<b>73</b>	<b>22</b>	<b>21; 10</b>
Pixley Ka Seme LM	Amersfoort				
	Majuba 1				4; 87
	Majuba 2				
	Verkykkop	0	<b>46</b>	0	1; 7
Lekwa	Standerton	4	10	<b>29</b>	1; 6
Dipaleseng	Balfour		<b>29</b>	<b>8</b>	0; 4

NB. - Row 1: The averaging period for the relevant pollutant's standard is represented below the pollutant and following the allowed frequency of exceedance in brackets - Exceedances in bold are greater than the permitted frequency in the standard for the monitoring period. The permitted frequency of exceedance varies according to period for which data is presented at each monitoring site, and for Eskom and Sasol stations must be assessed against a cumulative permitted frequency of exceedance for 3 years of data.



Updated- 15/7/2022

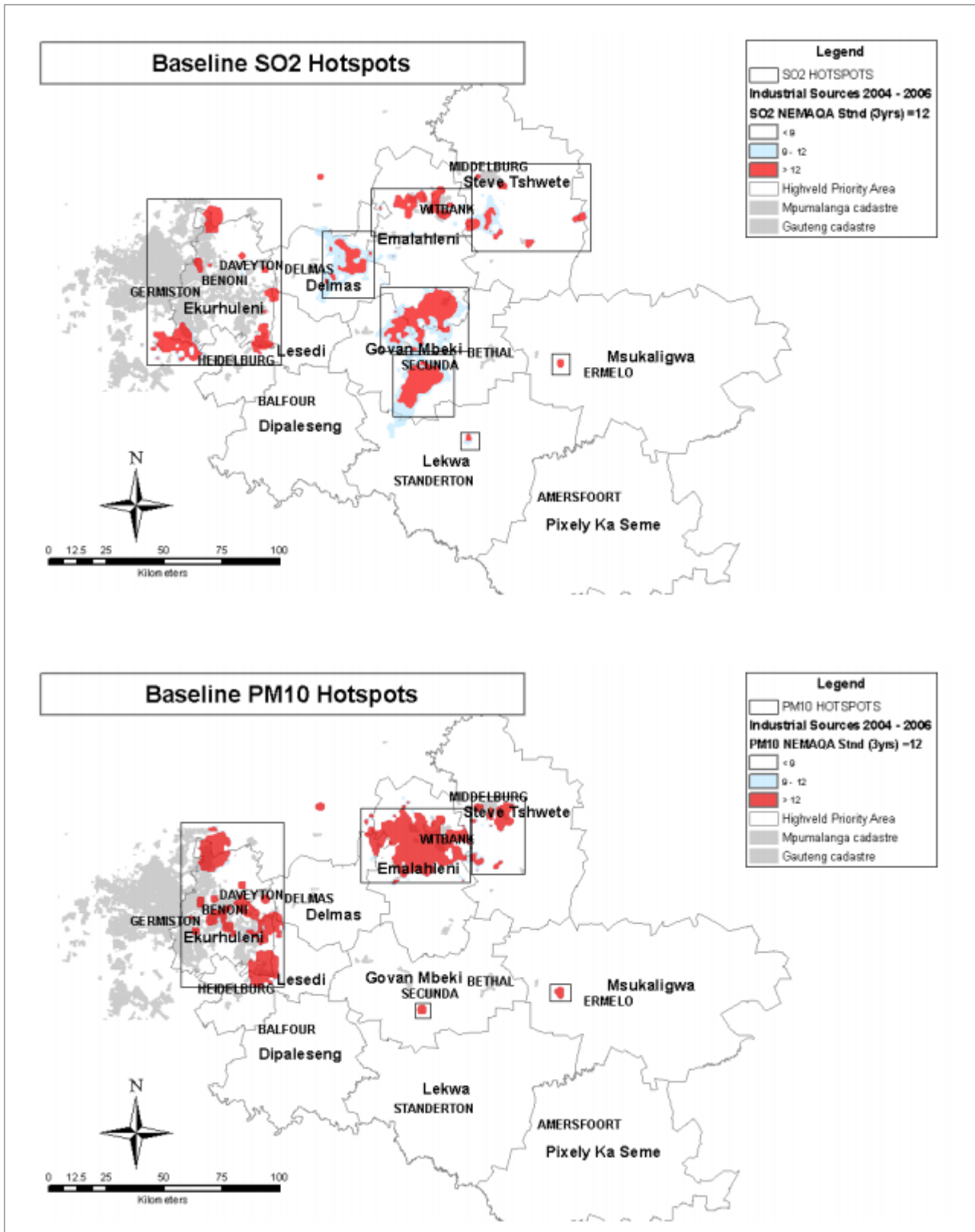


Figure 2-16: Modelled frequency of exceedance of 24-hour ambient SO<sub>2</sub> and PM<sub>10</sub> standards in the HPA, indicating the modelled air quality Hot Spot areas



Updated- 15/7/2022

**Site-specific Air Quality**

Potentially air pollution may arise as a result of particulates entering the atmosphere as dust. The expansion of the Blesboklaagte mining pit may generate dust through the creation and use of the access roads; plant area, haul roads on dumps and ROM and product stockpiles, particularly at transfer points.

The current opencast mining operation adjacent to the proposed operations are undertaking dust monitoring at various strategic points as per the Table 2-16 below.

**Table 2-16: Airborne Particulate Sampling Results**

Position	Locality	Sample no.	Start	Stop	Dust deposit mg/m <sup>2</sup> /day
1	Eastern Side – Main Gate at mine entrance	J05	30/06/09	25/07/09	390.25
2	Northern Side of Pit	J06			415.30
3	Western Side	J07			473.02
4	Southern Side of pit – At Powerlines	J08			345.89

**Table 2-17: Four – band scale evaluation criteria for dust deposition (As Per Air Quality Bill)**

Band Number	Band Description Level	Dust fall Rate (D) (mg.m <sup>2</sup> .day <sup>-1</sup> 30 day average)	Comment
1	Residential	D < 600	Permissible for residential and light commercial.
2	Industrial	600 < D < 1200	Permissible for heavy commercial and industrial.
3	Action	1200 < D < 2400	Requires investigation and remediation if two sequential months lie in this band, or more than three occur in the year.
4	Alert	2400 < D	Immediate action and remediation action required following the first incidence of dust fall rate being exceeded. Incident report to be submitted to the relevant authority.

From Table 2-17 dust it can be seen that dust deposition at various site results were below permissible level for residential and light commercial areas as per the New Air Quality Bill. The proposed open cast expansion area is situated next to the current operations from where during windy days coal dust might emanate from.

***A detailed Air Quality Impact Assessment will be undertaken for inclusion in the EIA report.***



NOISE

Table 2-18 depicts acceptable noise levels within districts according to the SANS 10103 guideline.

Table 2-18: Acceptable rating levels for noise in districts (SANS 10103, 2008)

Type of District	Equivalent continuous rating level ( $L_{Req,T}$ ) for noise (dBA)					
	Outdoors			Indoors, with open windows		
	Day-night	Day-time	Night-time	Day-night	Day-time	Night-time
	$L_{R,dna}$	$L_{Req,db}$	$L_{Req,nb}$	$L_{R,dna}$	$L_{Req,db}$	$L_{Req,nb}$
<b>RESIDENTIAL DISTRICTS</b>						
a) Rural districts	45	45	35	35	35	25
b) Suburban districts with little road traffic	50	50	40	40	40	30
c) Urban districts	55	55	45	45	45	35
<b>NON-RESIDENTIAL DISTRICTS</b>						
d) Urban districts with some workshops, with business premises, and with main roads	60	60	50	50	50	40
e) Central business districts	65	65	55	55	55	45
f) Industrial districts	70	70	60	60	60	50
NOTE 1 If the measurement or calculation time interval is considerably shorter than the reference time intervals, significant deviations from the values given in the table might result.						
NOTE 2 If the spectrum of the sound contains significant low frequency components, or when an unbalanced spectrum towards the low frequencies is suspected, special precautions should be taken and specialist advice should be obtained. In this case the indoor sound levels might significantly differ from the values given in columns 5 to 7.						
NOTE 3 In districts where outdoor $L_{R,dn}$ exceeds 55 dBA, residential buildings (e.g. dormitories, hotel accommodation and residences) should preferably be treated acoustically to obtain indoor $L_{Req,T}$ values in line with those given in table 1.						
NOTE 4 For industrial districts, the $L_{R,dn}$ concept does not necessarily hold. For industries legitimately operating in an industrial district during the entire 24 h day/night cycle, $L_{Req,d} = L_{Req,n} = 70$ dBA can be considered as typical and normal.						
NOTE 5 The values given in columns 2 and 5 in this table are equivalent continuous rating levels and include corrections for tonal character, impulsiveness of the noise and the time of day.						
NOTE 6 The noise from individual noise sources produced, or caused to be produced, by humans within natural quiet spaces such as national parks, wilderness areas and bird sanctuaries, should not exceed a maximum Weighted sound pressure level of 50 dBA at a distance of 15 m from each individual source.						
a) The values given in columns 2 and 5 are equivalent continuous rating levels and include corrections for tonal character and impulsiveness of the noise and the time of day.						
b) The values given in columns 3, 4, 6 and 7 are equivalent continuous rating levels and include corrections for tonal character and impulsiveness.						

