



ENVIRONMENTAL & ENGINEERING

REPORT

EYETHU COAL (PTY) LTD – BLESBOKLAAGTE COLLIERY

DMR Reference Number: MP30/5/1/1/3/2/1/ 11318EM

**INTEGRATED ENVIRONMENTAL
AUTHORISATIONS – DRAFT SCOPING
REPORT**

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(BLESBOKLAAGTE COLLIERY EA)

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DECLARATION OF INDEPENDENCE

I, Riana Panaino, 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.



11/09/2019

Signature

Mrs. Riana Panaino

BSc Hons Biodiversity and Conservation

IAIA Member

Pr.Sci.Nat

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**



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.



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SCOPING REPORT



1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

1.1 DETAILS OF:

1.1.1 The EAP who prepared the report

Table 1.1: Contact details of EAP

Name of the practitioner	Riana Panaino
Tel Number	012 807 0383
Fax Number	086 714 5397
Email Address	riana@ecoe.co.za

1.1.2 Expertise of the EAP

1.1.2.1 The qualification of the EAP

The EAP has an Honours degrees in Biodiversity and Conservation, is SACNASP Registered, and has more than 10 years' experience in Environmental Consulting.

Refer to Annexure 2 for a CV of the EAP.

1.1.2.2 Summary of the EAP's past experience

Refer to Annexure 2 for a CV of the EAP.

1.2 DESCRIPTION OF THE PROPERTY

Table 1.2: Description of Property

Farm Name:	Blesboklaagte 296JS ptn 5 Blesboklaagte 296JS ptn 216
Application area (Ha)	137.7165 ha
Magisterial district:	Emalahleni Local Municipality Nkangala District Municipality
Distance and direction from nearest town	Situated about 5 kilometres northwest of Emalahleni.
21 digit Surveyor General Code for each farm portion	T0JS00000000029600055 T0JS00000000029600216



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1.3 LOCALITY MAP

(Show nearest town, scale not smaller than 1:250000 attached as Appendix 3).

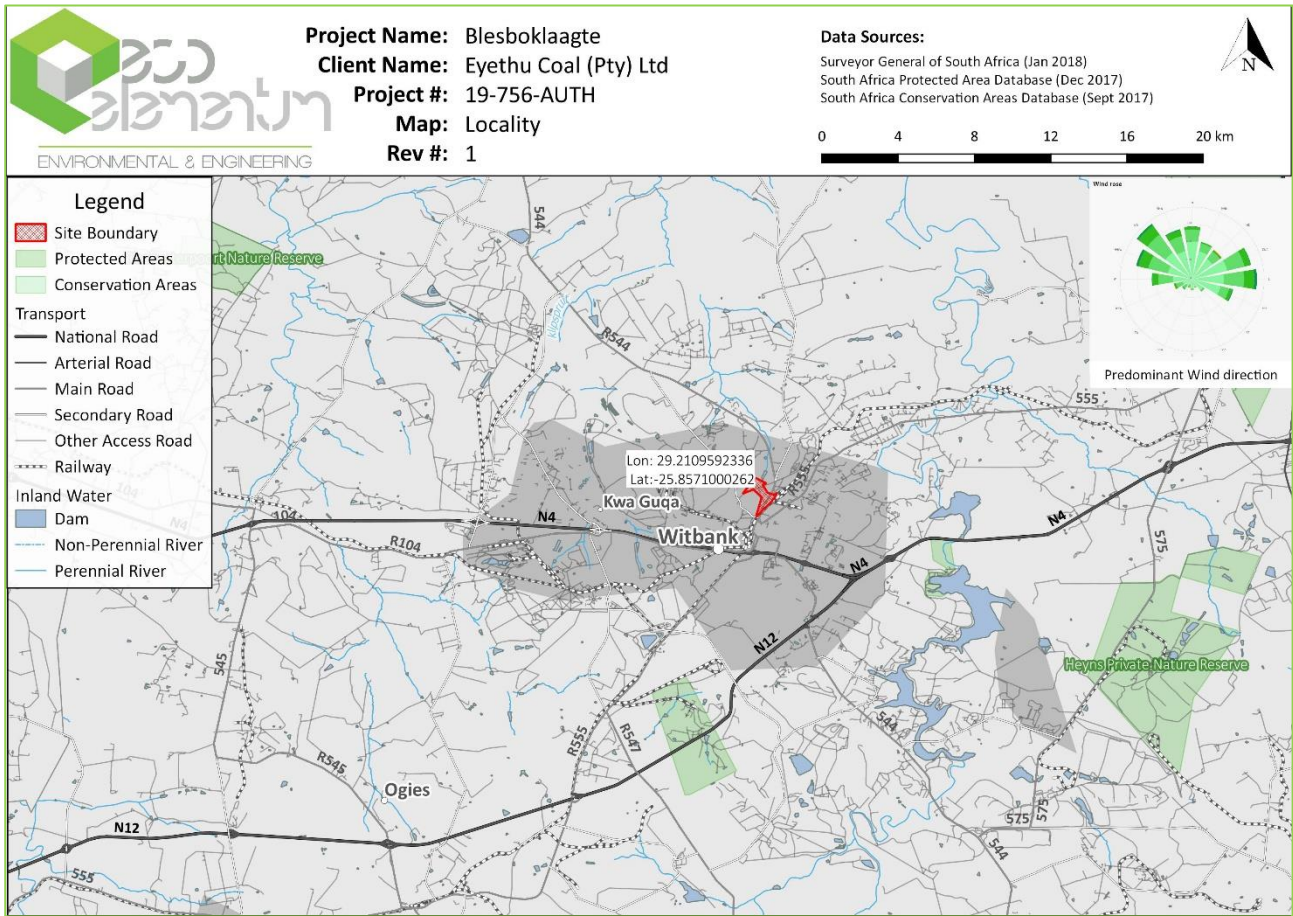


Figure 1.1: Blasboklaagte Colliery Locality



1.4 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

1.4.1 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.

Table 1.3: Listed and specified activities

Applicable Listing Notice (GNR 983, GNR 984 or GNR 985; as amended)	Name Of Activity	Waste Authorisation
Listing Notice 1 (GNR 983)		
<p>9 The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water-</p> <ul style="list-style-type: none"> (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; <p>excluding where-</p> <ul style="list-style-type: none"> (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area. 	Storm water management infrastructure for the separation of clean and dirty water.	
<p>10 The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes-</p> <ul style="list-style-type: none"> (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; <p>excluding where-</p> <ul style="list-style-type: none"> (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area. 	Dirty water channels and return water pipelines on site and at the plant area.	
<p>12 The development of-</p> <ul style="list-style-type: none"> (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; <p>where such development occurs-</p> <ul style="list-style-type: none"> (a) within a watercourse; 	Offices, Workshops, change house, Ablution facilities, Plant area, PCD.	



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Applicable Listing Notice (GNR 983, GNR 984 or GNR 985; as amended)	Name Of Activity	Waste Authorisation
<p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;- excluding-</p> <p>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</p> <p>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</p> <p>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</p> <p>(dd) where such development occurs within an urban area;</p> <p>(ee) where such development occurs within existing roads, road reserves or railway line reserves; or</p> <p>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.</p>		
<p>13 The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.</p>	<p>Potable water containers for offices, change house and ablution facilities.</p>	
<p>14 The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.</p>	<p>Diesel Storage on Site.</p>	
<p>19 The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving-</p> <p>(a) will occur behind a development setback;</p> <p>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</p> <p>(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</p>	<p>Site clearance for construction purposes, box cut excavation.</p>	
<p>24 The development of a road-</p> <p>(i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or</p> <p>(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;</p> <p>but excluding a road-</p> <p>(a) which is identified and included in activity 27 in Listing Notice 2 of 2014;</p>	<p>Haul Roads for coal transport on site.</p>	



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Applicable Listing Notice (GNR 983, GNR 984 or GNR 985; as amended)	Name Of Activity	Waste Authorisation
(b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.		
Listing Notice 2 (GNR 984)		
4 The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.	Diesel Storage on Site.	
6 The development of facilities or infrastructure for any process or activity which requires a permit or license or an amended permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding- (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are 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; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day.	Stockpiles and Pollution Control Dams will trigger Section 21 (g) application.	Category B: Activity 10, 11
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 construction purposes.	
17 Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including- (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.	A Mining Right amendment for the Mining of coal will be applied for.	
19 The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including- (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.	The opencast mining of coal.	Category B: Activity 10, 11



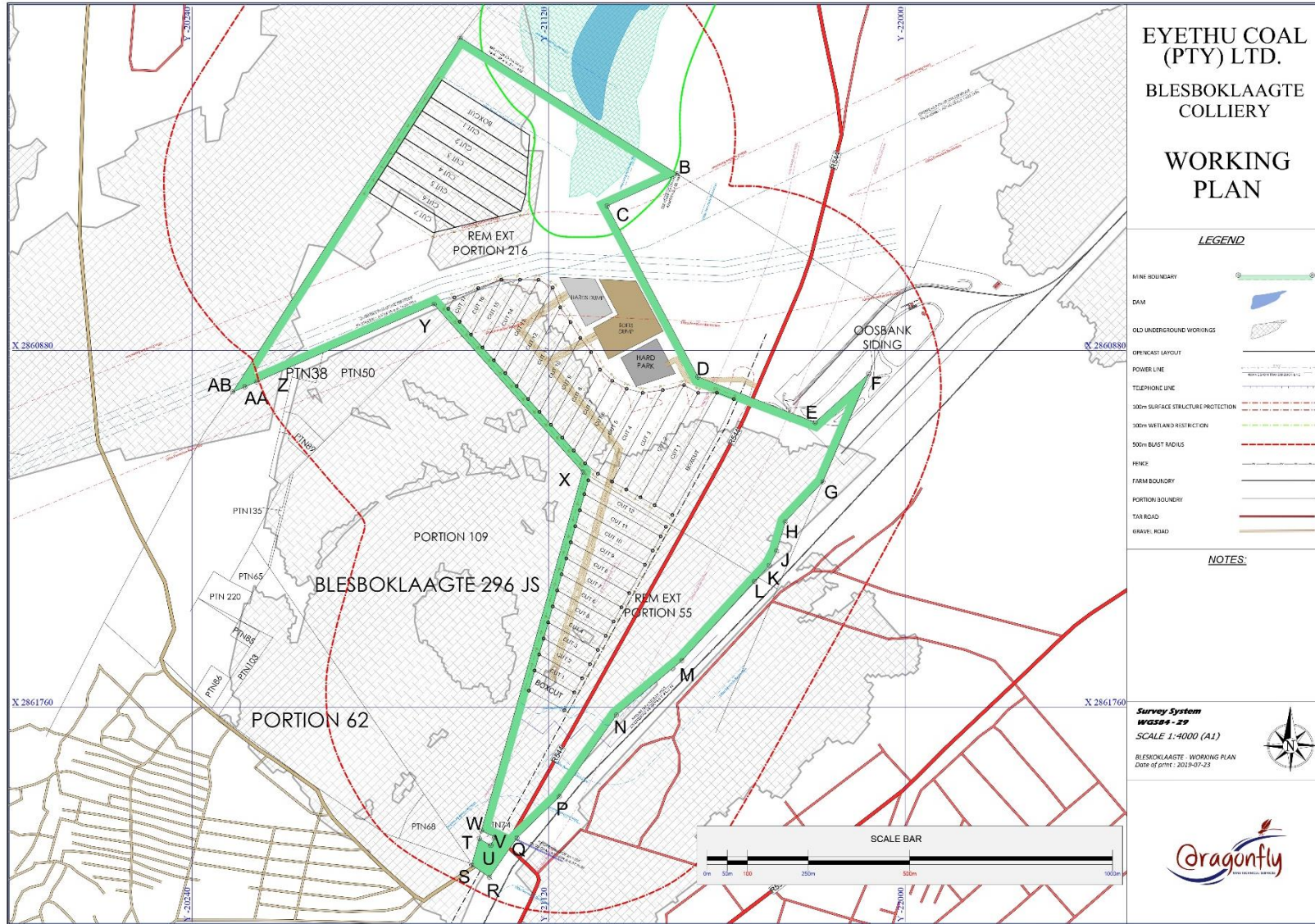


Figure 1.2: Location of listed activities



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1.4.2 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)

1.4.2.1 Infrastructure requirements

- Security access point;
- Access roads;
- Electrical supply – (Eskom);
- Water storage facility;
- Water management facility;
- Workshop;
- Change-house;
- Laundry;
- Offices;
- Weighbridge.

1.4.2.2 Process description

Mining will consist of the removal of coal from the No. 2 coal seam, the ROM will be transported to an off-site beneficiation plant where the ROM will be processed to be sold to Eskom Holdings Ltd.

During the construction phase infrastructure will be erected on site. This phase will take approximately 6 months to complete and will consist of the following:

- Construction of mine infrastructure, i.e. diesel tanks, workshops, haul roads, etc.
- Preparation of the topsoil, subsoil and overburden stockpiling area;
- Construction of water catchment trenches;
- Excavation of initial box-cuts,
- Construction of the pollution control dams,
- Formation of the topsoil, subsoil and overburden stockpiles,

During the operational phase opencast mining will be conducted. This phase will take approximately 3 years to complete and will consist of the following:

- Systematic removal of the coal seams by opencast mining methods (See Attachment 3 - Mining Layout Plan);
- Transporting and Stockpiling of ROM
- Disposal of mine affected water into the pollution control dams.
- Transporting of coal products
- Utilization of mine infrastructure

The decommissioning phase is taken to begin once all economically exploitable coal reserves have been extracted. This phase of the mine is expected to take not more than three years.

- Removal of all mine infrastructure;
- Filling of all remaining voids and final shaping of the rehabilitated opencast pit;
- Removal of the carbonaceous layer from the product stockpiling area and haul roads;
- Ripping of all infrastructure areas; and
- 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.



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1.4.2.3 Mining Method - Open Cast Mining

Opencast mining using the truck and shovel lateral sequential rollover mining method will be undertaken. Mining will commence from the initial box cut. A haul road that will be extended from the nearby existing road will be 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)

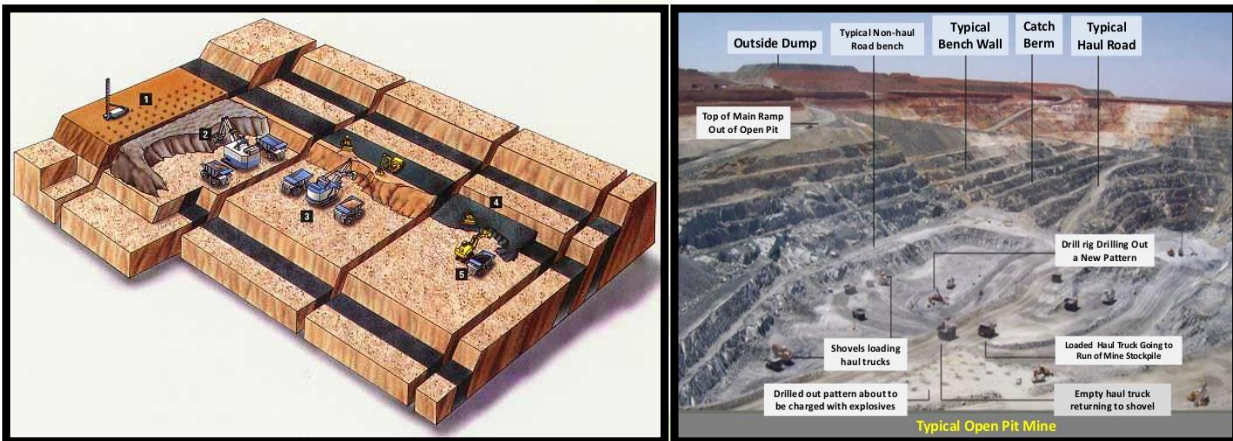


Figure 1.3: Typical Opencast Concurrent Roll Over Rehabilitation Mining Technique

1.4.2.4 Run of Mine Coal and Coal Beneficiation

No Processing shall be done on site. Thus no plant will be constructed, coal will be transported by road to the Eyethu's existing beneficiation plant.



1.5 POLICY AND LEGISLATIVE CONTEXT

Table 1.4: Policy and Legislative Context

<p>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);</p>	<p>REFERENCE WHERE APPLIED</p>	
<p>National Environmental Management Act (107 of 1998) 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>Section 28 of the NEMA includes a far-reaching general “Duty of Care” which stipulates the need to protect the environment from degradation and pollution. In terms of the listed activities, an S&EIR process is required.</p>	<p>An Application for Environmental Authorisation and Mining Right has been made to the DMR.</p>
<p>Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) 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>Section 102- The project requires a mining right amendment from the DMR.</p>	<p>A section 102 Mining Right amendment was lodged with the DMR.</p>
<p>NEMA Environmental Impact Assessment (EIA) Regulations, 2014 (as amended)</p>	<p>In terms of the listed activities, an S&EIR process is required. The process will be followed in terms of the “one environmental system”</p>	<p>An Application for Environmental Authorisation and Mining Right has been made to the DMR.</p>
<p>The South African Constitution 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>Applied at potential impacts identification as well as mitigation measures and public participation.</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>
<p>National Environmental Management: Biodiversity Act, 2004 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>National Environmental Management: Waste Act 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.</p>	<p>In terms of the list of Section 19 waste management activities, an S&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</p>



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<p>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);</p>	<p>REFERENCE WHERE APPLIED</p>
<p>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.</p> <p>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>included in the EIA phase of the project.</p>
<p>National Heritage Resources Act (Act No. 25 of 1999) 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>National Water Act (Act No. 36 of 1998) 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.</p> <p>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:</p> <ul style="list-style-type: none"> (a) abstraction from a borehole. (c) and (i) mining activities within 500 m from a wetland. (g) dust suppression, coal stockpiling, mine residue stockpiling and dirty water dams. (j) abstraction from the open pit <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.</p> <p>Management Principles will be applied to the mining operations as per GN704.</p>
<p>National Environmental Management: Air Quality Act, 2004 (Act no.39 of 2004); and applicable Regulations, Standards and Notices published in terms of NEMAQA 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>Mine Health and Safety Act, 1996 (Act No. 29 of 1996); 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 to be conducted.</p>
<p>Mpumalanga Spatial Development Framework (SDF)</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 should be consulted as part of the Socio-Economic Study's Scope of Work.</p>
<p>National Development Plan (2012) 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</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>



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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
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>Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) (PAIA)</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&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>Conservation of Agricultural Resources Act (act no. 43 of 1983) (CARA)</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 strategy to be informed by CARA and stakeholder engagement process.</p>

1.6 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 project is in line with the 2012 National Development Plans’ Nine Point Plan which is aimed at reigniting the economy to be able to create much-needed jobs include industrialisation, mining and beneficiation, agriculture and agro-processing, energy, small, medium and micro enterprises (SMMEs), managing workplace conflict, attracting investments, growing the oceans economy and tourism. Cross-cutting areas such as science and technology, water and sanitation infrastructure, transport infrastructure and broadband roll-out have also been added.
- The mining sector generates mass employment opportunities which are mainly situated within the rural areas of the municipality. Although some key sectors of the municipality are slowly declining (due to international and national factors), the mining sector continues to grow
- The activity of mining has numerous social and economic benefits in local, regional and national context. These include: 1. Job creation 2. Skills development 3. SMME development 4. Local economic development 5. Contribution to local and national tax income (royalties, companies’ tax etc.) 6. Contribution to the national gross domestic product, and 7. Future business opportunities.

1.7 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

A 10 year authorisation is requested.

1.8 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.

- GIS and spatial analysis will be used to determine the location of the mining infrastructure by considering environmental sensitivities.
- The site layout will take into account the resource location, watercourse location, and location of built structures and graves.
- The detailed infrastructure layout will be presented during the EIA phase.



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1.8.1 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 Mining Right Area, which is constrained by the location of other mining houses and residential areas. 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.

the type of activity to be undertaken;

Opencast or underground mining are the 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.

the design or layout of the activity;

The infrastructure and mining layout is constrained by the mining right boundary, 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 final layout will be determined based on the results from the specialist assessments.

the technology to be used in the activity

The technology proposed will be the most economically viable technology for the proposed operation.

the operational aspects of the activity; and

As per 0 above.

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. 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.

1.8.2 Details of the Public Participation Process Followed

(Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.))

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,



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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 Interested and Affected Parties (IAPs);
- 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 held on 4 October 2019 at the eMalahleni Main 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 DMR; and
- Providing IAPs with the opportunity to review and comment on the Draft Scoping and EIA Reports.

1.8.3 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.

1.8.4 The Environmental attributes associated with the sites

1.8.4.1 Baseline Environment

1.8.4.1.1 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 7.5 km directly north-west 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. 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 marches 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-



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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.

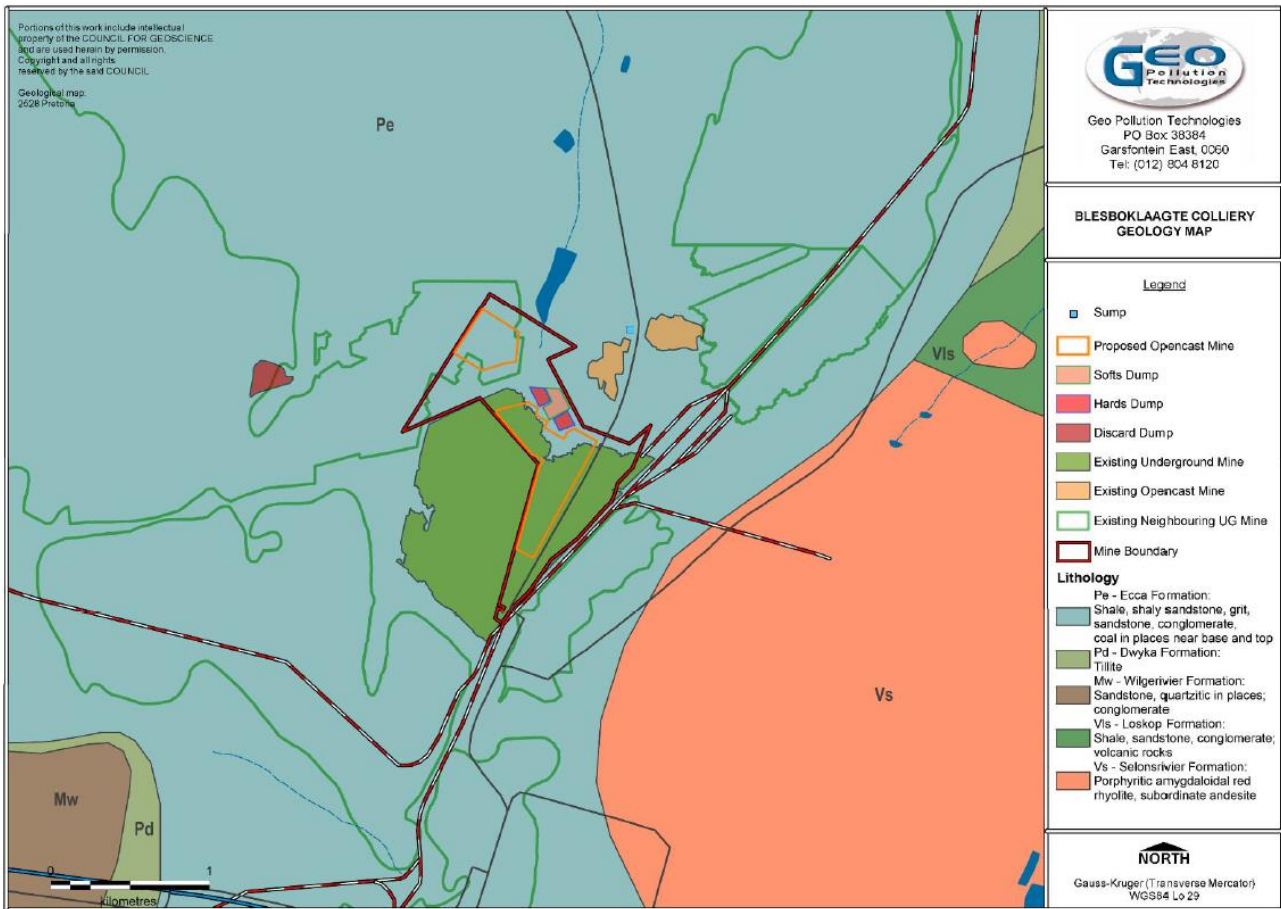


Figure 1.4: Geology of the area

TOPOGRAPHY

Eastern Highveld Grassland is characterised by slightly to moderately undulating plains, including some low hills and pan depressions with an altitude 1 520–1 780 m.



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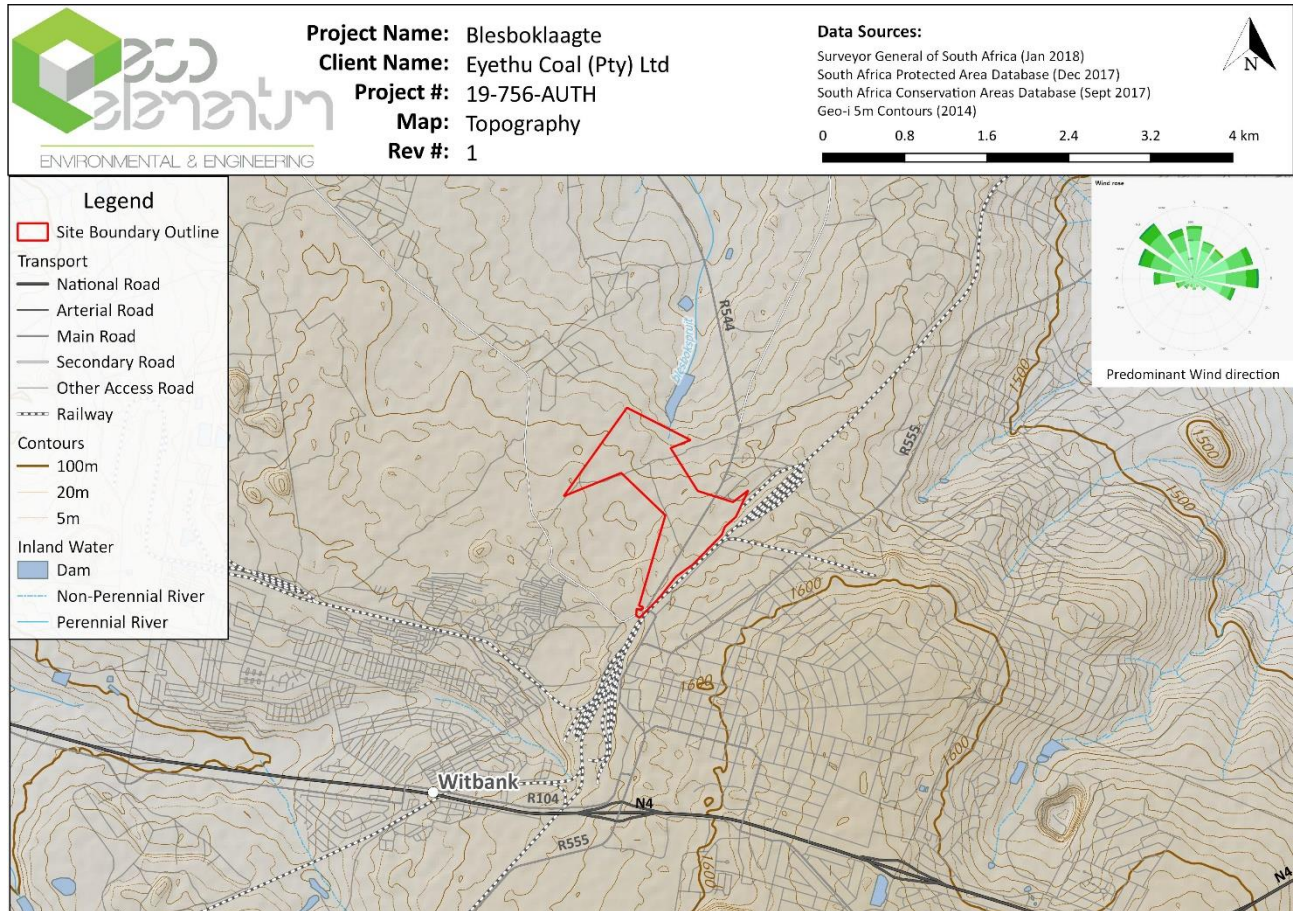


Figure 1.5: Topography of the area

CLIMATE

Climatic data was obtained from the DWS weather station eMalahleni (rainfall data and evaporation data) at the Witbank Dam 1 (Table 1.5). 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. Recharge is estimated at an average of 3.5% of annual rainfall, i.e. 25 mm/a.



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Table 1.5: 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

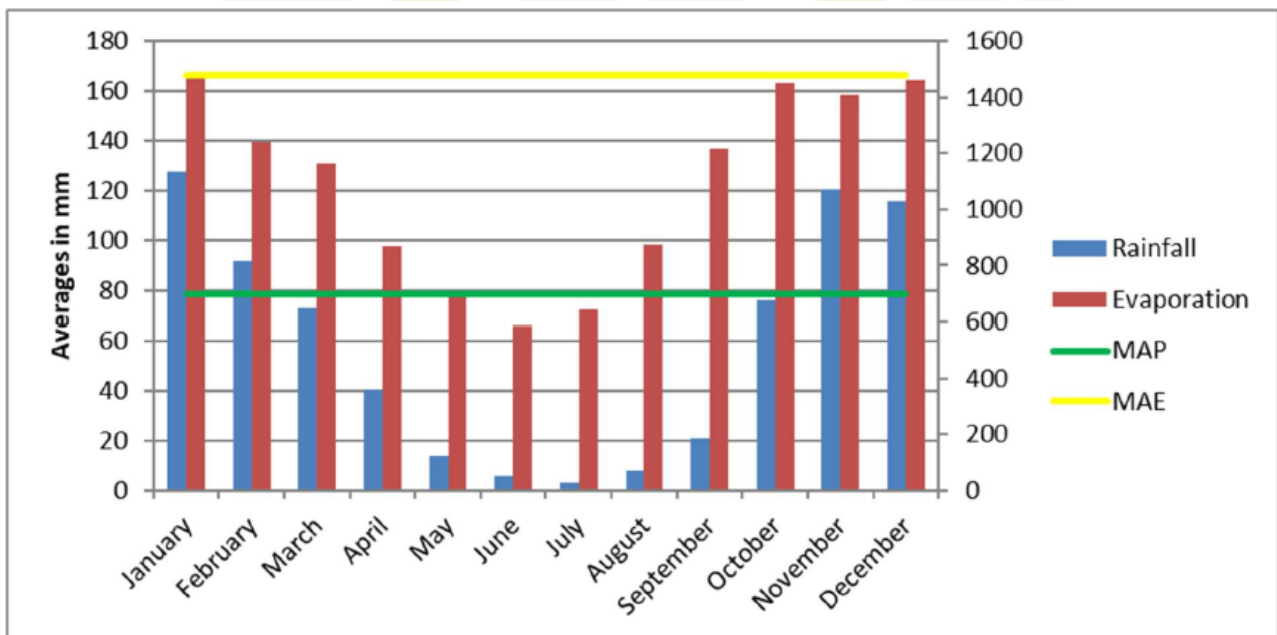


Figure 1.6: Average Rainfall Graph by month

WETLAND ECOLOGY

A Wetland Assessment was undertaken for the study area in 2015, by Sazi Environmental Consulting. This study will be updated and included in the EIA.

Catchment description

The assessment area falls within the B11K quaternary catchment of the Upper Olifants Water Management Area. 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.



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Classification of wetlands

The area that is within 500 m north of the Eyethu Coal mining area and associated infrastructure consisted of a channelled valley bottom wetland which forms headwaters of the Blesbokspruit, a tributary of the Olifants River. The figure below illustrates the wetland observed on site.