The probable community/group response to levels in excess of the acceptable rating levels are presented in Table 2-19, where  $L_{Req,T}$  is the equivalent continuous A-weighted sound pressure level, in decibels (dBA), determined over a specific time period. 'A-weighted' is a standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.



Table 2-19: Categories of community/group response (SANS 10103, 2008)

Excess ( $\Delta L_{Req,T}$ ) <sup>a</sup> dBA	Estimated community/group response	
	Category	Description
0 – 10	Little	Sporadic complaints
5 – 15	Medium	Widespread complaints
10 - 20	Strong	Threats of action
>15	Very strong	Vigorous action

NOTE Overlapping ranges for the excess values are given because a spread in the community reaction might be anticipated.

a  $\Delta L_{Req,T}$  should be calculated from the appropriate of the following:

- 1)  $\Delta L_{Req,T} = L_{Req,T}$  of ambient noise under investigation MINUS  $L_{Req,T}$  of the residual noise (determined in the absence of the specific noise under investigation);
- 2)  $\Delta L_{Req,T} = L_{Req,T}$  of ambient noise under investigation MINUS the maximum rating level for the ambient noise given in table 1;
- 3)  $\Delta L_{Req,T} = L_{Req,T}$  of ambient noise under investigation MINUS the typical rating level for the applicable district as determined from table 2; or
- 4)  $\Delta L_{Req,T} =$  Expected increase in  $L_{Req,T}$  of ambient noise in an area because of a proposed development under investigation.

The following table summarises the findings of the baseline noise sampling initiative undertaken during the daytime period on Thursday 2020/03/13 at the Blesboklaagte Colliery

Table 2-20: Blesboklaagte Daytime Baseline Noise Measurement Results

SAMPLING SITE	CO-ORDINATE DESCRIPTION	BASELINE NOISE MEASUREMENT WEIGHTED AVERAGE SOUND PRESSURE LEVEL RESULTS (Leq)	OBSERVATIONS
BL-N-001	25°51'21.00"S 29°12'36.00"E	75.8 dBA	Continuous mining vehicle and machinery noise audible, tree leave movement noise and intermittent birdsong during sampling
BL-N-002	25°51'32.00"S 29°12'48.00"E	69.5 dBA	Intermittent mining vehicle and machinery noise, background public road noise audible
BL-N-003	25°51'24.00"S 29°12'56.00"E	87.6 dBA	Continuous mining vehicle and machinery noise as well as auxiliary public road noise audible
BL-N-004	25°51'16.00"S 29°12'50.00"E	74.3 dBA	Intermittent vehicle noise in close proximity to site boundary

Sensitive receptors which have been identified in the immediate vicinity of the study area and proposed project area include, community homesteads, farming operations, offices and homesteads on immediate and surrounding farms and the town of Ermelo.

Various noise influencing factors and sources exists in the region including;

- The main road network and supporting regional roads;
- General vehicle noise on auxiliary roads in close proximity to the site;





Updated- 15/7/2022

- Mining activities resulting in noise (mostly related to mining vehicles and machinery noise);
- Railway line and shunting of train trucks; and
- Existing additional mining operations in the vicinity of the site.

Noise levels measured were within the 69.5 – 87.6 dBA range which is above the daytime 50dBA equivalent continuous rating level prescribed for Residential Districts, Suburban districts with little road traffic. This nature of the baseline noise is even above the Non-Residential Districts, Industrial Districts 70dBA outdoors daytime rating which is the highest acceptable level. Various existing noise factors influence the nature of the ambient noise character in the area and industrial, mining and residential activities are in very close proximity to each other throughout the Witbank area and therefore not entirely unique to the site.

## SOILS

A study was previously conducted for the Blesboklaagte Colliery and its surrounding. The project area covers a lower midslope-footslope hillslope sequence related to the extensive soil-landform system of the Highveld region. The majority of the area is covered by deep to very deep, yellowish red, massive, loamy medium sand to sandy loam becoming in places sandy clay loam in the deep subsoil of the Hutton form (map unit dHu1; about 87% in extent) merging, especially in the southern part, into reddish yellow to strong brown, massive, loamy medium sand to sandy loam becoming in places sandy clay loam in the deep subsoil of the Clovelly form. A complex association of Clovelly soil (varying from very shallow to moderately deep, with loamy medium sand topsoil on loamy medium sand to sandy loam subsoil overlying slightly weathered sandstone) with sandstone outcrops (unit CvR1; 6%) had also been demarcated. Unit D1 (about 7%) represents an area of disturbed land comprising a series of quarries. Morphological properties and derived characteristics are summarised in Table 2-21 and Table 2-22 respectively.

Table 2-21: Description of the dominant soils of the Blesboklaagte South Mining Permit Area

SOIL SYMBOL	SOIL FORM AND FAMILY	PROFILE DESCRIPTION
Hu	Hutton 1100 loamy medium sand to sandy loam	<i>Orthic A horizon:</i> 20-30 cm thick, dark reddish brown to dark brown, massive, very friable, loamy medium sand to sandy loam (clay content 8-18%); gradually overlying <i>Red apedal B horizon:</i> 80-120+ cm thick, yellowish red to reddish yellow, massive, friable, sandy loam to sandy clay loam (clay content 12-23%), rapid permeable; in places clearly overlying <i>C horizon:</i> highly weathered, mottled sandstone
Cv	Clovelly 1100 loamy medium sand loam to sandy loam	<i>Orthic A horizon:</i> 20-30 cm thick, dark brown, massive, very friable, loamy medium sand to sandy loam (clay content 8-18%); gradually overlying <i>Yellow-brown apedal B1 horizon:</i> 10-80 cm thick, reddish yellow to strong brown, massive, friable, loamy medium sand to sandy clay loam (clay content 10-23%); in places clearly overlying <i>C horizon:</i> slightly or highly weathered, mottled sandstone

Table 2-22: Selected properties and derived characteristics of the dominant soils

SOIL PROPERTIES	Hutton	Clovelly
Water seepage capacity of subsoil/deep subsoil/underlying rock	Rapid	Rapid
Water table (position, condition and duration)	None	None
General fertility status	Low	Low
pH (H2O) class (topsoil)	4.5-5.5	4.5-5.5
Natural erosion hazard - water	Low	Low
Swell-shrink potential of soil	Very low	Very low
Compaction potential	Moderate	Low-Moderate
Stability of soil	Moderate	Moderate
Adsorption capacity of pollutants	Moderate	Moderate (if deep)



Updated- 15/7/2022

Dust potential	Moderate	Moderate
----------------	----------	----------

An assessment of land suitability was conducted using the soil, slope and climatic parameters (though climate has been taken as uniform over the site) for arable uses (for example physical agricultural potential; Table 2-24), and non-agricultural uses (Table 2-25) on the basis of internationally recognised criteria and attributes limiting their suitability (Table 2-23).

**Table 2-23: Limitations of map units influencing the suitability for selected land uses**

MAP UNIT	DOMINANT LIMITATIONS
dHu1	Moderate due to sandy topsoil
CvR1	Very severe to moderate due to restricted soil depth; moderate-severe due to rock outcrops
D1	Very little soil; ground roughness; (waste materials in quarry)

**Table 2-24: Land capability assessment of the map units of the Blesboklaagte South Mining Permit Area**

MAP UNIT	LAND CAPABILITY CLASS*	PHYSICAL AGRICULTURAL POTENTIAL
dHu1	II	Moderately high
CvR1	VI	Very low
D	VII	Very low to none

**Table 2-25: Land capability (Chambers of Mines' guidelines) of the map units of the Blesboklaagte Mining Permit Area**

LAND CAPABILITY	MAP UNIT	AREA (ha)	% OF AREA
Class I - Wetland	-	-	-
Class II – Arable land	Moderately high arable potential – dHu1	12.34	86.96
Class III – Grazing land	CvR1	0.83	5.85
Class IV – Wilderness land	D1	1.02	7.19
<b>Total</b>		<b>14.19</b>	<b>100.00</b>

Two kinds of capability assessments had been performed: (i) an agricultural classification consisting of eight classes; and (ii) the system prescribed by the Chamber of Mines comprising four classes. By combining these two systems an assessment of land capability had been made (Table 2-26) as follows:



Updated- 15/7/2022

Table 2-26: Suitability<sup>1</sup> of map units for selected non-agricultural land uses

MAP UNIT USES	dHu1	CvR1	D1
Dams	3	4	2
- reservoir area	3	4	4
- embankments			
Shallow excavations	1	2/4	4
Local roads and streets	1	3	3
Ease of landscaping	1	3	3
Growth medium	1	2	3
- shallow root - deep root	1	2/4	3
Topsoil to cover mine dumps	2	3/4	4
Construction materials	2	4	4
- sand source	4	4	4
- gravel source			
Soil for effluent disposal in septic tank seepage fields	1/2	4	4

**A detailed soils, land use, and land capability assessment will be undertaken for inclusion in the EIA.**

## SOCIAL ECONOMIC

The proposed Project is located in eMalahleni Local Municipality (ELM), within the Nkangala District Municipality (NDM) in Mpumalanga Province. The socio-economic characteristics of the population within each of the aforementioned areas are listed below.