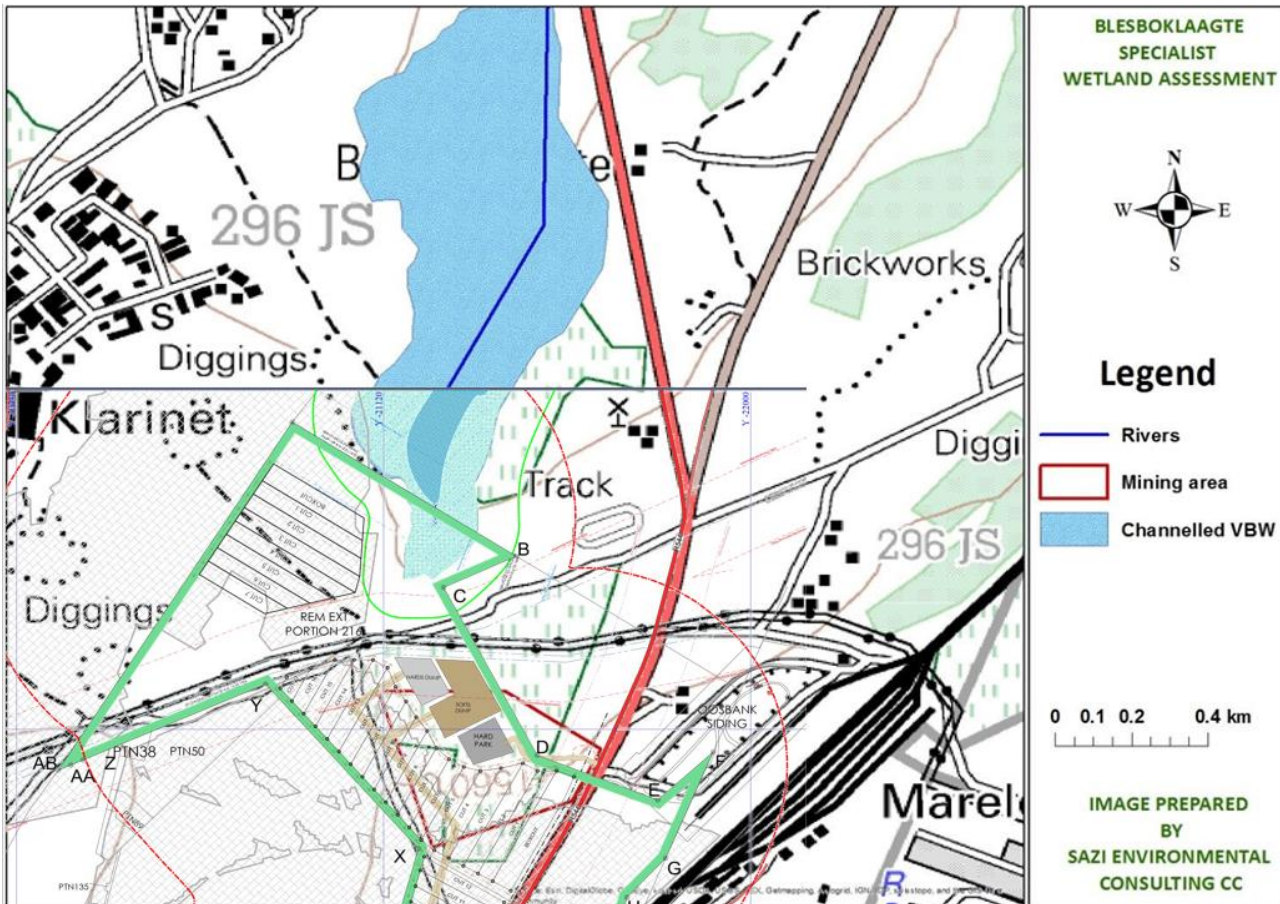


Figure 1.7: Wetlands associated with the site

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.

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; Past agricultural activities.

Table 1.6: 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



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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.

AQUATIC ECOLOGY

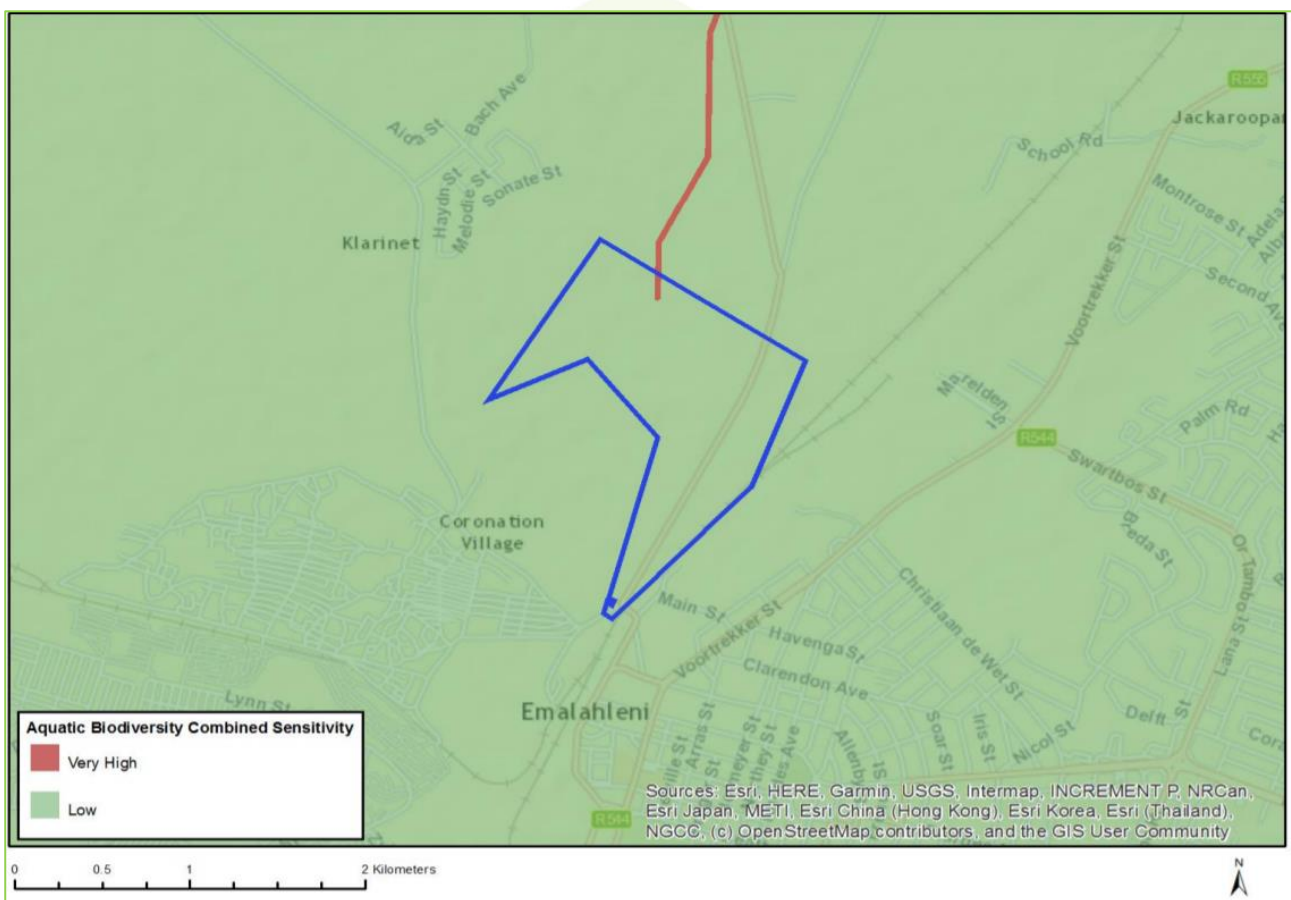


Figure 1.8: Aquatic Biodiversity combined sensitivity

From the desktop assessment it was found that the combined aquatic biodiversity of the site was of very high with a river of very high sensitivity occurring in the North of the site. The remainder of the site has a low sensitivity. The river of high importance is the headwater of the Blesbokspruit. The headwater area consists of four dams used to catch decant water from old underground workings and the aquatic study will be undertaken to determine the actual sensitivity of the site.

An Aquatic Impact Assessment will be conducted and included in the EIA.



TERRESTRIAL ECOLOGY

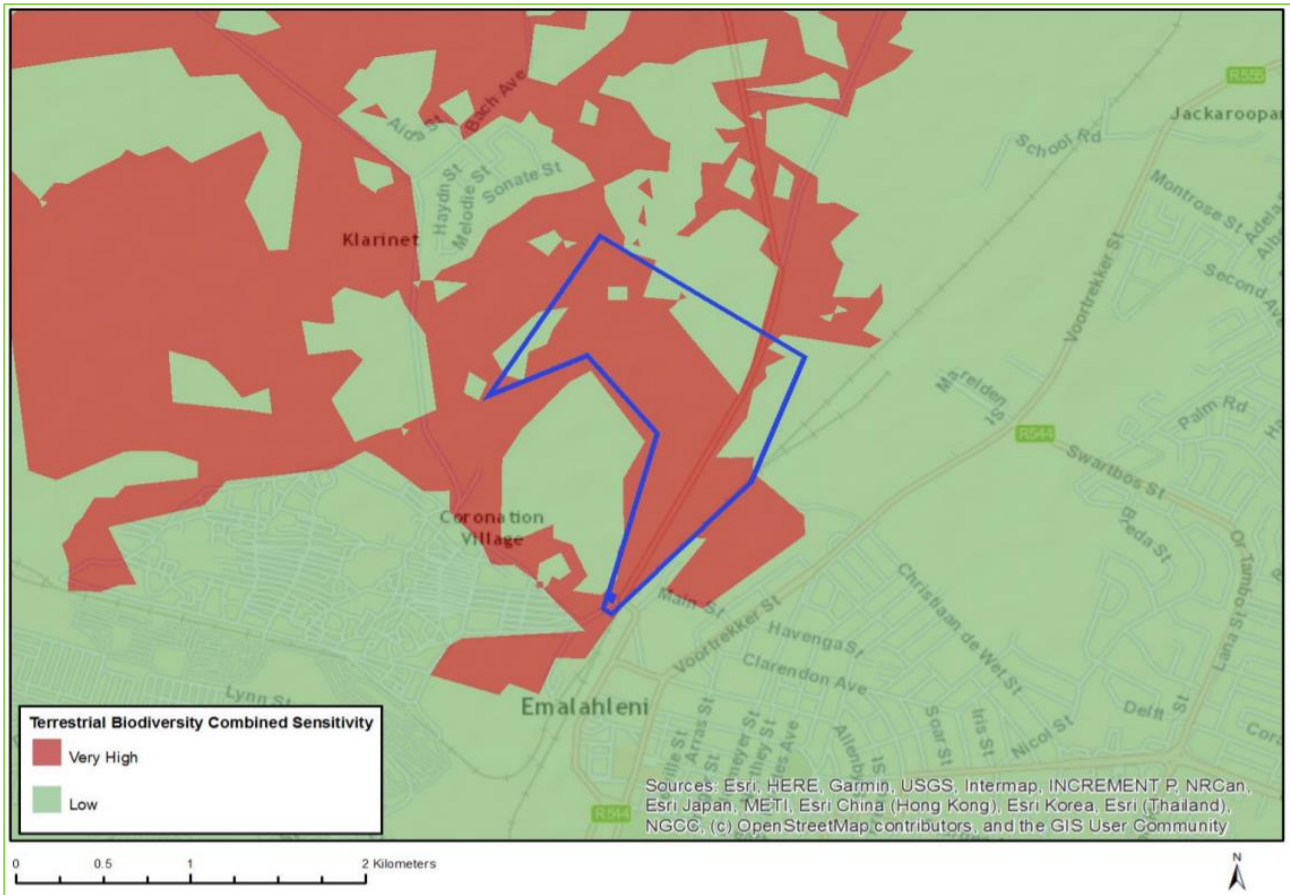


Figure 1.9: Relative Terrestrial Biodiversity Theme Sensitivity

According to the DEA Screening Tool the Terrestrial Biodiversity has a very high combined sensitivity due to possible Critical Biodiversity Areas and Focus Areas for Protected Areas Expansion Strategies. This is however a desktop assessment and will be confirmed in field as most of the area is known for historical underground mining disturbance, areas of subsidence and land with disturbed vegetation, with very little natural habitat left.



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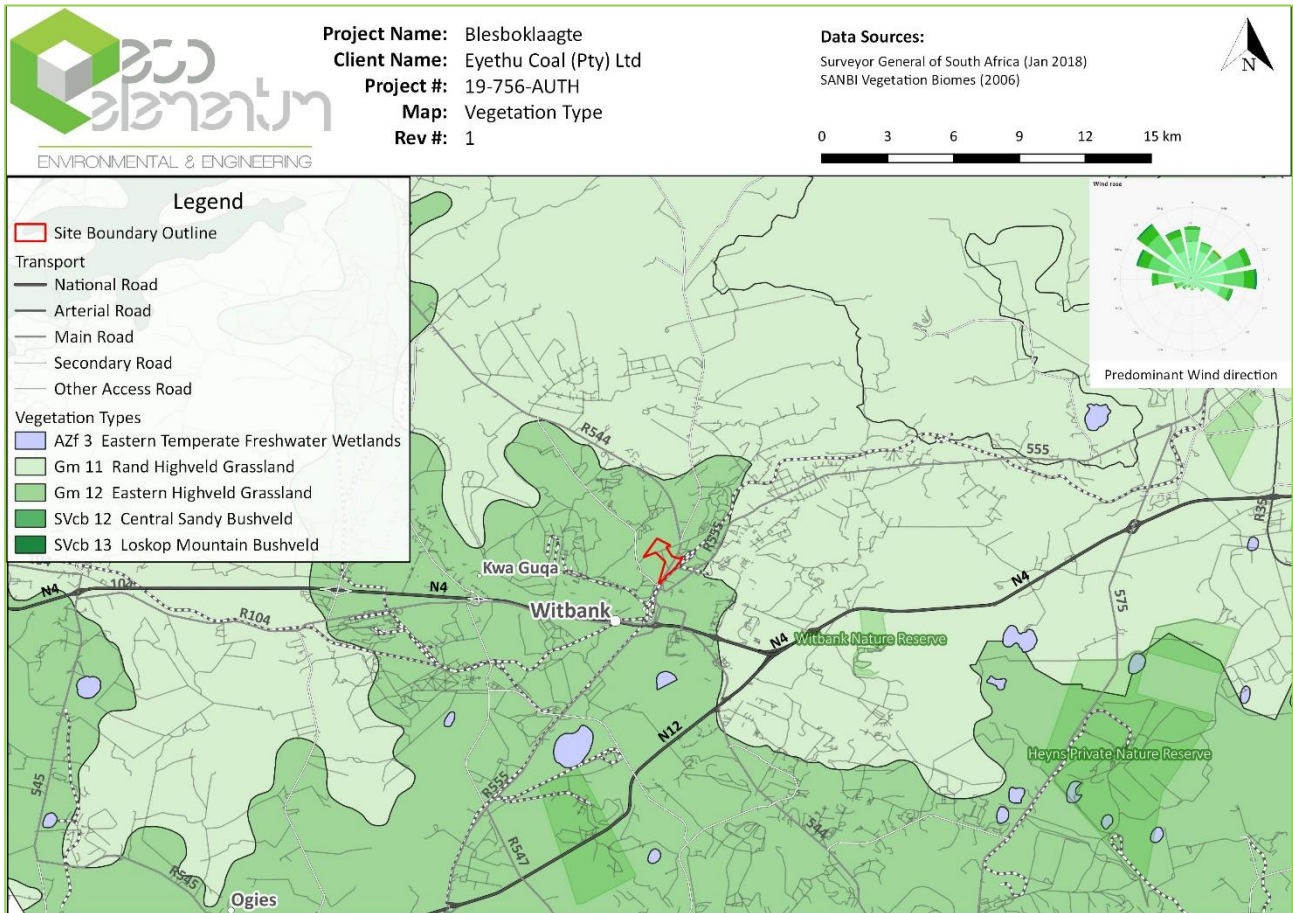


Figure 1.10: Vegetation Type

Eastern Highveld Grassland

The site further falls within the Eastern Highveld Grassland vegetation type. 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.

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 Nootgedacht dam - and Jericho dam Nature Reserve of the Mpumalanga Tourism and Parks Agency and in Private Nature Reserves such as Holkrans, Kransbank and Morgenstond (Mucina and Rutherford, 2006).

Important plant species of this vegetation type are given in Table 1.7.



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Table 1.7: 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 amplexans</i>	
POACEA	<i>Eragrostis capensis</i>	
POACEA	<i>E. gummiflora</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 nigristrostris</i>	
POACEA	<i>Urelytrum agropyroides</i>	
ASTERACEAE	<i>Berkheya setifera</i>	D
ASTERACEAE	<i>Haplocarpha scaposa</i>	D
ACANTHACEAE	<i>Justicia anagalloides</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. caespititium</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>	



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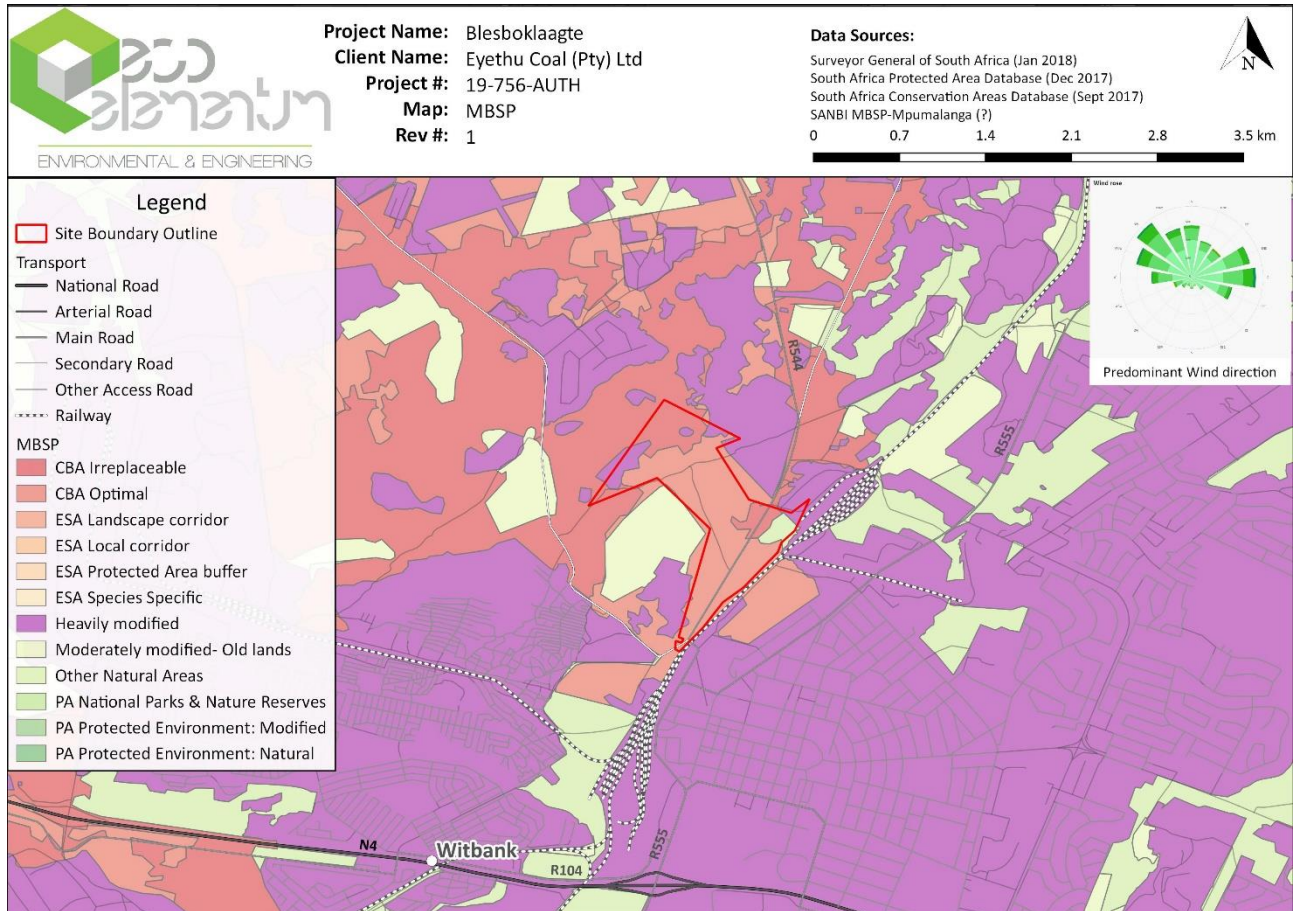


Figure 1.11: Mpumalanga Biodiversity Sector Plan

The site is further classified in terms of the Mpumalanga Biodiversity Sector Plan to range from areas that are heavily modified, to areas categorised as an optimal Critical Biodiversity Area.

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

HERITAGE AND PALAEOLOGY

The following figures show the relative sensitivity of the area for Archaeological finds and Cultural Heritage (Figure 1.12).



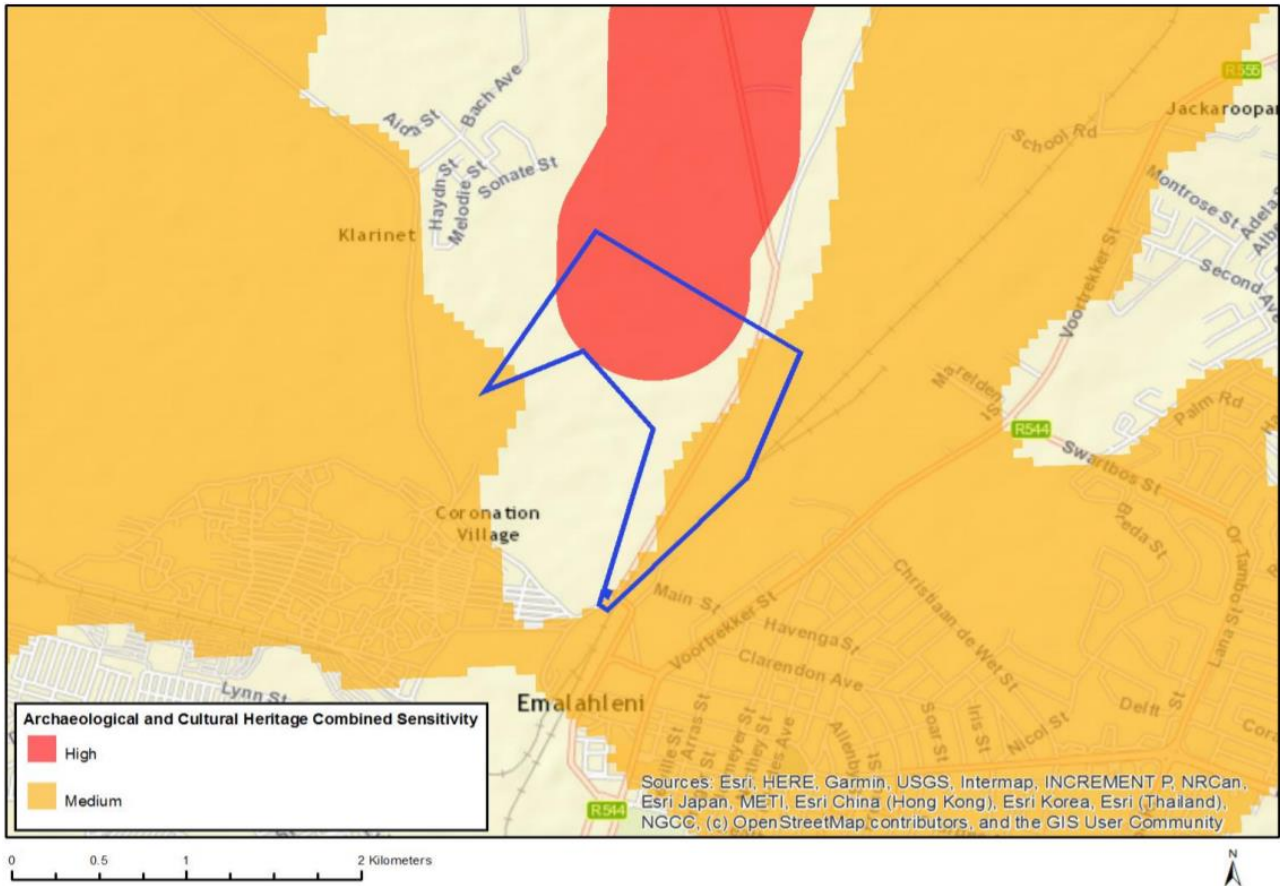


Figure 1.12: Relative Archaeological and Cultural Heritage Theme Sensitivity

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

SURFACE WATER

According to DWAF’s water management area delineations, Blesboklaagte Colliery’s mining right 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 proposed Blesboklaagte Colliery falls within the Olifants catchment. Within the Olifants catchment, the proposed Blesboklaagte Colliery occurs within the B11 and B11K tertiary and quaternary drainage regions respectively, which drains into the Blesbokspruit. See Figure 1.13 for the location of the mine in relation to the tertiary and quaternary drainage regions.



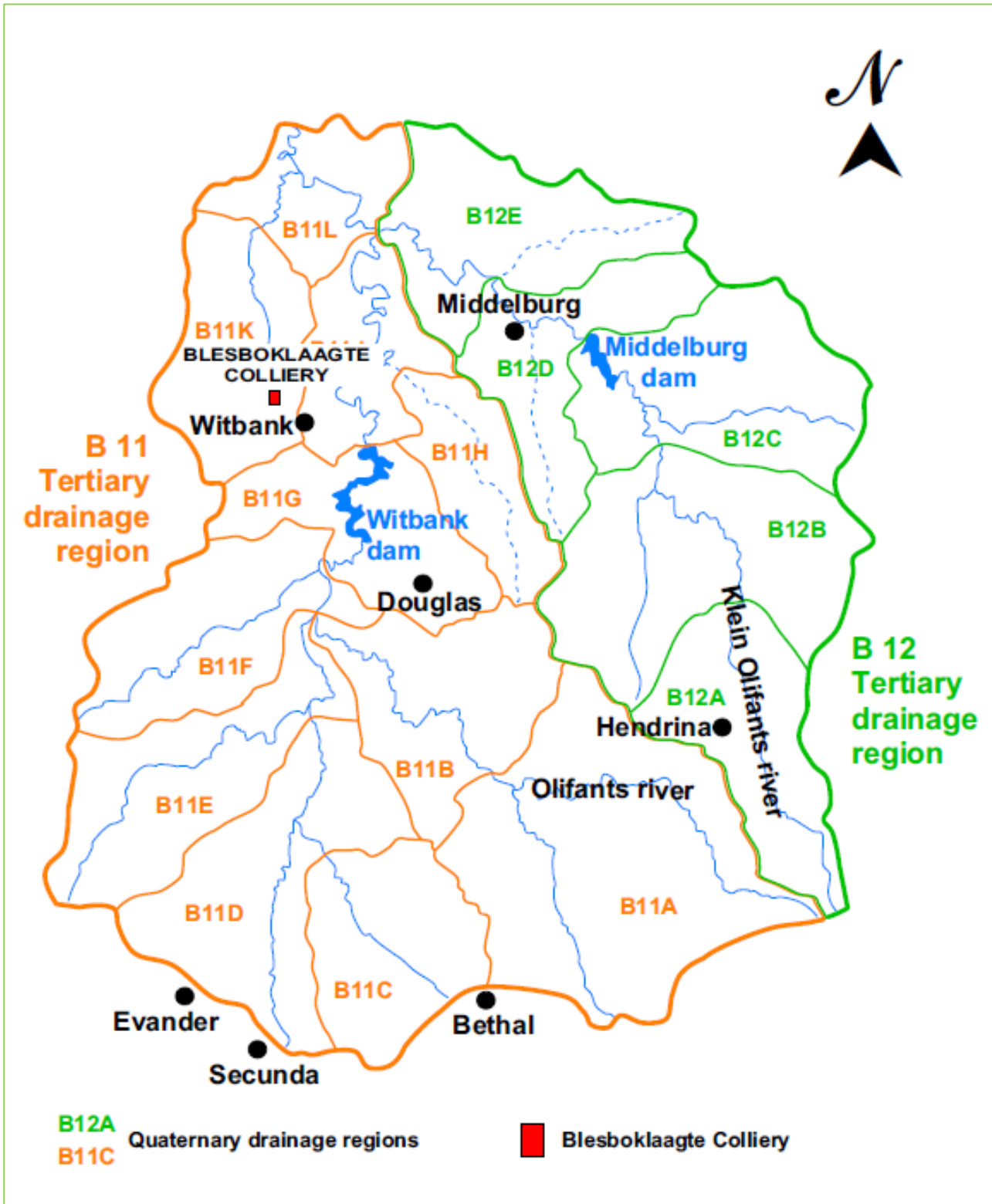


Figure 1.13: Tertiary and quaternary drainage regions

The Affected Sub-Catchment

The potentially affected catchment is the origin of the Blesbokspruit as depicted in Figure 1.14. 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 conflues with the Klipspruit



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several kilometres to the north of the mining area. The Klipspruit which drains a number of small streams eventually drains into the Olifants River upstream of the Loskop Dam.

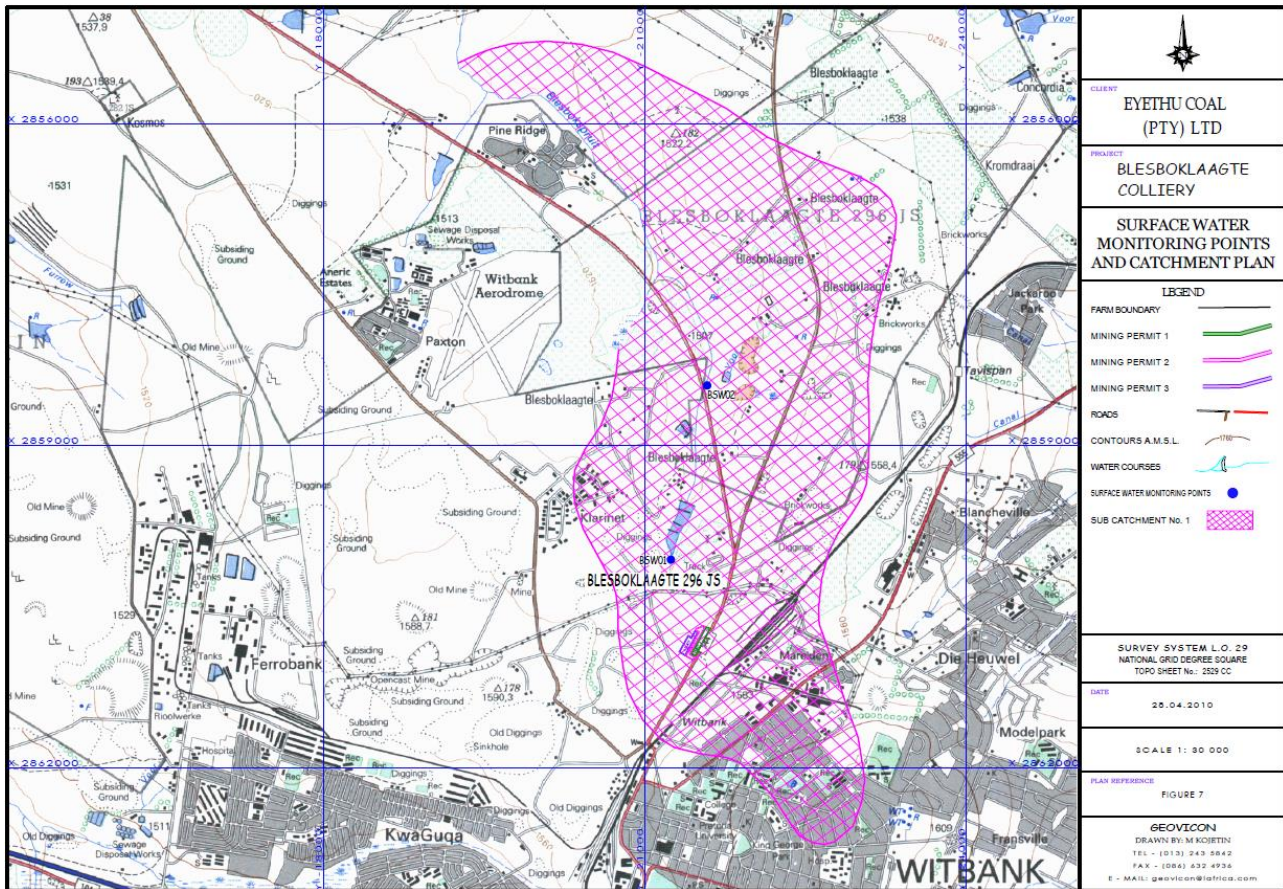


Figure 1.14: Sub-catchment of Blesbokfontein Colliery

Surface Water Quality

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 1.8

Table 1.8: 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 ₃)	Ns	161	458
Calcium hardness (as CaCO ₃)	Ns	95	244



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Constituents (mg/l)	SANS Standard – 241 (2005)	BSW01 Up-stream Blesbokspruit	BSW02 Downstream Blesbokspruit
	Class I		
Magnesium hardness (as CaCO ₃)	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 ₃)	Ns	0	0
Chloride as Cl	< 200	90	108
Sulphate as SO ₄	< 400	187	788
Fluoride as F	< 1.0	< 0.20	< 0.20
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 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 mining rights 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.