### Population and Demographics

According to the ELM 2013-2014 IDP, this municipality is the largest economic contributor to the NDM of the six local municipalities, contributing 45% to the district's economy. Dominant economic contributors include utilities (74.1%), mining (52.8%) and construction (52.5%). Emalahleni's population size, as recorded by Stats SA 2011, was 395 466 people which makes up 30% Nkangala District's population. The population lives in 119 874 households with an average household size of 3.3 people. This is a relatively low family size, which may reflect the young age of the urban centres in the district, in which large family structures have not had time to develop. More established towns generally have average family sizes in excess of 4.5 people, while rural areas often average 5.5 people or more per household. The ELM's population grew by 43.1% between 2001 and 2011 while annualised population growth rate was measured at 3.6%.

### Educational Status

Educational achievement is a key development indicator of a population. The majority of the population (ages over twenty) in the local study area as well as district municipality have not completed matric, however, there is a large percentage of learners who complete primary level education.

### Employment and Labour

According to Statistics South Africa, (2011) the employment rate for Mpumalanga Province and Nkangala District Municipality was 24% and 27% respectively (Stats SA, 2011). There has been a drop in unemployment rate in the ELM from 38.4% to 27% between 2001 and 2011. A large portion of those employed are absorbed into the mining, construction, power generation and agricultural sectors.

<sup>1</sup> 1 = high  
2 = moderate  
3 = low  
4 = very low to none



Updated- 15/7/2022

## Annual Household Income

Over 40% of people in Mpumalanga Province have no annual income at all. Average income figures for the local study area, the ELM and the NDM are all very much in line with the provincial average; however, the income earning figures are slightly higher for the local study area, with more people earning between R3 201 and R12 800 (Stats SA, 2011). It can be gathered that the ELM has a higher income production than the provincial figures. This is attributed to the concentration of mining and power generation activities, and construction industry in this area (Stats SA, 2011).

## Social Infrastructure and Services

All the urban areas within ELM (with the exception of informal settlements and townships) are fully reticulated in terms of potable water supply. A large percentage of households in the local study area have access to piped water either inside their house or within a communal yard, with an average of 77% having access to municipal water, whilst 8% have access to water through a borehole. In terms of sanitation, data from the 2011 census, show that an estimated 57% of households in the local study area have access to waterborne sewer services (flush toilets, with or without septic tanks); the majority (33%) of the remaining households use pit latrines (Stats SA, 2011). An estimated 69% of waste generated within the ELM is collected weekly by the local municipality. In contrast to the ELM, the most common means of waste disposal for populations in Ward 30 is through utilisation of their own refuse dumps (39%), 36% make use of municipal services and a significant amount of the population has no means of waste disposal at all.

Of the households in local study area, 53% use electricity for cooking, heating and lighting. In contrast 69% of the households in the ELM use electricity. The bulk electricity provider throughout the municipality is Eskom (ELM IDP, 2012 - 2013). The ELM is strategically located in terms of the provincial context and transport network. It is situated in close proximity to the City of Johannesburg, City of Tshwane and Ekurhuleni Metropolitan Municipalities in Gauteng, and is connected to these areas by the N4 and N12 freeways. Although roads in the ELM are sufficiently connected with district, provincial and national roads, many secondary road systems are in a state of disrepair, being insufficient to handle the increased traffic created by mining and other industrial developments.

Crime and community safety is generally a cause of concern for communities in the local study area. There has been a history of substance abuse and widespread criminal activity in the area, with several instances of community conflict, industrial action and opposition towards the local municipality and surrounding mining companies.

## Health Services

It was found in an interview with the head nurses at the Phola Community Health Centre and the Ogies Clinic that prostitution has become an increased problem within the region as a result of the mining operations; this then in turn leads to an increase in HIV/AIDS rates. The mining operations also have resulted in an influx of inhabitants into the area which has put tremendous strain on health facilities.

### 2.h.iv.1.b Description of the current land uses.

The current land use for the project area is grazing and open land, with historical underground mining areas and urbanisation surrounding the project area. Sinkholes occur in some areas, with most of the surface area has been compromised.

### 2.h.iv.1.c Description of specific environmental features and infrastructure on the site.

The headwaters of the Blesbokspruit originate in the most northern section of the site, however these are currently mostly fed by decant from the old underground workings from the surrounding mine areas. The vegetation on Blesboklaagte Colliery and its surroundings consists mainly of fallow grassland. Not many herbaceous forb (not grass species) was encountered in the area of investigation. The dominant grasses encountered in the area are *Hyparrhenia hirta* (Thatching grass), *Melinos repens* (Natal red top) and *Cynodon dactylon* (Couch grass). The grassland in the area is not very dense. Rock outcrops were encountered on the southern side of the Blesboklaagte opencast mining and infrastructure area where an old borrow-pit is situated.

### 2.h.iv.1.d Environmental and current land use map.

(Show all environmental and current land use features)

See maps below and Annexure 3.