Table 1.9: Groundwater level statistics

Name	Longitude	Latitude	Elevation (m)	SWL (mbgl)	SWL (mamsl)	Name	Longitude	Latitude	Elevation (m)	SWL (mbgl)	SWL (mamsl)
		Monitoring Borehole				Exploration Borehole					
BH1	29.18521	-25.9222	1561.318			BW9	29.20903	-25.8552	1557.55	7.6	1549.95
BH01A	29.18522	-25.9222	1562.886	12.43	1550.456	BW10	29.20998	-25.8563	1560.30	6.23	1554.07
BH01B	29.18521	-25.9222	1563.704			BW12	29.21142	-25.8571	1561.84	10.48	1551.36
BH23	29.18667	-25.9056	1563.952			BW17	29.21275	-25.857	1564.01	10.6	1553.41
WC01	29.18086	-25.8926	1520.23	3.4	1516.83	BW29	29.21384	-25.8589	1567.64	14.6	1553.04
BH12	29.20878	-25.8546	1555.911	7.67	1548.241	BW28	29.21432	-25.8579	1565.99	14.83	1551.16
BH11	29.20786	-25.8553	1558.43	10.7	1547.73	BW40	29.21424	-25.8572	1562.18	8.37	1553.81



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Name	Longitude	Latitude	Elevation (m)	SWL (mbgl)	SWL (mamsl)	Name	Longitude	Latitude	Elevation (m)	SWL (mbgl)	SWL (mamsl)
BH10	29.20652	-25.8554	1558.529	15.96	1542.569	BW42	29.2153	-25.8567	1560.97		
BH09	29.20595	-25.8559	1558.368	10.08	1548.288	BW46	29.21465	-25.8563	1561.75	9.42	1552.33
ANGLOBH01	29.2058	-25.8555	1558.936	14.85	1544.086	BW45	29.21398	-25.8561	1559.32	8.9	1550.42
BH08	29.20458	-25.856	1560.934	13.53	1547.404	BW23	29.21143	-25.8533	1551.46		
BHN03	29.20478	-25.8564	1560.593			BW30	29.21329	-25.8599	1570.22	10.6	1559.62
BH07	29.20442	-25.8568	1560.769	12.94	1547.829	BW31	29.21212	-25.8596	1566.84	16.77	1550.07
BH06	29.20431	-25.858	1559.813	11.53	1548.283	BW35	29.21071	-25.8617	1567.71		
BH05	29.20409	-25.858	1560.569	13.01	1547.559	BW34	29.21081	-25.8631	1571.22		
BH02	29.20411	-25.8589	1559.107	10.81	1548.297	Average depth to water level				11.05	1548.78
BH01	29.20378	-25.8591	1559.794	12.43	1547.364	Minimum water level				3.40	1516.83
BH03	29.2062	-25.8598	1557.285	5.94	1551.345	Maximum water level				16.77	1559.62
BH04	29.21033	-25.8628	1566.256	13.5	1552.756	Number of nomalous water level				None	None

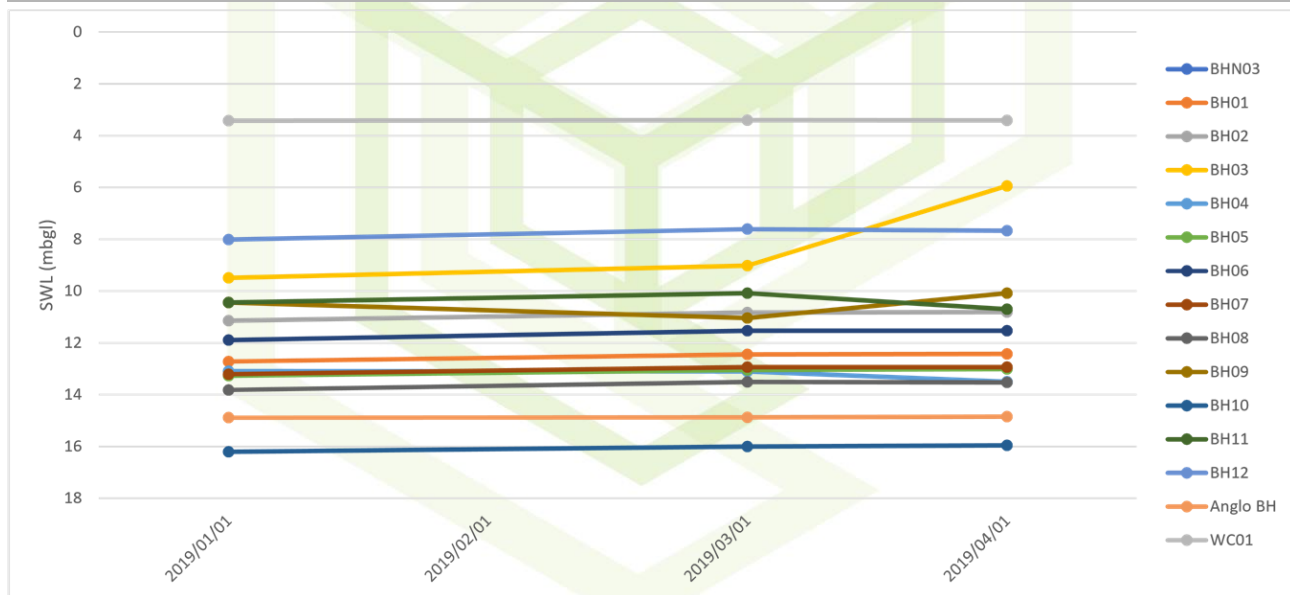


Figure 1.15: Groundwater level changes



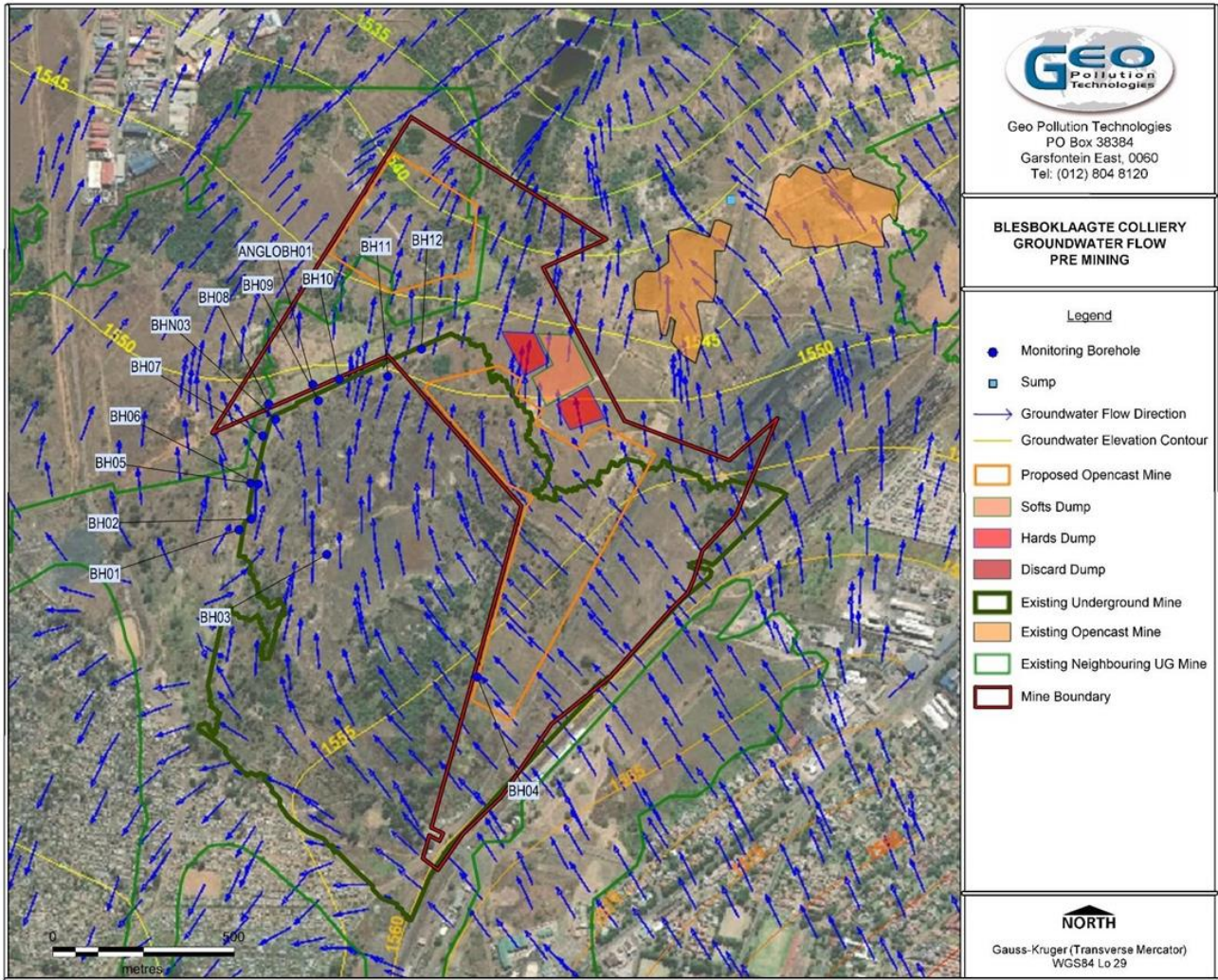


Figure 1.16: Groundwater flow (pre-mining of proposed opencast sections)

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 SO₄²⁻, Cl⁻ and Na⁺, indicative of solute enrichment due to acid mine drainage in the defunct underground mine workings.

Table 1.10: 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



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SANS 241-1:2015 Guidelines	Risk	BW9	BW12	BW28	Tolerable Limit	Maximum Limit
TDS (mg/l)	Aesthetic	760	913	39.3		1200
Alkalinity (mg/l CaCO ₃)	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		
Cl (mg/l)	Aesthetic	55.1	61.3	3.32		300
NH ₃ as N (mg/l)	Aesthetic	1.22	0.616	BDL		1.5
NO ₂ as N (mg/l)	Acute health	0.008	0.006	0.008		0.9
NO ₃ as N (mg/l)	Acute health	BDL	1.5	0.313		11
NO ₃ +NO ₂ (mg/l)	Acute health	0.541	6.68	1.4		1
PO ₄ as P (mg/l)	Not determined	0.017	0.049	0.002		
SO ₄ (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		



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SANS 241-1:2015 Guidelines	Risk	BW9	BW12	BW28	Tolerable Limit	Maximum Limit
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		
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		
<i>pH or concentration deemed to present an unacceptable health risk for lifetime consumption</i>						
<i>BDL = Below detection limit</i>						

A detailed Groundwater Impact Assessment will be included in the EIA

BLASTING AND VIBRATION

A detailed Blasting and Vibration Impact Assessment will be undertaken for the EIA once more detail about the blasting methods have become available.

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 nonindustrial 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 km², including parts of Gauteng and Mpumalanga Provinces, with a single metropolitan municipality, three district municipalities, and nine local municipalities (Figure 1.17).



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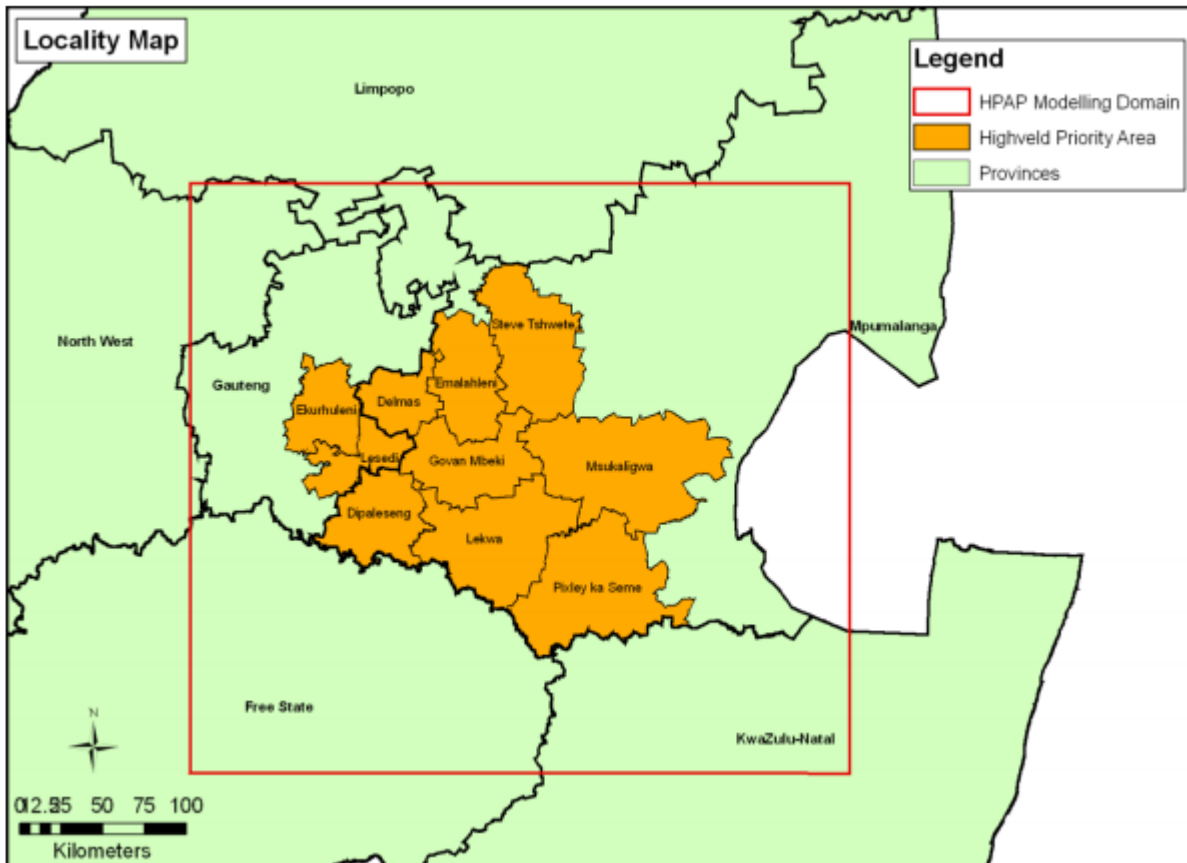


Figure 1.17: Highveld Priority Areas (HPA)

The total estimated annual emissions of fine particulate matter (PM₁₀) on the HPA is 279 630 tons, of which approximately half is attributed to particulate entrainment on opencast mine haul roads. The emission of PM₁₀ 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_x) emission of 978 781 tons per annum and 82% of the total estimated sulphur dioxide (SO₂) 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 PM₁₀, 90% of NO_x and 99% of SO₂. Major industrial source contributors were grouped into the following categories:

- Power Generation
- Coal Mining
- Primary Metallurgical Operations
- Secondary Metallurgical Operations
- Brick Manufacturers
- Petrochemical Industry
- Ekurhuleni Industrial Sources
- Mpumalanga Industrial Sources



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Table 1.11: Total emission of PM₁₀, NO_x and SO₂ 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	-	-
TOTAL HPA	279 630	99*	978 781	100	1 633 655	101*

* 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 SO₂, PM₁₀ and ozone (O₃) concentrations are exceeded in nine extensive areas. These “hot spots” are illustrated in Figure 1.17 by the number of modelled exceedances of the 24-hour SO₂ and PM₁₀ standards, and are confirmed by ambient monitoring data (Table 1.12). 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 confirms that the areas of concern are in the vicinity of Witbank 2, Middelburg, Secunda, Ermelo, Standerton, Balfour, and Komati where exceedances of ambient SO₂ and PM₁₀ air quality standards occur (Table 1.12).

Table 1.12: Exceedances at HPA sites based on historic and new monitoring data

Municipality	Area	NO ₂ 1-hr (88)	O ₃ 8-hr (11)	PM ₁₀ 24-hr (4)	SO ₂ 24-hr (4); 1 hr. (88)
Emalahleni LM	Kendal 2	1	58		34; 343
	Phola	0		3	7; 27
	Witbank	37	9	9	4; 51
	Witbank 2		17	25	1; 11
Steve Tshwete LM	Columbus				
	Komati 2			26	1; 14
	Hendrina	1	22	3	1; 2
	Middelburg	71	60	7	1; 4



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Municipality	Area	NO ₂ 1-hr (88)	O ₃ 8-hr (11)	PM ₁₀ 24-hr (4)	SO ₂ 24-hr (4); 1 hr. (88)
	Middelburg 2		1	7	0; 1
Govan Mbeki LM	Sasol Club	1		0	0; 25
	Langverwacht	1		0	2; 78
	Bosjesspruit				2; 27
	Elandsfontein	0	73	3	4; 33
	Leandra				6; 114
	eMbalenhle	2	4	39	0; 1
Msukaligwa LM	Camden	0	24	1	0; 4
	Ermelo	1	73	22	21 ; 10
Pixley Ka Seme LM	Amersfoort				
	Majuba 1				4; 87
	Majuba 2				
	Verkykkop	0	46	0	1; 7
Lekwa	Standerton	4	10	29	1; 6
Dipaleseng	Balfour		29	8	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.



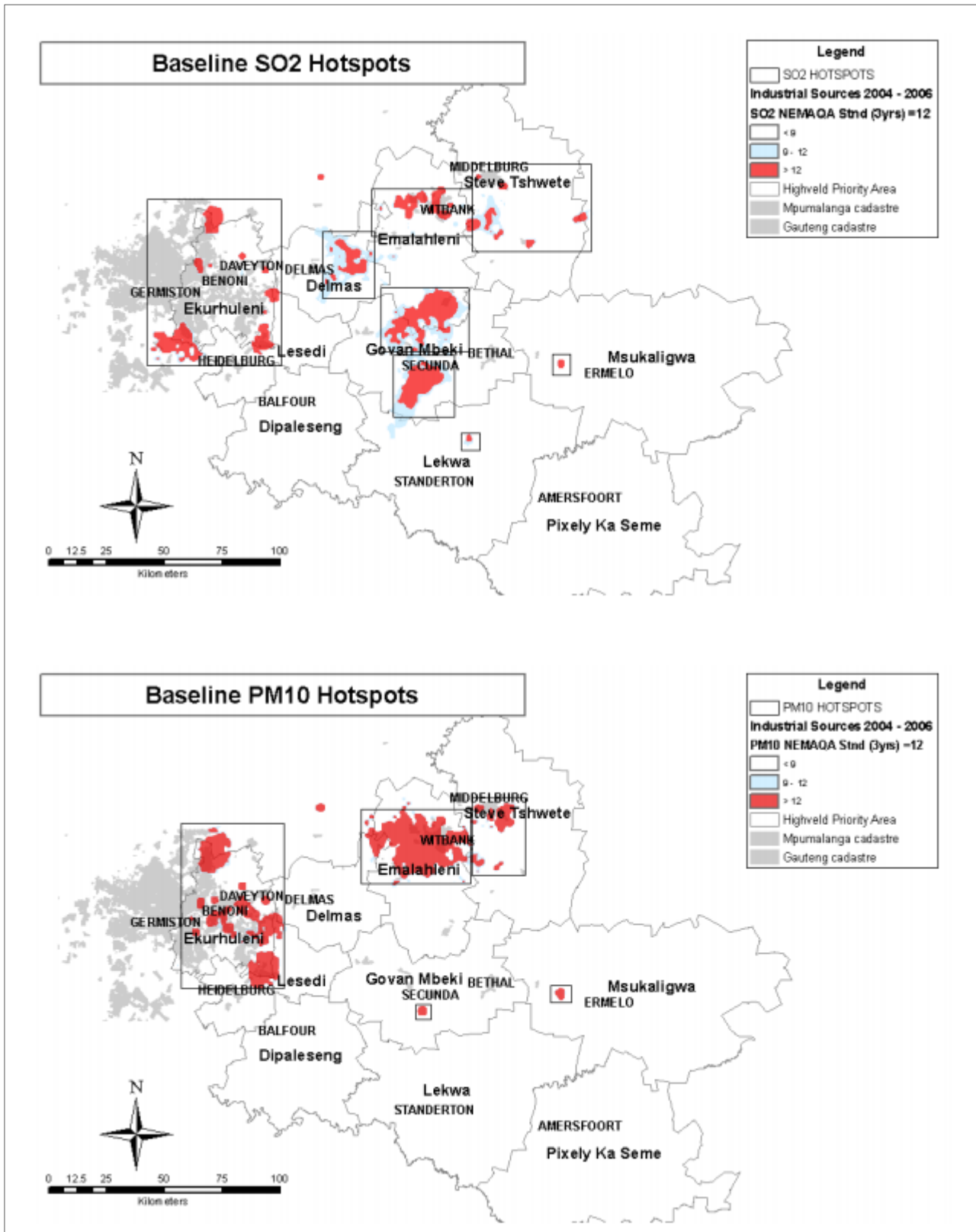


Figure 1.18: Modelled frequency of exceedance of 24-hour ambient SO₂ and PM₁₀ standards in the HPA, indicating the modelled air quality Hot Spot areas



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Site specific Air Quality

Potentially air pollution may arise as a result of particulates entering the atmosphere. These particulates arise as dust from access roads; plant area, haul roads on dumps and ROM and product stockpiles, particularly at transfer points.

Eyethu Coal (Pty) Limited was conducting opencast mining operation adjacent to the proposed Blesboklaagte Colliery. During the mining activities dust monitoring was conducted at various strategic points as per the Table 1.13 below.

Table 1.13: Airborne Particulate Sampling Results

Position	Locality	Sample no.	Start	Stop	Dust deposit mg/m ² /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 1.14: Four – band scale evaluation criteria for dust deposition (As Per Air Quality Bill)

Band Number	Band Description Level	Dust fall Rate (D) (mg.m ² .day ⁻¹ 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 1.14 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.

Again, the proposed mining area is situated next to the coal loading site, from where, during windy days coal dust might emanate from.

Detailed Air Quality Impact assessment will be undertaken for inclusion in the EIA report.



NOISE

Table 1.15 depicts acceptable noise levels within districts according to the SANS 10103 guideline.

Table 1.15: 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
	$L_{R,dna}$	$L_{Req,db}$	$L_{Req,nb}$	$L_{R,dna}$	$L_{Req,db}$	$L_{Req,nb}$
RESIDENTIAL DISTRICTS						
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
NON-RESIDENTIAL DISTRICTS						
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 1.16, 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.



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Table 1.16: Categories of community/group response (SANS 10103, 2008)

Excess ($\Delta L_{Req,T}$) ^a 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.

A baseline assessment will be undertaken to determine the current ambient noise level at the nearest noise sensitive receptor to the proposed project.

SOILS

The soil-landform map (see FIGURE 1) shows the distribution of 3 map units, while the accompanying legend (Table 1.19) indicates the soil components as well as the position (hillslope unit and slope class) they occupy in the landscape. 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 site 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 1.17 and Table 1.18 respectively. The size of each map unit is shown in Table 1.20.

Table 1.17: 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	<p><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</p> <p><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</p> <p><i>C horizon:</i> highly weathered, mottled sandstone</p>



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Cv	Clovelly 1100 loamy medium sand loam to sandy loam	<p><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</p> <p><i>C horizon:</i> slightly or highly weathered, mottled sandstone</p>
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Table 1.18: 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)
Dust potential	Moderate	Moderate

Table 1.19: Map legend of the soil-landform resources of the Blesboklaagte South Mining Permit Area

MAP UNIT	LANDFORM COMPONENT	SOIL COMPONENT
dHu1	Level to gently sloping (1-3% slope) lower midslope and foot slope; smooth ground roughness	Deep to very deep (100-150+ cm), well-drained, weakly structured: dark reddish brown to dark brown, loamy medium sand to sandy loam topsoil on yellowish red to reddish yellow, sandy loam subsoil becoming sandy clay loam in deep subsoil of the Hutton form; in association with similar soil of the Clovelly form; overlying weathered sandstone
CvR1	Level to gently sloping (1-3% slope) lower midslope; slightly uneven ground roughness	Very shallow to moderately deep (0-100 cm), well-drained, weakly structured: dark brown, loamy medium sand topsoil on reddish yellow to strong brown, loamy medium sand to sandy loam subsoil of the Clovelly form; in complex association with 5-15% sandstone outcrops
MISCELLANEOUS LAND CLASS		
D1	Disturbed land due to quarrying (relatively shallow without steep faces); uneven to rough ground roughness	

Table 1.20: Sizes of map units of the Blesboklaagte South Mining Permit Area

MAP SYMBOL	SIZE (ha)	% OF TOTAL
dHu1	12.34	86.96
CvR1	0.83	5.85
D1	1.02	7.19
Total	14.19	100.00

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 1.22), and non-agricultural uses (Table 1.23) on the basis of internationally recognised criteria and attributes limiting their suitability (Table 1.21).



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Table 1.21: 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 1.22: 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 1.23: 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
Total		14.19	100.00

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 1.24) as follows:

Table 1.24: Suitability¹ 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

¹ 1 = high
 2 = moderate
 3 = low
 4 = very low to none



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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 districts 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.

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



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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.

1.8.4.1.2 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.

1.8.4.1.3 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. The vegetation on Blesboklaagte Colliery 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 Blesboklaagte Colliery 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 proposed opencast mining and infrastructure area where an old borrow-pit is situated.

1.8.4.1.4 Environmental and current land use map.

(Show all environmental, and current land use features)

See below and Annexure 3.



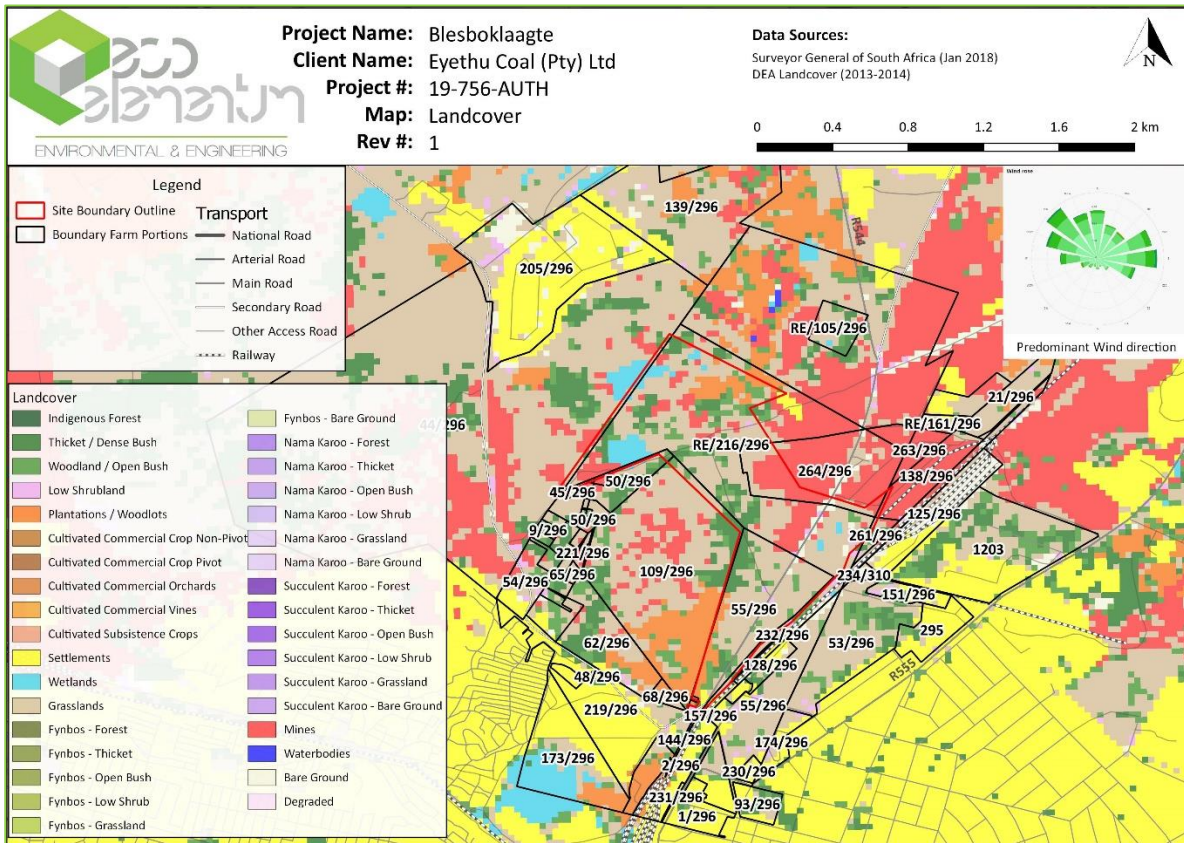


Figure 1.19: Land cover

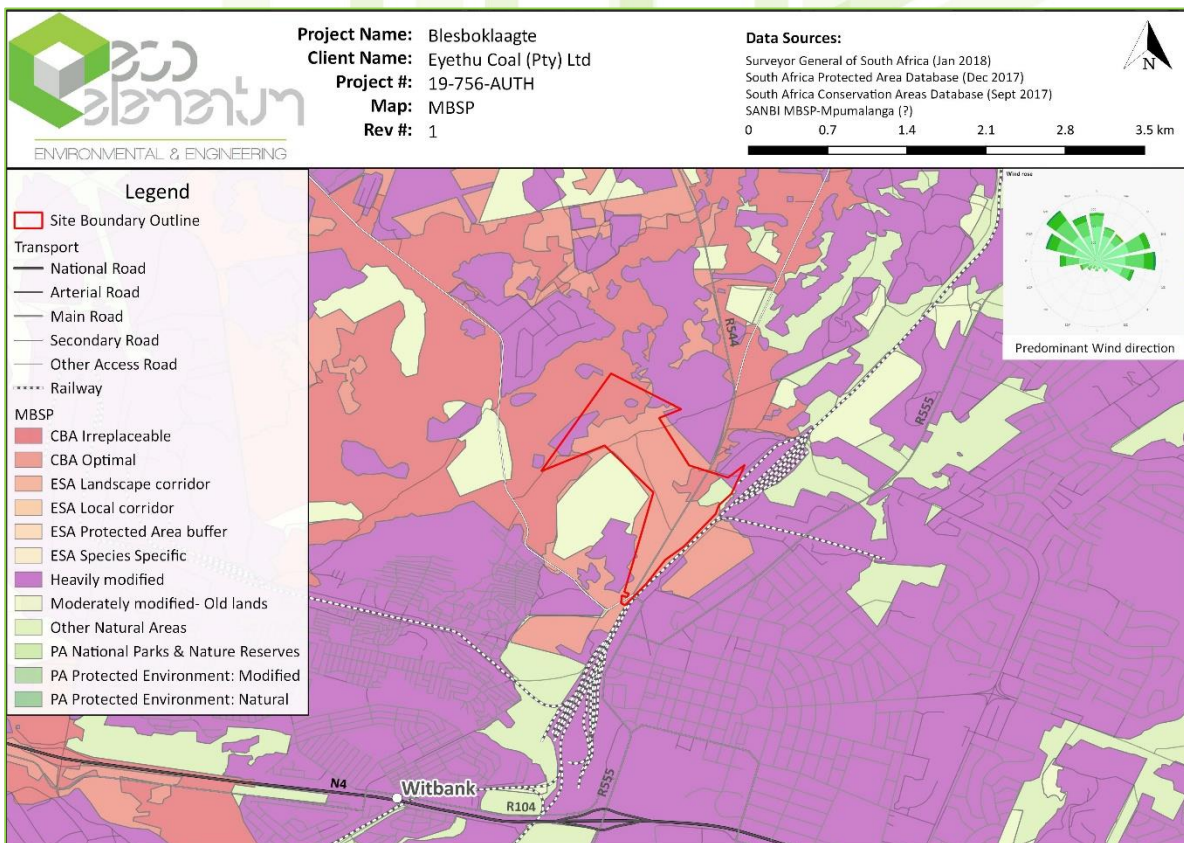


Figure 1.20: Mpumalanga Biodiversity Spatial Plan



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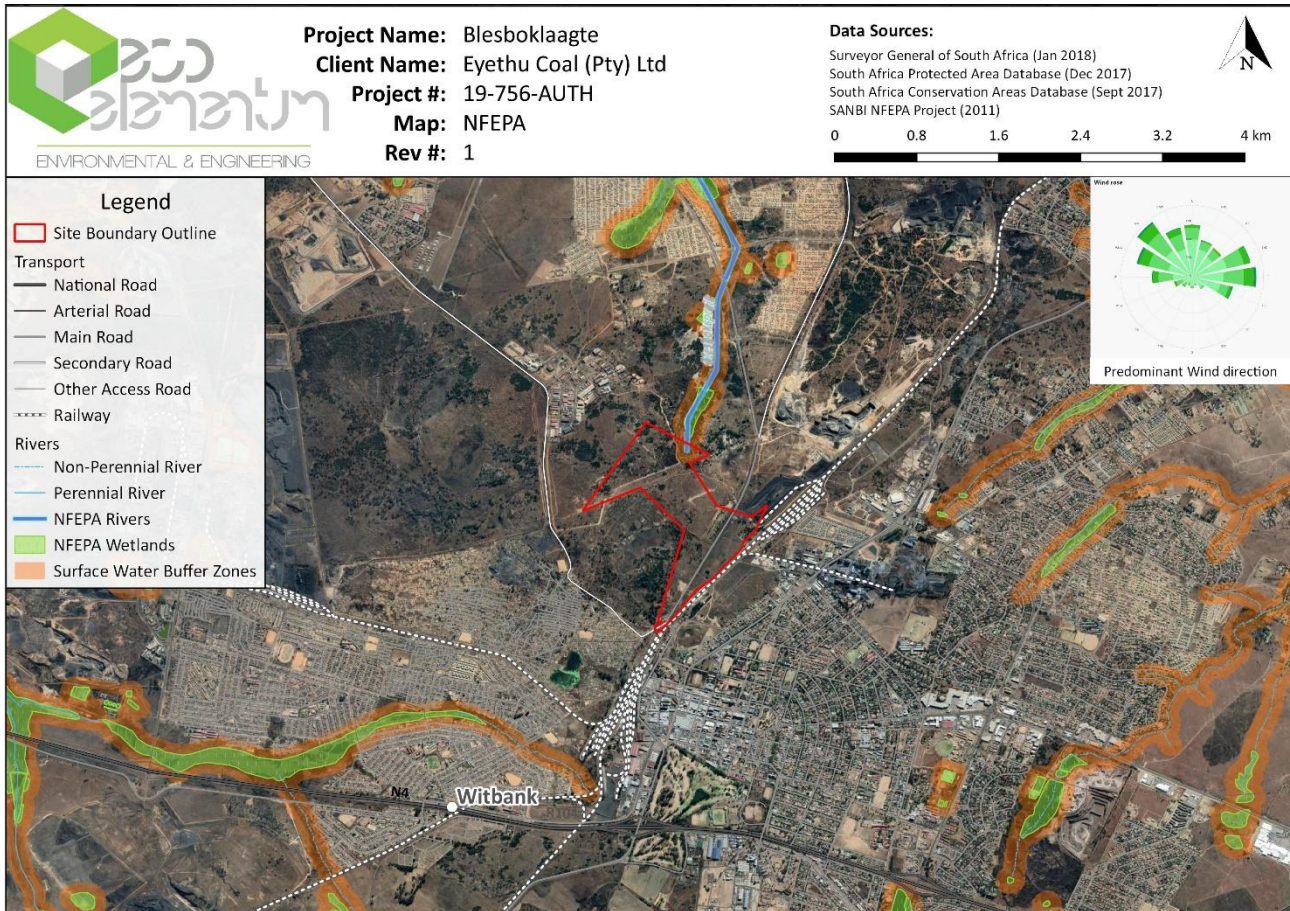


Figure 1.21: NFEPA data

1.8.5 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 anticipated impacts associated with the project is as follows:

Table 1.25: 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		✓		-



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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	✓	✓		+

1.8.6 Methodology used in determining the significance of environmental impacts

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

The following methodology was used to rank these impacts. Clearly defined rating and rankings scales (Table 1.26 to Table 1.32) 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 1.33).