Updated- 15/7/2022

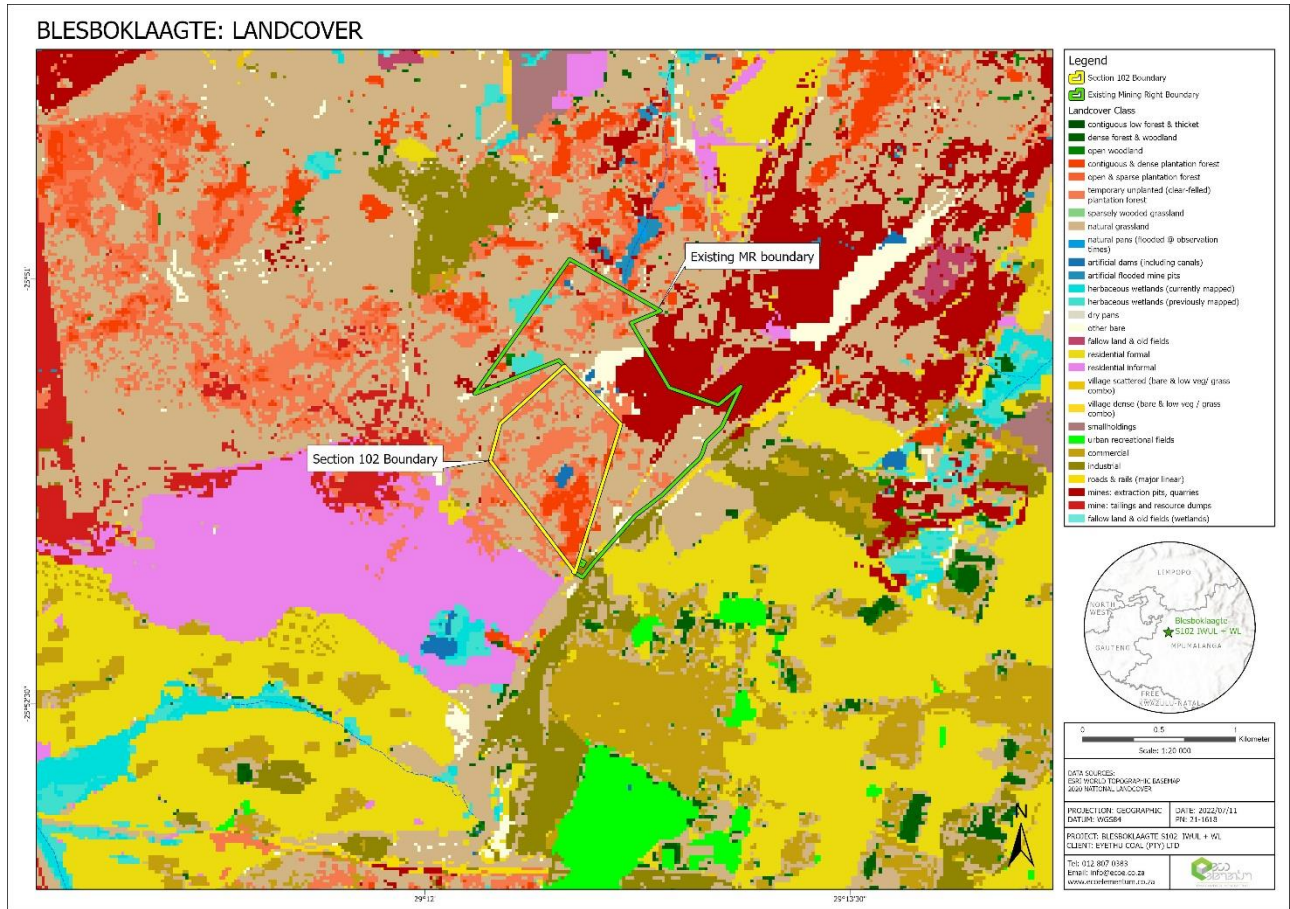


Figure 2-17: Land cover



Updated- 15/7/2022

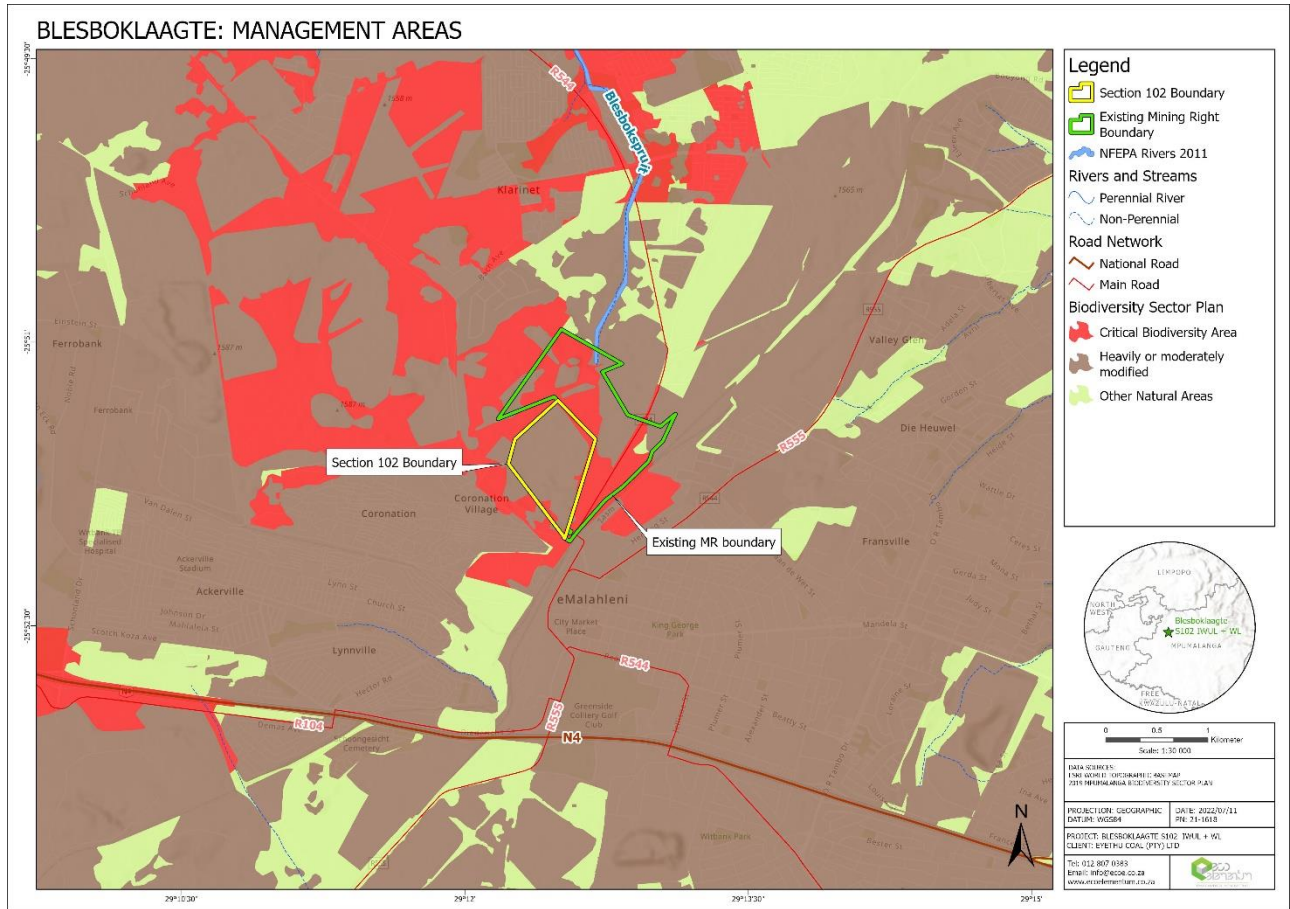


Figure 2-18: Mpumalanga Biodiversity Spatial Plan



Updated- 15/7/2022

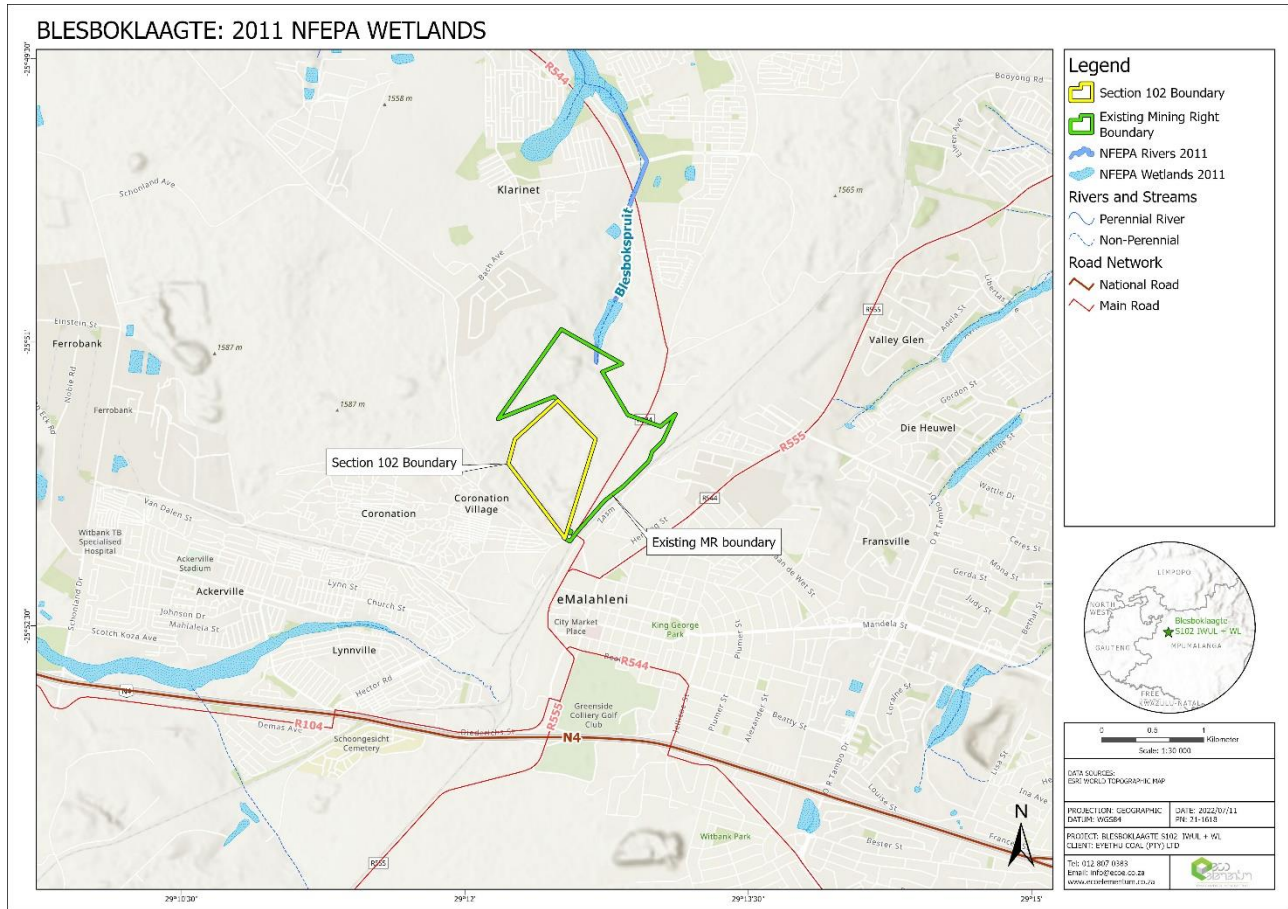


Figure 2-19: NFEPA data

2.h.v Impacts identified

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability and duration of the impacts)

The forecasted impacts associated with the project are listed in Table 2-27.

Table 2-27: List of Preliminary Issues

PRELIMINARY IMPACT TO BE ASSESSED	CONSTRUCTION PHASE	OPERATIONAL PHASE	DECOMMISSIONING PHASE	POSTIVE/ NEGATIVE
POTENTIAL TO ALTER THE TOPOGRAPHY	✓	✓	✓	-
LOSS OF SOIL CHARACTERISTICS - EROSION AND COMPACTION	✓	✓	✓	-
CHANGE IN LAND USE FROM ARABLE TO MINING	✓	✓		-
LOSS OF BIODIVERSITY – VEGETATION CLEARANCE, HABITAT DESTRUCTION AND FAUNAL DISPLACEMENT	✓	✓	✓	-
POTENTIAL FOR ALIEN INVASIVE ESTABLISHMENT	✓	✓	✓	-
REDUCED FLOW TO DOWNSTREAM WATER CATCHMENT		✓		-



Updated- 15/7/2022

PRELIMINARY IMPACT TO BE ASSESSED	CONSTRUCTION PHASE	OPERATIONAL PHASE	DECOMMISSIONING PHASE	POSTIVE/ NEGATIVE
POTENTIAL POLLUTION TO WATER RESOURCES (SURFACE AND GROUNDWATER)	✓	✓	✓	-
DRAWDOWN CONE FROM DEWATERING ACTIVITIES (GROUNDWATER QUANTITY)	✓	✓		-
INCREASED DUST AND EMISSIONS	✓	✓	✓	-
INCREASED NOISE LEVELS	✓	✓	✓	-
VISUAL AESTHETICS AND SENSE OF PLACE WILL BE ALTERED	✓	✓	✓	-
DAMAGE TO PROPERTY/INFRASTRUCTURE FROM BLAST EVENTS	✓	✓		-
POTENTIAL DAMAGE TO HERITAGE SITES (GRAVE AND/OR ARCHAEOLOGICAL ARTEFACTS)	✓			-
INFLUX OF JOB SEEKERS TO THE AREA	✓	✓		-
INCREASED TRAFFIC – COAL HAULAGE		✓		-
EMPLOYMENT OPPORTUNITIES	✓	✓	✓	+
ECONOMIC STIMULATION	✓	✓		+

2.h.vi Methodology used in determining the significance of environmental impacts

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

Clearly defined rating and ranking scales (Table 2-28 to Table 2-34) were used to assess the impacts associated with the proposed activities. The impacts identified by each specialist study and through public participation were combined into a single impact rating table for ease of assessment.

Each impact identified was rated according the expected magnitude, duration, scale and probability of the impact (Table 2-35).

To ensure uniformity, the assessment of potential impacts will be addressed in a standard manner so that a wide range of impacts is comparable. For this reason, a clearly defined rating scale will be provided to the specialist to assess the impacts associated with their investigation.

Each impact identified will be assessed in terms of scale (spatial scale), magnitude (severity) and duration (temporal scale). Consequence is then determined as follows:

$$\text{Consequence} = \text{Severity} + \text{Spatial Scale} + \text{Duration}$$

The Risk of the activity is then calculated based on frequency of the activity and impact, how easily it can be detected and whether the activity is governed by legislation. Thus:

$$\text{Likelihood} = \text{Frequency of activity} + \text{frequency of impact} + \text{legal issues} + \text{detection}$$

The risk is then based on the consequence and likelihood.

$$\text{Risk} = \text{Consequence} \times \text{likelihood}$$

In order to assess each of these factors for each impact, the ranking scales in Table 2-28 to Table 2-34 were used.





Updated- 15/7/2022

**Table 2-28: Severity.**

Insignificant / non-harmful	1
Small / potentially harmful	2
Significant / slightly harmful	3
Great / harmful	4
Disastrous / extremely harmful / within a regulated sensitive area	5

**Table 2-29: Spatial Scale - How big is the area that the aspect is impacting on?**

Area specific (at impact site)	1
Whole site (entire surface right)	2
Local (within 5km)	3
Regional / neighboring areas (5km to 50km)	4
National	5

**Table 2-30: Duration.**

One day to one month (immediate)	1
One month to one year (Short term)	2
One year to 10 years (medium term)	3
Life of the activity (long term)	4
Beyond life of the activity (permanent)	5

**Table 2-31: Frequency of the activity - How often do you do the specific activity?**

Annually or less	1
6 monthly	2
Monthly	3
Weekly	4
Daily	5

**Table 2-32: Frequency of the incident/impact - How often does the activity impact on the environment?**

Almost never / almost impossible / >20%	1
Very seldom / highly unlikely / >40%	2
Infrequent / unlikely / seldom / >60%	3
Often / regularly / likely / possible / >80%	4
Daily / highly likely / definitely / >100%	5



Updated- 15/7/2022

**Table 2-33: Legal Issues - How is the activity governed by legislation?**

No legislation	1
Fully covered by legislation	5

**Table 2-34: Detection - How quickly/easily can the impacts/risks of the activity be detected on the environment, people and property?**

Immediately	1
Without much effort	2
Need some effort	3
Remote and difficult to observe	4
Covered	5

Environmental effects will be rated as either of high, moderate or low significance on the basis provided in Table 2-35.

**Table 2-35: Impact Ratings.**

RATING	CLASS
1 – 55	(L) Low Risk
56 – 169	(M) Moderate Risk
170 – 600	(H) High Risk

2.h.vii The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

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

Refer to Table 2-27.

2.h.viii The possible mitigation measures that could be applied and the level of risk.

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

To be updated once the specialist has completed their studies and comment has been received from I&APs during the Draft EIA Phase. The following is proposed in the interim:

- Design the surface and storm water infrastructure to be within the footprint of the project area.
- Separate clean from dirty water and allow discharge of water to designated areas.
- Vegetate disturbed areas to limit erosion.
- Implement berms, trenches and storm water management measures in accordance with GN 704 Regulations.
- Pollution Control Dams to be designed to cater for the required storage capacity.
- Compacted soil areas in and around the periphery of the wetland will be ripped to break up compacted soil and vegetated with indigenous seed mix.
- Comply with the National Air Quality Standards and Dust Control Regulations.
- Comply with the SANS noise standard.



Updated- 15/7/2022

- Avoid travelling past residences. Speed limit of 40 km/h will be enforced. Liaise with landowner on areas sensitive to noise. Provide a buffer of 100 m from households.
- Prescribe to the DWS Catchment Water Quality Standards where possible.
- Restrict traveling speed of vehicles to reduce vehicle entrainment of dust. Wet gravel roads if dust is found to be excessive.
- No-go areas to be identified. Environmental awareness training of all employees.
- Preference to be given to the use of local employment, contractors and local suppliers.
- Implement measures to protect soils from pollution.
- Reduce the visual impacts of mining activities, i.e. concurrent rehabilitation.
- Site selection aimed at minimising disturbance to sensitive animal habitats and breeding areas.
- Utilise existing access roads as far as possible.
- Access roads to follow slope contours where possible. Vegetation to be left in place at the sides of the road to protect the soils.

#### 2.h.ix The outcome of the site selection Matrix. Final Site Layout Plan

(Provide a final site layout plan as informed by the process of consultation with interested and affected parties)

To be submitted with the Draft EIA Report once the specialists have given their input.

#### 2.h.x Motivation where no alternative sites were considered.

The site location is limited to the current MR area and adjacent viable resource as this is a Section 102 amendment application. The resource location further restricts the infrastructure layout. The area has also been impacted by historic shallow underground mining and large sections have already been transformed from its natural state. No alternative properties have been considered.

#### 2.h.xi Statement motivating the preferred site.

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

The site location is limited to the current MR area as this is a Section 102 amendment application, with inclusion of an additional resource block that is directly adjacent to the current pit and will be a continuation thereof. The resource location further restricts the infrastructure layout. The area has also been impacted by historic shallow underground mining and large sections have already been transformed from its natural state. Therefore, no alternative properties have been considered.

### 2.i PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

#### 2.i.i Description of alternatives to be considered including the option of not going ahead with the activity.

Refer to Section 2.h.i.

#### 2.i.ii Description of the aspects to be assessed as part of the environmental impact assessment process

(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, stormwater control, berms, roads, pipelines, power lines, conveyors, etc.).

A team of specialist Scientists and Engineers have been appointed to undertake the following specialist studies. These studies will investigate the baseline environment, potential impacts and provide management measures where applicable.

- Geohydrological Modelling & Assessment.
- Wetland Delineation, Assessment and Impact Assessment.
- Aquatic Biodiversity Assessment.



Updated- 15/7/2022

- Social Impact Assessment Report.
- Ecological Study update.
- Closure, Decommissioning and Rehabilitation Plan.
- Visual Impact Assessment Study.
- Blast and Vibration Study.
- Noise Impact Study.
- Palaeontological Study.
- Heritage Study.
- Agricultural Potential & Economics.
- Air Quality assessment update.
- Hydrogeology Reporting; and
- Waste Classification.

**Table 2-36: Specialist Scope of Work**

Specialist Study	Scope of Work
<b>Air quality</b>	<b>The purpose of this baseline study is to:</b>
	<ul style="list-style-type: none"> <li>• Study the available information relevant to the pre- and post-development ambient air quality pollution concentrations in the environment;</li> </ul>
	<ul style="list-style-type: none"> <li>• Identify the major existing air emission sources in the environment;</li> </ul>
	<ul style="list-style-type: none"> <li>• Identify the existing sensitive air pollution areas in the environment;</li> </ul>
	<ul style="list-style-type: none"> <li>• Estimate by means of measurements and integration of the results with those of any relevant existing information the present ambient air quality climate;</li> </ul>
	<ul style="list-style-type: none"> <li>• Identify the processes and equipment that will cause the major contribution to the future air quality impact;</li> </ul>
	<ul style="list-style-type: none"> <li>• Consider, evaluate and rate the potential air quality impacts; and</li> </ul>
	<ul style="list-style-type: none"> <li>• Propose relevant management and mitigation measures to lessen the anticipated impacts.</li> </ul>
	<b><i>It is highly recommended that baseline dust monitoring be conducted for at least 3 months prior to the start of the project.</i></b>
<b>Aquatic Ecology</b>	<b>The assessment will be conducted as part of a three-phase approach. The first phase consisted of a rapid desktop assessment. The second phase was conducted in field to gather data. The third phase consisted of an impact assessment and reporting by combining field data and desktop data.</b>
	1. Rapid desktop assessment:
	<ul style="list-style-type: none"> <li>• Google Earth satellite imagery</li> </ul>
	<ul style="list-style-type: none"> <li>• Aerial photographs</li> </ul>
	<ul style="list-style-type: none"> <li>• GIS mapping software</li> </ul>
	2. Field assessment by identifying the presence of one (at least) or more of the following attributes:
<ul style="list-style-type: none"> <li>• Wetland/hydromorphic soils</li> </ul>	
	<ul style="list-style-type: none"> <li>• Hydrophytes</li> </ul>