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 1.26 to Table 1.32 were used.



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Table 1.26: 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 1.27: 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 1.28: 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 1.29: 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 1.30: 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



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Table 1.31: Legal Issues - How is the activity governed by legislation?

No legislation	1
Fully covered by legislation	5

Table 1.32: 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 1.33.

Table 1.33: Impact Ratings.

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

1.8.7 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 1.25.

1.8.8 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.



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- 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.

1.8.9 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 specialist has given their input.

1.8.10 Motivation where no alternative sites were considered.

As this is a Section 102 amendment the site location is limited to the Mining Right Area, 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.

1.8.11 Statement motivating the preferred site.

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

As this is a Section 102 amendment the site location is limited to the Mining Right Area, 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.

Once specialist studies have been undertaken the most suitable layout will be finalised and presented in the EIA.

1.9 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

1.9.1 Description of alternatives to be considered including the option of not going ahead with the activity.

Refer to Section 1.8.1.

1.9.2 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, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...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.

- Social Impact Study.
- Air quality.
- Traffic.
- Aquatic Ecology.



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- Storm Water Management Plans.
- Ecological.
- Geo-hydrological.
- Surface water.
- Wetland.
- Heritage, Archaeological, and Palaeontology.
- Blasting and Vibration.
- Soils, land use and land capability.

Table 1.34: Specialist Scope of Work

Specialist Study	Scope of Work
Air quality	The purpose of this baseline study is to:
	<ul style="list-style-type: none"> • Study the available information relevant to the pre and post-development ambient air quality pollution concentrations in the environment;
	<ul style="list-style-type: none"> • Identify the major existing air emission sources in the environment;
	<ul style="list-style-type: none"> • Identify the existing sensitive air pollution areas in the environment;
	<ul style="list-style-type: none"> • Estimate by means of measurements and integration of the results with those of any relevant existing information the present ambient air quality climate;
	<ul style="list-style-type: none"> • Identify the processes and equipment that will cause the major contribution to the future air quality impact;
	<ul style="list-style-type: none"> • Consider, evaluate and rate the potential air quality impacts; and
	<ul style="list-style-type: none"> • Propose relevant management and mitigation measures to lessen the anticipated impacts.
	<i>It is highly recommended that baseline dust monitoring be conducted for at least 3 months prior to the start of the project.</i>
Aquatic Ecology	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.
	1. Rapid desktop assessment:
	<ul style="list-style-type: none"> • Google Earth satellite imagery
	<ul style="list-style-type: none"> • Aerial photographs
	<ul style="list-style-type: none"> • GIS mapping software
	2. Field assessment by identifying the presence of one (at least) or more of the following attributes:
	<ul style="list-style-type: none"> • Wetland/hydromorphic soils
	<ul style="list-style-type: none"> • Hydrophytes
	<ul style="list-style-type: none"> • High water table
	3. Combining desktop data, field data and calculating the Wetland Index of Habitat Integrity (DWA, 2007) by using the following indices:
<ul style="list-style-type: none"> • Present Ecological status 	
<ul style="list-style-type: none"> • Ecological Importance and Sensitivity 	
<ul style="list-style-type: none"> • Ecosystem Services supplied by wetland 	
	<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>



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Specialist Study	Scope of Work
Social Impact Assessment	1) Identification of key stakeholders;
	2) Development of a social profile of the affected community;
	3) Identifying all applicable legislative and regulatory considerations;
	4) Undertaking stakeholder consultation;
	5) Assessment of possible social and economic impacts;
	6) Rating of impacts according to significance (severity, probability, duration, spatial extent and
	7) stakeholder sensitivity;
	8) Making a clear distinction between objective and subjective impacts;
	9) Provision of management guidelines for anticipated impacts; and
Ecological Assessment	The study will include two phases:
	10) Desktop study: <ul style="list-style-type: none"> Review of existing information e.g. EIA, Specialist studies, Mining right, WULA etc.; Analysis of recent Google maps; Literature review of fauna and flora in the area; Review of endangered species known to occur in the area;
	11) Detailed Terrestrial Ecology Report including a wetland delineation and functional assessment.
	The scoping groundwater study will include, amongst others, the following information as required in terms of the MPRDA:
	<ul style="list-style-type: none"> A description of the groundwater environment likely to be affected by the proposed mining activities; An assessment of potential impacts on the groundwater environment. A summary of the potential significance of identified impacts; Proposed mitigation and management measures to minimise adverse impacts and to optimise benefits; Planned monitoring and performance assessment of the EMP and Rehabilitation measures of areas disturbed during mining activities.
	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.
Surface water	1. Rapid desktop assessment: <ul style="list-style-type: none"> Google Earth satellite imagery. Aerial photographs GIS mapping software
	2. Field assessment by identifying the presence of one (at least) or more of the following attributes: <ul style="list-style-type: none"> Wetland/hydromorphic soils. Hydrophytes. High water table.
	3. Combining desktop data, field data and calculating the Wetland Index of Habitat Integrity (DWA, 2007) by using the following indices:



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Specialist Study	Scope of Work
	<ul style="list-style-type: none"> • Present Ecological status. • Ecological Importance and Sensitivity. • Ecosystem Services supplied by wetland.
Wetland Impact Assessment	As above.
Heritage, Archaeological, and Paleo	<p>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.</p> <p>All Archaeological Impact Assessment reports should include:</p> <ol style="list-style-type: none"> a. Location of the sites that are found; b. Short descriptions of the characteristics of each site; c. Short assessments of how important each site is, indicating which should be conserved and which mitigated; d. Assessments of the potential impact of the development on the site(s); 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 f. Recommendations for conservation or mitigation. <p>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:</p> <ol style="list-style-type: none"> a. Whether or not it has objections to a development; b. What the conditions are upon which such development might proceed; c. Which sites require permits for mitigation or destruction; d. Which sites require mitigation and what this should comprise; 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 f. What measures should or could be put in place to protect the sites which should be conserved.
Visual	<p>The scope of work for this Visual Impact Assessment will include:</p> <ul style="list-style-type: none"> • Describe the existing visual characteristics of the proposed sites and its environs; • Viewshed and viewing distance; • Visual Exposure Analysis; • Viewer Sensitivity; • 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.
Soils, land use and land capability	<p>The following scope of work is proposed:</p> <ol style="list-style-type: none"> 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).



Updated- 12/9/2019

Specialist Study	Scope of Work
	<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"> • 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; • 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; • 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; • The occurrence of bleached soil horizons that indicate lateral drainage of water; • The occurrence of uniform red and yellow colouration that is indicative of well drained areas; • Signs of Mn mobilisation and/or precipitation as indicating a fluctuating water table; • 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. • Texture of the soil horizons as a means to assess the water holding capacity, saturated water content and saturated hydraulic conductivity, • Textural changes and other aspects in the soil profile that will influence saturated and unsaturated flow of water. • Occurrence of layers, such as the rocks, ferricrete and/or calcrete, which impede water flow. • Occurrence of concretions, stones or pebbles in the soil horizons and the effect on water holding capacity, saturated water content and saturated hydraulic conductivity. <p>Representative soil samples will be collected and subjected to chemical and physical analyses. The following analyses will be conducted:</p> <ul style="list-style-type: none"> • Water soluble cations and anions; • pH and EC (electrical conductivity); • Exchangeable/weakly complexed fraction of major cationic plant nutrients – calcium (Ca), sodium (Na), magnesium (Mg), potassium (K) • Cation exchange capacity; • Plant available phosphorus (P), nitrogen content; • Organic carbon content; • Soil particle size distribution (texture including clay and silt content); and • Soil salinity levels will be calculated.

1.9.3 Description of aspects to be assessed by specialists

Refer to previous section 1.9.2, Table 1.34.

1.9.4 Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

Refer to previous section 1.9.2, Table 1.34.

1.9.5 The proposed method of assessing duration significance

Refer to previous section 1.9.2, Table 1.34.



1.9.6 The stages at which the competent authority will be consulted

- Application Stage (application form submitted on 2 September 2019).
- Copy of the Draft Scoping Report to be submitted for their records (13 September 2019).
- Submission of the Final Scoping Report for review and comment (16 October 2019).
- 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).

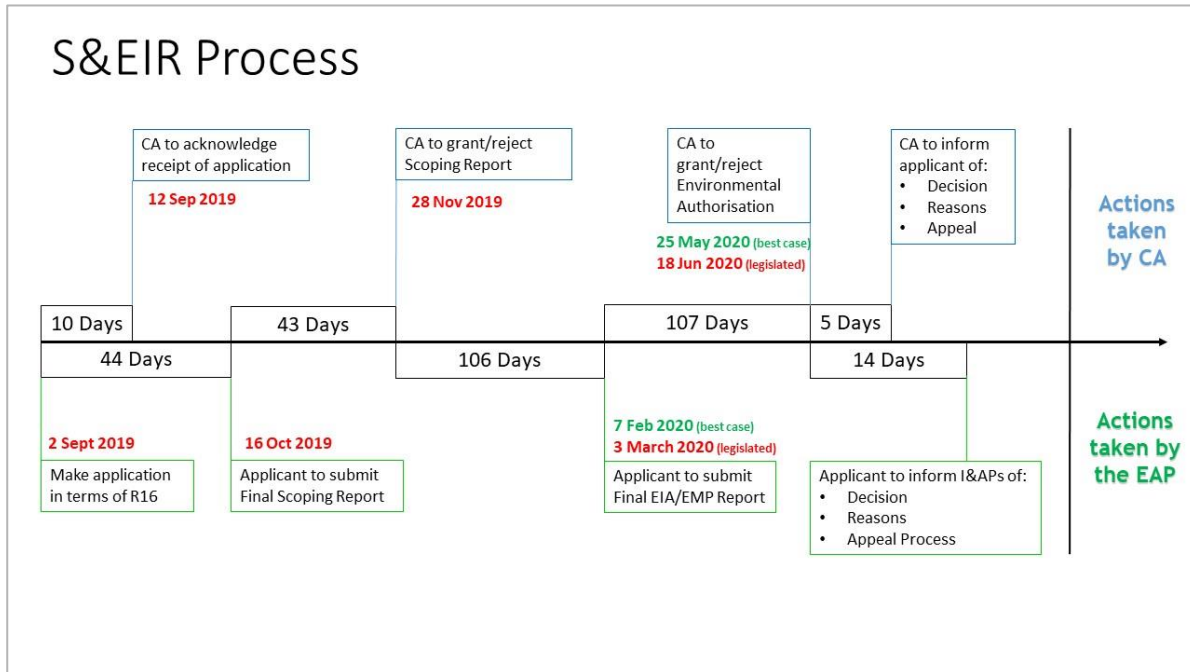


Figure 1.22: S&EIR Process

1.9.7 Particulars of the public participation process with regard to the Impact Assessment process that will be conducted

1.9.7.1 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:

- Identification of Interested and Affected Parties (IAPs);
- 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.
- A public information meeting (open day) with IAPs held on 4 October 2019 at the eMalahleni Main 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 DMR;
- Providing IAPs with the opportunity to review and comment on the Draft Scoping and EIA Reports; and
- Further personal consultation with affected landowners.



Updated- 12/9/2019

1.9.7.2 *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 Scoping and 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 Appendices 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.

1.9.7.3 *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.

1.9.8 *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 DMR 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 DMR for decision making.



Updated- 12/9/2019

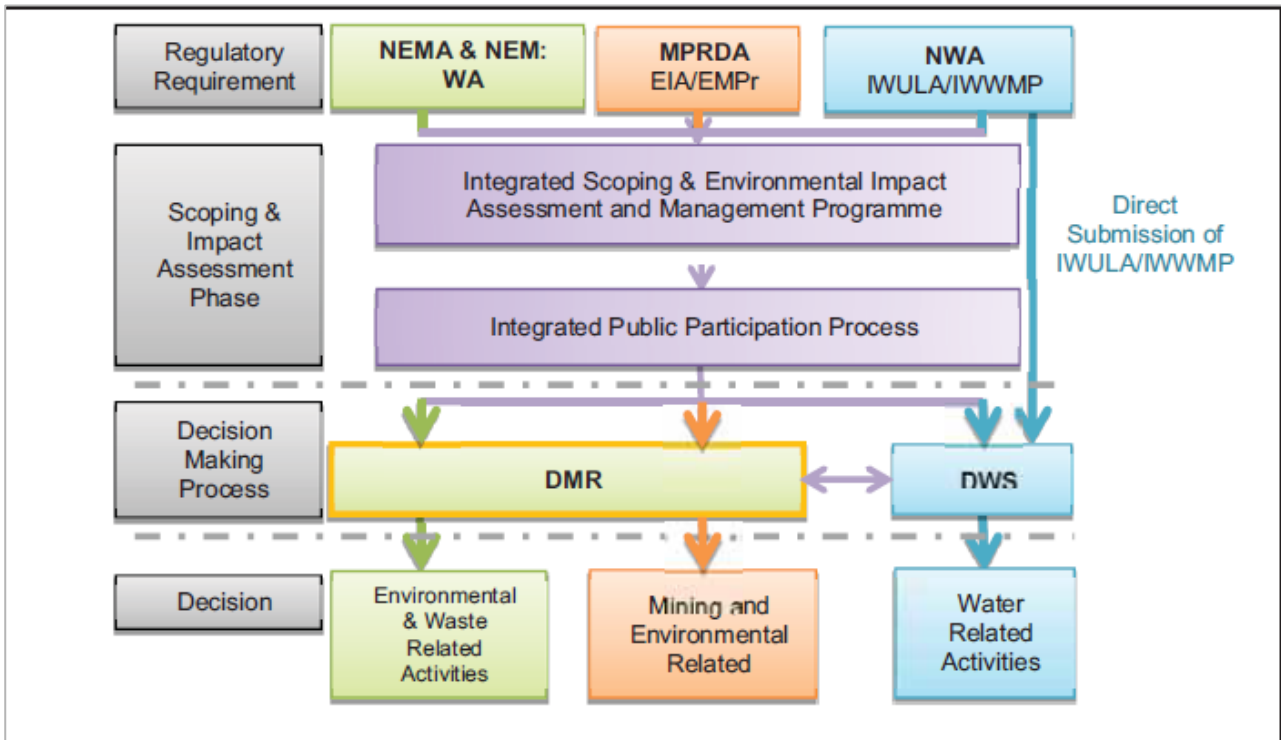


Figure 1.23: Authorisation Process Overview

1.9.9 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.
- 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.



Updated- 12/9/2019

- 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.

1.12 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

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

1.12.1.1 *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 public participation process of the Draft EIA Phase commences.

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

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

1.13 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 Mining Right Area, 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.