Updated- 15/7/2022

Specialist Study	Scope of Work
	<ul style="list-style-type: none"> <li>High water table</li> </ul> <p>3. Combining desktop data, field data and calculating the Wetland Index of Habitat Integrity (DWA, 2007) by using the following indices:</p> <ul style="list-style-type: none"> <li>Present Ecological status</li> <li>Ecological Importance and Sensitivity</li> <li>Ecosystem Services supplied by wetland</li> </ul> <p><b><i>The following sections deal with the Wetland Index of Habitat Integrity as performed as part of the third phase of the study approach.</i></b></p>
<b>Social Impact Assessment</b>	<ol style="list-style-type: none"> <li>Identification of key stakeholders;</li> <li>Development of a social profile of the affected community;</li> <li>Identifying all applicable legislative and regulatory considerations;</li> <li>Undertaking stakeholder consultation;</li> <li>Assessment of possible social and economic impacts;</li> <li>Rating of impacts according to significance (severity, probability, duration, spatial extent and stakeholder sensitivity);</li> <li>Making a clear distinction between objective and subjective impacts;</li> <li>Provision of management guidelines for anticipated impacts; and</li> </ol>
<b>Ecological Assessment</b>	<p><b>The study will include two phases:</b></p> <ol style="list-style-type: none"> <li>Desktop study: <ul style="list-style-type: none"> <li>Review of existing information e.g. EIA, Specialist studies, Mining right, WULA etc.;</li> <li>Analysis of recent Google maps;</li> <li>Literature review of fauna and flora in the area;</li> <li>Review of endangered species known to occur in the area;</li> </ul> </li> <li>Detailed Terrestrial Ecology Report including a wetland delineation and functional assessment.</li> </ol>
<b>Geo-hydrological</b>	<p><b>The scoping groundwater study will include, amongst others, the following information as required in terms of the MPRDA:</b></p> <ul style="list-style-type: none"> <li>A description of the groundwater environment likely to be affected by the proposed mining activities;</li> <li>An assessment of potential impacts on the groundwater environment.</li> <li>A summary of the potential significance of identified impacts;</li> <li>Proposed mitigation and management measures to minimise adverse impacts and to optimise benefits;</li> <li>Planned monitoring and performance assessment of the EMP and Rehabilitation measures of areas disturbed during mining activities.</li> </ul>
<b>Surface water</b>	<p><b>The assessment will be conducted as part of a three-phase approach. The first phase consisted of a rapid desktop assessment. The second phase was conducted in field to gather data. The third phase consisted of an impact assessment and reporting by combining field data and desktop data.</b></p> <ol style="list-style-type: none"> <li>Rapid desktop assessment:</li> </ol>



Updated- 15/7/2022

Specialist Study	Scope of Work
	<ul style="list-style-type: none"> <li>• Google Earth satellite imagery.</li> <li>• Aerial photographs</li> <li>• GIS mapping software</li> </ul> <p>2. Field assessment by identifying the presence of one (at least) or more of the following attributes:</p> <ul style="list-style-type: none"> <li>• Wetland/hydromorphic soils.</li> <li>• Hydrophytes.</li> <li>• High water table.</li> </ul> <p>3. Combining desktop data, field data and calculating the Wetland Index of Habitat Integrity (DWA, 2007) by using the following indices:</p> <ul style="list-style-type: none"> <li>• Present Ecological status.</li> <li>• Ecological Importance and Sensitivity.</li> <li>• Ecosystem Services supplied by wetland.</li> </ul>
<p><b>Wetland Impact Assessment</b></p>	<p><b>As above.</b></p>
<p><b>Heritage, Archaeological, and Paleo</b></p>	<p><b>Phase 1 Archaeological Impact Assessments generally involve the identification of sites during a field survey with assessment of their significance, the possible impact development might have and relevant recommendations.</b></p> <p>All Archaeological Impact Assessment reports should include:</p> <ol style="list-style-type: none"> <li>a. Location of the sites that are found;</li> <li>b. Short descriptions of the characteristics of each site;</li> <li>c. Short assessments of how important each site is, indicating which should be conserved and which mitigated;</li> <li>d. Assessments of the potential impact of the development on the site(s);</li> <li>e. In some cases a shovel test, to establish the extent of a site, or collection of material, to identify the associations of the site, may be necessary (a pre-arranged SAHRA permit is required); and</li> <li>f. Recommendations for conservation or mitigation.</li> </ol> <p><b>This AIA report is intended to inform the client about the legislative protection of heritage resources and their significance and make appropriate recommendations. It is essential to also provide the heritage authority with sufficient information about the sites to enable the authority to assess with confidence:</b></p> <ol style="list-style-type: none"> <li>a. Whether or not it has objections to a development;</li> <li>b. What the conditions are upon which such development might proceed;</li> <li>c. Which sites require permits for mitigation or destruction;</li> <li>d. Which sites require mitigation and what this should comprise;</li> <li>e. Whether sites must be conserved and what alternatives can be proposed to relocate the development in such a way as to conserve other sites; and</li> <li>f. What measures should or could be put in place to protect the sites which should be conserved.</li> </ol>
<p><b>Visual</b></p>	<p><b>The scope of work for this Visual Impact Assessment will include:</b></p>



Updated- 15/7/2022

Specialist Study	Scope of Work
	<ul style="list-style-type: none"> <li>• Describe the existing visual characteristics of the proposed sites and its environs;</li> <li>• Viewshed and viewing distance;</li> <li>• Visual Exposure Analysis;</li> <li>• Viewer Sensitivity;</li> <li>• The overall objective of the Visual Impact Assessment (VIA) is to assess the significance of the visual impacts that will be caused by the mining activities.</li> </ul>
<p><b>Soils, land use and land capability</b></p>	<p><b>The following scope of work is proposed:</b></p>
	<p>1. A study of the diagnostic soil horizons, soil forms and soil series for the area, including an assessment of effective profile depth and the classification of soils according to the South African Soil Classification System (Soil Working Group, 1991).</p>
	<p>2. An assessment of the pedohydrological functioning of the area in order to shed light on the water storage capacity of the soils and occurrence of wetland or hydromorphic soils. Characteristics that will be noted include:</p>
	<ul style="list-style-type: none"> <li>• Fe(II)/Fe(III) layered double hydroxides (green rusts) that is indicative of moderate conditions of reductions and soils that are moist for prolonged periods;</li> </ul>
	<ul style="list-style-type: none"> <li>• The accumulation of ferrihydrate, lepidocrosite, goethite and hematite in vesicular nodules (mottling) owing to the reduction of Fe(III) to Fe(II), under conditions of a fluctuating water table;</li> </ul>
	<ul style="list-style-type: none"> <li>• The occurrence of grey colours, especially where mottling is not present, as a further indication of Fe mobilisation and semi-permanent or permanent conditions of water saturation;</li> </ul>
	<ul style="list-style-type: none"> <li>• The occurrence of bleached soil horizons that indicate lateral drainage of water;</li> </ul>
	<ul style="list-style-type: none"> <li>• The occurrence of uniform red and yellow colouration that is indicative of well drained areas;</li> </ul>
	<ul style="list-style-type: none"> <li>• Signs of Mn mobilisation and/or precipitation as indicating a fluctuating water table;</li> </ul>
	<ul style="list-style-type: none"> <li>• The occurrence of smectite clays that lead to swelling and shrinking characteristics in soil and that is conducive to water flow in the dry state but not in the wet state.</li> </ul>
	<ul style="list-style-type: none"> <li>• Texture of the soil horizons as a means to assess the water holding capacity, saturated water content and saturated hydraulic conductivity,</li> </ul>
	<ul style="list-style-type: none"> <li>• Textural changes and other aspects in the soil profile that will influence saturated and unsaturated flow of water.</li> </ul>
	<ul style="list-style-type: none"> <li>• Occurrence of layers, such as the rocks, ferricrete and/or calcrete, which impede water flow.</li> </ul>
	<ul style="list-style-type: none"> <li>• Occurrence of concretions, stones or pebbles in the soil horizons and the effect on water holding capacity, saturated water content and saturated hydraulic conductivity.</li> </ul>
	<p><b>Representative soil samples will be collected and subjected to chemical and physical analyses. The following analyses will be conducted:</b></p>
	<ul style="list-style-type: none"> <li>• Water soluble cations and anions;</li> </ul>
	<ul style="list-style-type: none"> <li>• pH and EC (electrical conductivity);</li> </ul>
<ul style="list-style-type: none"> <li>• Exchangeable/weakly complexed fraction of major cationic plant nutrients – calcium (Ca), sodium (Na), magnesium (Mg), potassium (K)</li> </ul>	
<ul style="list-style-type: none"> <li>• Cation exchange capacity;</li> </ul>	
<ul style="list-style-type: none"> <li>• Plant available phosphorus (P), nitrogen content;</li> </ul>	
<ul style="list-style-type: none"> <li>• Organic carbon content;</li> </ul>	
<ul style="list-style-type: none"> <li>• Soil particle size distribution (texture including clay and silt content); and</li> </ul>	
<ul style="list-style-type: none"> <li>• Soil salinity levels will be calculated.</li> </ul>	



Updated- 15/7/2022

2.i.iii Description of aspects to be assessed by specialists

Refer to previous section 2.i.ii, Table 2-36.

2.i.iv Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

Refer to previous section 2.i.ii, Table 2-36.

2.i.v The proposed method of assessing duration significance

Refer to previous section 2.i.ii, Table 2-36.

2.i.vi The stages at which the competent authority will be consulted

- Application Stage (application form submitted on 31 March 2022).
- Copy of the Draft Scoping Report to be submitted for their records (15 July 2022).
- Submission of the Final Scoping Report for review and comment (19 August 2022).
- Copy of the Draft EIA Report to be submitted for their records (TBC).
- Copy of the Final EIA Report to be submitted for review and decision making (TBC).

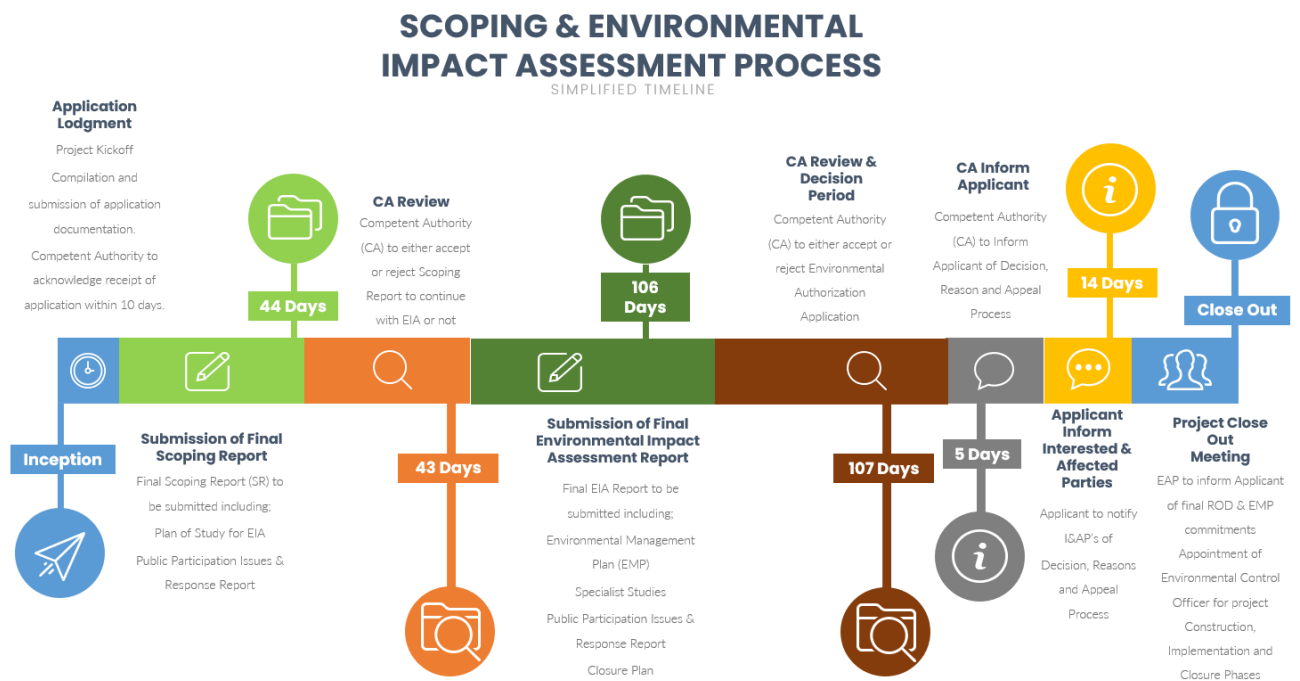


Figure 2-20: S&EIR Process

2.i.vii Particulars of the public participation process with regard to the Impact Assessment process that will be conducted

2.i.vii.1 Steps to be taken to notify interested and affected parties.

(These steps must include the steps that will be taken to ensure consultation with the affected parties identified in (h) (ii) herein).

Section 41 of NEMA Regulation 982 (specifically Chapter 6) set out the Legal and Regulatory Requirement for Public Participation. The Public Participation Process (PPP) aims to involve the authorities and I&APs in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. An open and transparent process will/has been followed at all times and is based on reciprocal dissemination of information. The following was undertaken during the PPP:





Updated- 15/7/2022

- a. Identification of Interested and Affected Parties (IAPs);
- b. Notification of IAPs regarding the proposed project via newspaper adverts (in the Witbank News); the placing of site notices at conspicuous places, the sending of notices to affected parties via email and sms (in the form of Background Information Documents) to adjacent landowners.
- c. A public information meeting (open day) with IAPs will be organised at a central, easily accessible location close to the stakeholders; such as the eMalahleni Main Library;
- d. Gathering comments, issues and concerns from IAPs;
- e. Responding to IAP comments, issues and concerns;
- f. Compilation and submission of results of consultation report to the DMRE;
- g. Providing IAPs with the opportunity to review and comment on the Draft Scoping and EIA Reports; and
- h. Further personal consultation with affected landowners.

*2.i.vii.2 Details of the engagement process to be followed.*

(Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings and records of such consultation will be required in the EIA at a later stage).

All persons registered as I&APs and organs of state identified through the scoping phase PPP will be sent invites to attend the EIA Phase PPP meeting. The meeting will address specialist findings, focusing on sensitive issues, and provide information on the impact probability and significance. Proposed mitigation measures will also be discussed. The meeting will be recorded and minuted, and the minutes distributed to all attendees and I&APs for comment.

I&APs were notified of the availability of the Scoping Report and EIA and EMP reports and associated Annexures for public review and comment, the location where the hard copy and electronic copies can be viewed and the timeframe (30 calendar days, which will be extended if significant public holidays occur within this period as per NEMA EIA regulations) for comment. All comments received from the review phase will be incorporated into the issues and response table and incorporated into the Final PPP Report and Final EIA and EMP for submission to authorities. During the EIA and EMP phase, if the need is identified to have one-on-one micro consultations, then these will be organised with the relevant I&AP. Upon receipt of an Environmental Authorisation, all registered I&APs will be notified of decision and the appeal process they can follow under NEMA.

*2.i.vii.3 Description of the information to be provided to Interested and Affected Parties.*

(Information to be provided must include the initial site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land).

I&APs will have access to any of the project information as per the NEMA and PAIA. They will also be given ample opportunity to comment and provide input on the relevant pieces of information during the S&EIR process.

*2.i.viii Description of the tasks that will be undertaken during the environmental impact assessment process*

- Public Review of the Draft Scoping Report (30 days);
- Public Engagement and gathering of issues and comments;
- Finalising of the Scoping Report and submission to the DMRE for consideration;
- Undertaking of the specialist studies and risk assessment phase;
- Drafting of the EIA Report, EMP and IWULA;
- Public Review of the Draft EIA Report and EMP (30 days) including the IWULA;
- Public Engagement and gathering of issues and comments; and
- Finalisation of the EIA Report and EMP, submission to the DMRE for decision making.



Updated- 15/7/2022

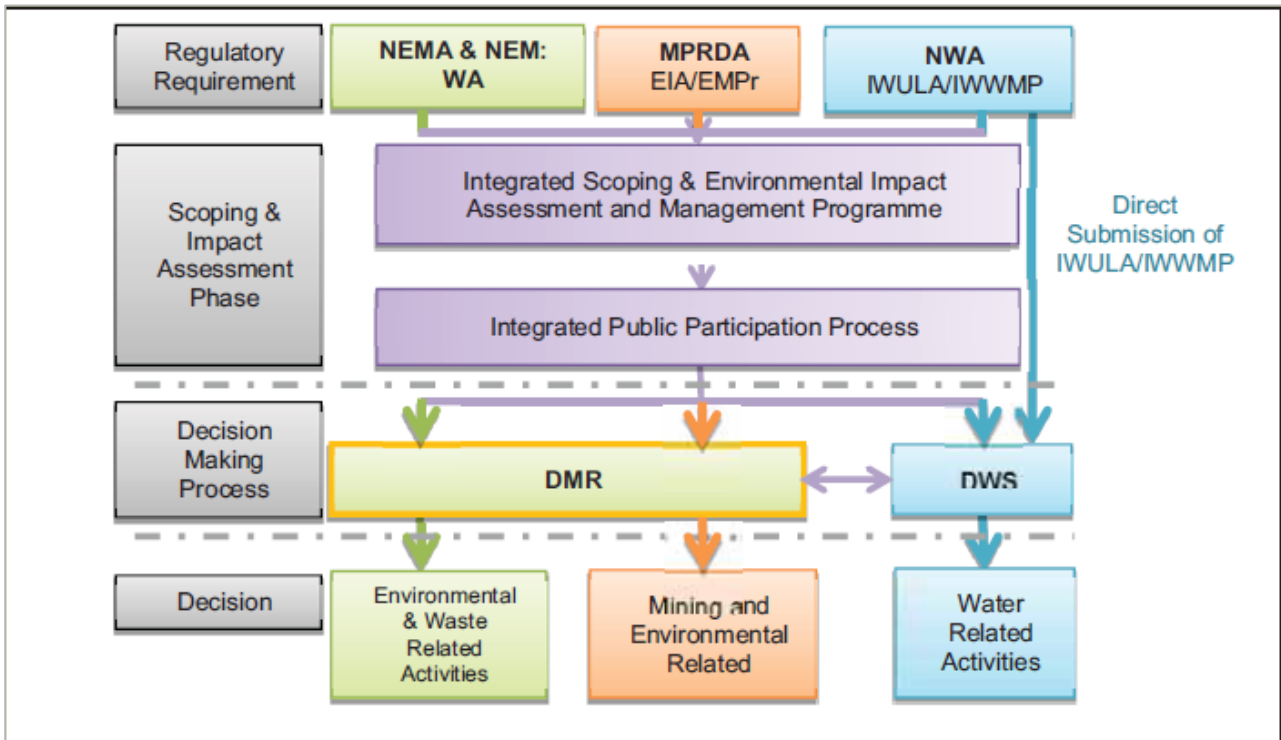


Figure 2-21: Authorisation Process Overview

2.i.ix Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

- Design the surface and storm water infrastructure to be within the footprint of the project area.
- The water from the voids must be pumped out in order to facilitate and ensure safe and effective mining.
- The water from the voids must be contained in the PCDs because it is considered polluted. The water can therefore not be discharged into the nearest river, nor be used as potable or irrigation water. As a result, it can only be used on the dirty water areas of the mine, for dust suppression. The area has windy dry seasons and the mine will require dust suppression on site.
- The stockpiling of potentially acid-generating material (interburden material and ROM coal) is only a temporary measure. This material will be stockpiled on a compacted surface, with adequate surrounding drainage systems that will contain any polluted water arising off these stockpiles. This dirty water will be directed to the PCDs. There is no other option for the handling of this material other than stockpiling temporarily. The interburden material will be placed back into the progressively rehabilitated pits, and the ROM coal will be loaded and transported after it has been crushed.
- Separate clean from dirty water and allow discharge of water to designated areas.
- Vegetate disturbed areas to limit erosion.
- Implement berms, trenches and storm water management measures in accordance with GN 704 Regulations.
- Pollution Control Dams to be designed to cater for the required storage capacity.
- Comply with the National Air Quality Standards and Dust Control Regulations.
- Comply with the SANS noise standard.
- Avoid travelling past residences. Speed limit of 40 km/h will be enforced. Liaise with landowner on areas sensitive to noise. Provide a buffer of 100 m from households.



Updated- 15/7/2022

- Prescribe to the DWS Catchment Water Quality Standards.
- Restrict traveling speed of vehicles to reduce vehicle entrainment of dust. Wet gravel roads if dust is found to be excessive.
- No-go areas to be identified. Environmental awareness training of all employees.
- Preference to be given to the use of local employment, contractors and local suppliers.
- Implement measures to protect soils from pollution.
- Reduce the visual impacts of mining activities, i.e. concurrent rehabilitation.
- Site selection aimed at minimising disturbance to sensitive animal habitats and breeding areas.
- Utilise existing access roads as far as possible.
- Access roads to follow slope contours where possible. Vegetation to be left in place at the sides of the road to protect the soils.

## 2.1 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

2.1.i Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998) the EIA report must include the:-

2.1.i.1 *Impact on the socio-economic conditions of any directly affected person. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as Appendix 2.19.1 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).*

Section to be populated once the Social Assessment process of the Draft EIA Phase commences.

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

This will be included in the EIA once the Heritage Impact Assessment is concluded, Information to be uploaded on the SAHRIS website once received.

## 2.m OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT.

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

The site location is limited to the MR and adjacent resource areas, which is constrained by the location of other mining houses and residential areas. The resource location and the presence of a watercourse on the site further restrict the infrastructure layout. Therefore, no alternative sites were considered.



Updated- 15/7/2022

2.j UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

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



Signature of the EAP

08/07/2022

DATE



Updated- 15/7/2022

2.k UNDERTAKING REGARDING LEVEL OF AGREEMENT

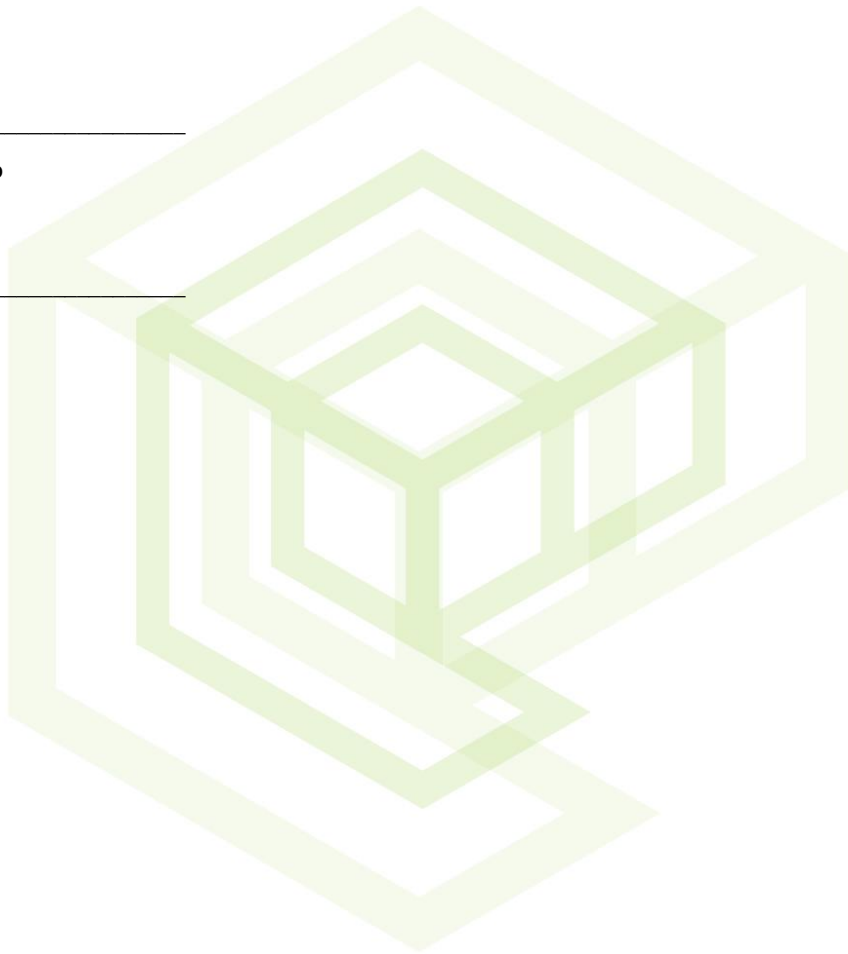
I Marungwane Ramashapa herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.



Signature of the EAP

08/07/2022

DATE:



Updated- 15/7/2022

## ANNEXURE 1: QUALIFICATION OF EAP



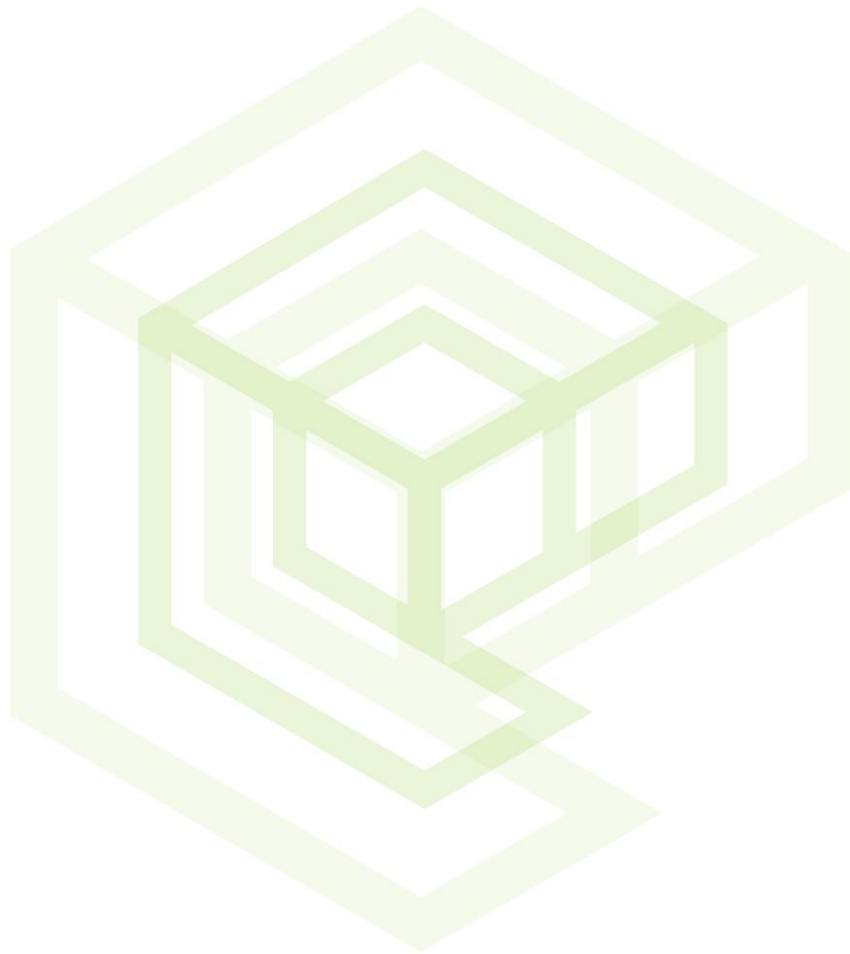
Updated- 15/7/2022

## ANNEXURE 2: EAP CV



Updated- 15/7/2022

## ANNEXURE 3: LOCALITY MAPS





Updated- 15/7/2022

## ANNEXURE 4: SITE LAYOUT AND INFRASTRUCTURE