1.10 UNDERTAKING REGARDING CORRECTNESS OF INFORMATION

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

Signature of the EAP

DATE

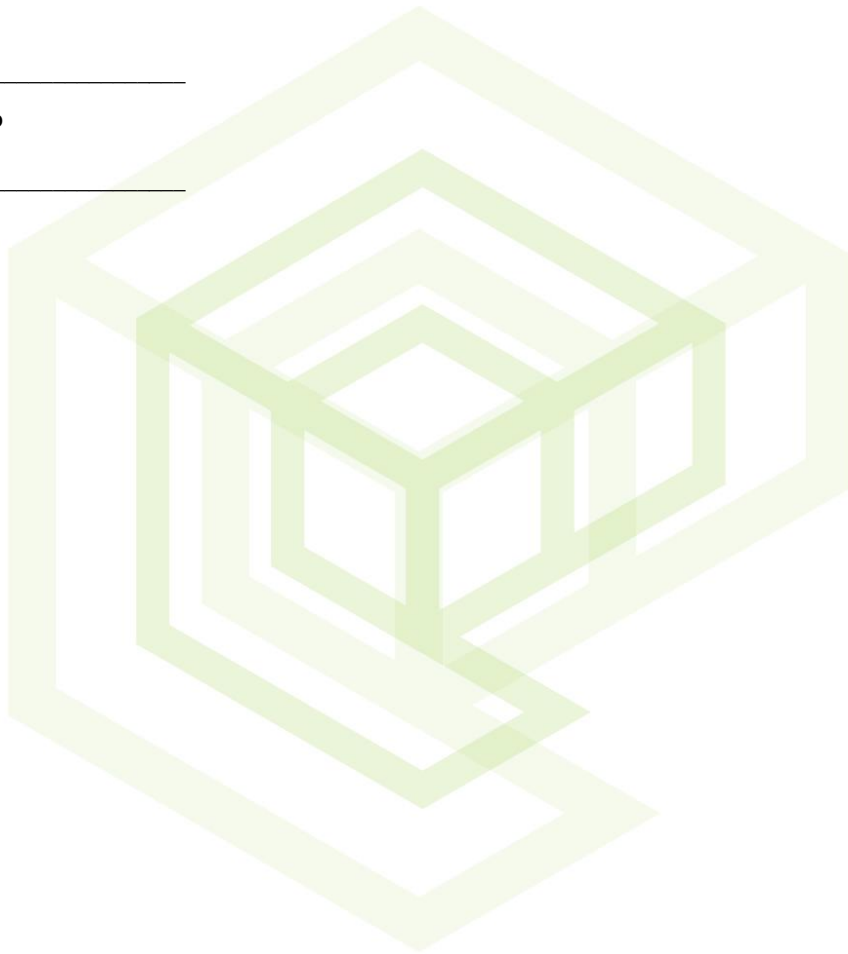


1.11 UNDERTAKING REGARDING LEVEL OF AGREEMENT

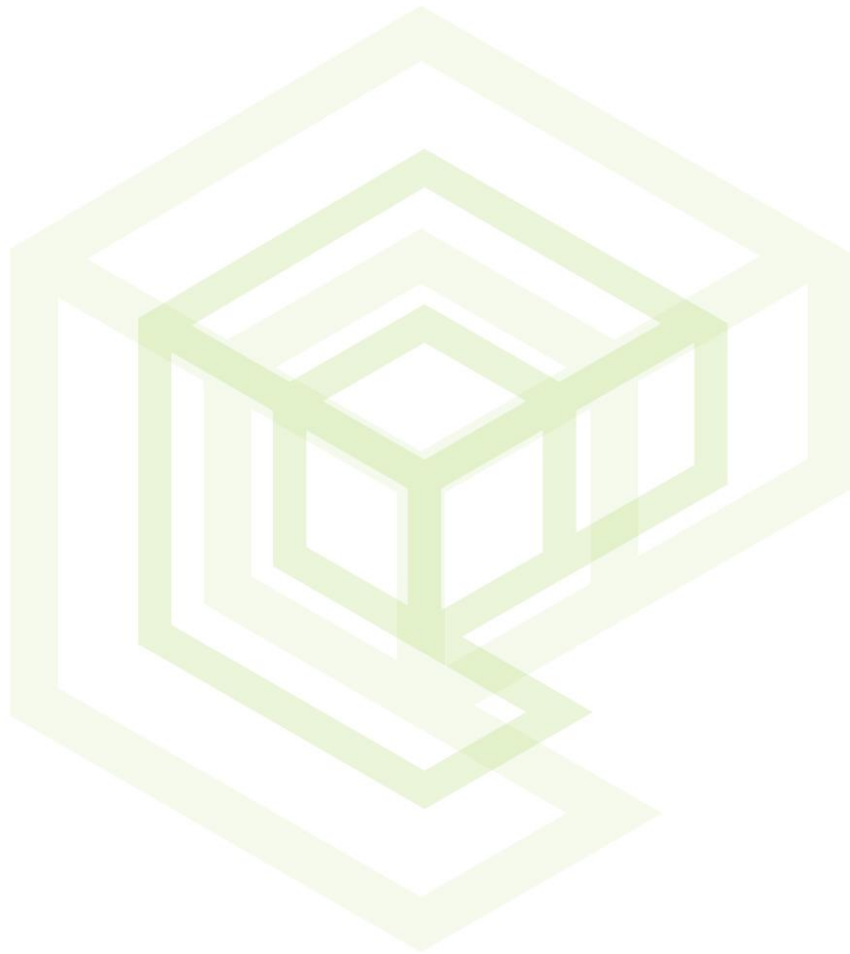
I _____ herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

Signature of the EAP

DATE:



ANNEXURE 1: QUALIFICATION OF EAP



ANNEXURE 2: EAP CV



ANNEXURE 3: LOCALITY MAPS



ANNEXURE 4: SITE LAYOUT AND INFRASTRUCTURE





8501310045082

UNIVERSITY
OF
JOHANNESBURG

TELEPHONE :

920417064 PAGE 1
29-JUL-2008

IT IS HEREBY CERTIFIED THAT

JOHANNA ADRIANA HEYL
(DATE OF BIRTH : 31-JAN-1985)

WAS ENROLLED AT THIS UNIVERSITY FOR THE DEGREE(S) :
B SC HONS BIODIVERSITY & CONSERVATION

IT IS FURTHER CERTIFIED THAT HIS/HER RESULTS ARE AS FOLLOWS :

2004

B SC (BOTANY AND ZOOLOGY) 1 VT

SEMESTER ONE

BIC1A FUNDAMENTALS OF BIOCHEMISTRY	44	SUPP EXAM GRANTED
CEM1A INTRODUCTION TO GENERAL CHEMISTRY	50	PASSED
CHM1A ENVIRONMENTAL CHEMISTRY: ATMOSPHE		CANCEL 14-FEB-2004
DKE1A INVERTEBRATE DIVERSITY	67	PASSED
PKE1A PLANT DIVERSITY	74	PASSED

SEMESTER TWO

BIC1B CELLULAR BIOLOGY	72	PASSED
CEM1B INTRODUCTION TO ORGANIC CHEMISTRY	78	PASSED WITH DISTINCTION
CEM1B INTRODUCTION TO PHYSICAL CHEMISTR	62	PASSED
DKE1B VERTEBRATE DIVERSITY	75	PASSED WITH DISTINCTION
PKE1B ETHNO AND ECONOMIC BOTANY	61	PASSED
PKE1B PLANTS IN ACTION	81	PASSED WITH DISTINCTION

JULY RE-EXAM SEM 1

BIC1A FUNDAMENTALS OF BIOCHEMISTRY	41	FAILED
------------------------------------	----	--------

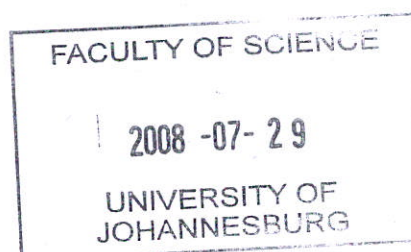
2005

B SC (BOTANY AND ZOOLOGY) 2 VT

SEMESTER ONE

CHM1A ENVIRONM. CHEM: HYDROSPHERE & SOI	78	PASSED WITH DISTINCTION
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CONTINUE



CHM1A ENVIRONMENTAL CHEMISTRY: ATMOSPHE	63	PASSED
DKE2A GENERAL PARASITOLOGY	63	PASSED
MKB2A BACTERIOLOGY	66	PASSED
MKB2A VIROLOGY	55	PASSED
PKE2A PLANT ANATOMY & CYTOLOGY	63	PASSED

SEMESTER TWO

DKE2B APPLIED ECOTOXICOLOGY	82	PASSED WITH DISTINCTION
DKE2B INTRODUCTORY ECOTOXICOLOGY	68	PASSED
MKB2B PLANT PATHOLOGY	82	PASSED WITH DISTINCTION
MKB2B WATER-BORNE DISEASES	77	PASSED WITH DISTINCTION
PKE2B PLANT PHYSIOLOGY	76	PASSED WITH DISTINCTION

2006

B SC (BOTANY AND ZOOLOGY) 3 VT

SEMESTER ONE

DKE3A BASIC AND MARINE ECOLOGY	71	PASSED
DKE3A LIMNOLOGY AND TERRESTRIAL ECOLOGY	72	PASSED
PKE3A BIOTECHNOLOGY	83	PASSED WITH DISTINCTION

SEMESTER TWO

DKE3B ANIMAL PHYSIOLOGY: PROCESSES	70	PASSED
DKE3B ANIMAL PHYSIOLOGY: INTEGRATED	81	PASSED WITH DISTINCTION
PKE3B PLANT TAXONOMY	62	PASSED

OBTAIN B SC (BOTANY AND ZOOLOGY)
05-DEC-2006

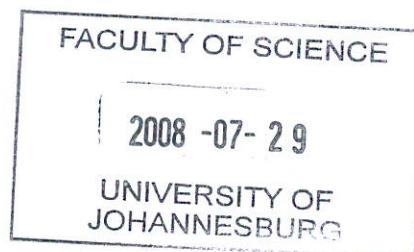
2007

B SC HONS BIODIVERSITY & CONSERVATION 1 VT

SEMESTER ONE

DKE7 LABORATORY AND FIELDWORK COMPETENC	78	PASSED WITH DISTINCTION
DKE7 MAMMAL DIVERSITY	68	PASSED
DKE7 NATURE CONSERVATION	72	PASSED
DKE7 PARASITOLOGY	61	PASSED

CONTINUE



DKE7 PHILOS. & RESEARCH METHODOL: ZOOLO 70 PASSED
DKE7 POPULATION GENETICS & BIOSISTEMATI 71 PASSED

SEMESTER TWO

DKE7 HERPETOLOGY 67 PASSED
DKE7 MOLECULAR EVOLUTION 64 PASSED
DKE7 RESEARCH PROJECT 72 PASSED
DKE7 RESOURCE MANAGEMENT 67 PASSED
DKE7 TERRESTRIAL AND CONSERVATION ECOLO 66 PASSED

OBTAIN B SC HONS BIODIVERSITY & CONSERVATION
05-DEC-2007

I HEREBY DECLARE THAT THE ABOVEMENTIONED STUDENT WAS/IS A REGISTERED STUDENT OF THE UNIVERSITY DURING THE PERIOD STATED ABOVE. HIS/HER CONDUCT WAS/IS SATISFACTORY.

THIS CERTIFICATE IS ISSUED WITHOUT CHANGE OR DELETION OF ANY NATURE.

THE ACADEMIC RECORD IS OFFICIAL WHEN IT CARRIES THE SIGNATURE OF THE RELEVANT FACULTY OFFICER AND THE DATE STAMP OF THE RELEVANT FACULTY.



N STRYDOM
FACULTY OFFICER.
FACULTY : SCIENCE





Riana Panaino

ABOUT



With more than 10 years' experience in the environmental consulting industry she has a firm understanding of Environmental Management. She can adapt to a wide range of working environments, has a strong problem-solving ability and work towards team and client satisfaction. Riana has a passion for Environmental Authorisation Processes (Basic Assessments, Environmental Impact Assessments, Monitoring, Environmental Management Plans, Waste Licence Applications, Closure Application and Integrated Water Use License Applications) in terms of the South African legislative regime.

CAREER HISTORY



Environmental Consultant

Eco Elementum (Pty) Ltd
Pretoria
April 2019 - Present

Role: Environmental Impact Assessments, Water Use Licenses, Waste Applications, Rectification Applications, Stakeholder Engagement, Project Mangement, Specialist Management.

Senior Environmental Consultant

GCS
Pretoria
March 2012 – March 2019

Role: Project Management, management and coordination of specialists, compilation of Environmental Impact Assessments, Environmental Waste Licence application, Public Participation, Environmental Management Programs.

QUALIFICATIONS



BSc Hons (Biodiversity & Conservation)

University of Johannesburg
2007

BSc (Botany and Zoology)

University of Johannesburg
2004 - 2006

Senior Certificate Matric

Hoërskool Westernaria
2003

EXPERTISE AND SKILLS



Skills include, but are not limited to:

- Specialist Co-ordination
- Project Management
- Monitoring and Compliance
- Compilation of Environmental Management
- Compilation of Environmental Impact Assessment
- Government Department Liaison
- Assessment of Wetland Status and Functionality
- Determination of Wetland Boundaries



REGISTRATIONS



Professional Registrations

- Environmental Law Association (ELA)
- South African Council of Natural Science Professionals (SACNASP)

PROJECT EXPERIENCE



ENVIRONMENTAL MANAGEMENT AND MONITORING

2008, 2009, 2010

Matla, Mpumalanga, South Africa

Matla Wetland Monitoring and Management Plan for Matla coal mine. Responsibilities included: weekly site visits and reporting of findings during the construction of the Matla river diversion and assisted in compilation of the wetland management plan

BIOLOGICAL SCIENCES

2009

Eskom DPSS, Freestate/KwaZulu Natal, South Africa

Assisted in the capture of fish for genetic sampling to map distribution patterns between two different catchment.

ENVIRONMENTAL IMPACT ASSESSMENT

2016

Exxaro NBC Project

Project Consultant, coordination, BA and EMP report compilation as well as public consultation of the various aspects on this project.

2016

Exxaro Coal Central Eloff Project, Mpumalanga, South Africa

Project Consultant, coordination and EIA and EMP report compilation as well as public consultation of the various aspects on this project.

2015

Exxaro Belfast Project, Mpumalanga, South Africa

Environmental Control Officer

2015

Exxaro Matla Project, Mpumalanga, South Africa

Project Consultant, coordination and EIA and EMP report compilation as well as public consultation of the various aspects on this project.

2015

Exxaro UCG Project, Limpopo, South Africa

Project Management, coordination and public consultation of the various aspects on this project.

2014

Quantum Crushing and Screening, KwaZulu-Natal, South Africa

Project Management, coordination and BA and EMP report compilation as well as public consultation of the various aspects on this project.

2013

Glencore Rietvly – Northwest, South Africa

Project Management, coordination and BA and EMP report compilation as well as public consultation of the various aspects on this project.

2012

Jacomynspan, Northern Cape, South Africa

Project Management, coordination and EIA and EMP report compilation as well as public consultation of the various aspects on this project.

2012

Bighorn Substation, Northwest, South Africa

Project assistance, coordination and report compilation as well as public consultation of the various aspects on this project.

2012

Otjozundu, Namibia

Environmental Impact Assessment Report Compilation

2012

Leeuwpan, Mpumalanga, South Africa

Project Management, coordination and EIA and EMP report compilation as well as public consultation of the various aspects on this project.

2008

Lonmin Akanani, Limpopo, South Africa

Project assistance, coordination and report compilation of the various studies done on this project.

ECOLOGY

2012

Schoongezicht, Mpumalanga South Africa

Ecological studies with responsibilities that included wetland input for the IWULA. Wetland delineation, classification and characterisation were done on the wetlands found during this study

2012

Mooiplaats, Mpumalanga South Africa

Ecological studies with responsibilities that included wetland input for the IWULA. Wetland delineation, classification and characterisation were done on the wetlands found during this study

2011

Kromdraai Pipeline, Mpumalanga, South Africa

Ecological studies with responsibilities that included wetland input for the project EIA. Wetland delineation, classification and characterisation were done on the wetlands found during this study

2010

New Vaal Life Expansion, Freestate, South Africa

Ecological studies with responsibilities that included wetland input for the project EIA. Wetland delineation, classification and characterisation were done on the wetlands found during this study

EYETHU COAL (PTY) LTD.

BLESBOKLAAGTE COLLIERY

WORKING PLAN

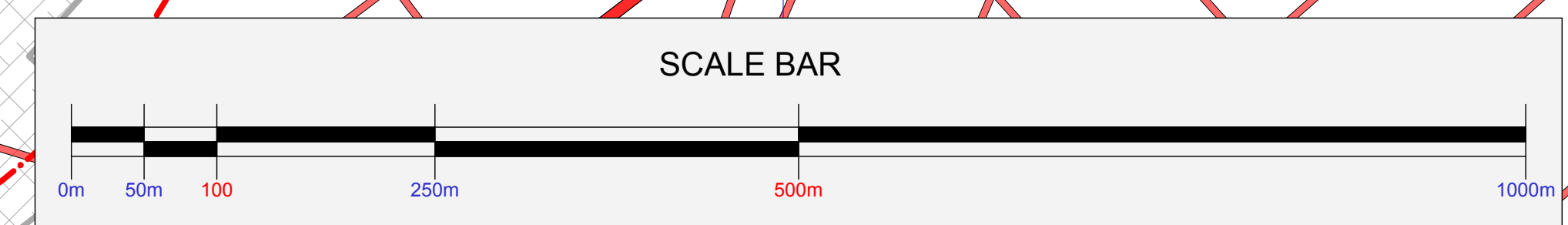
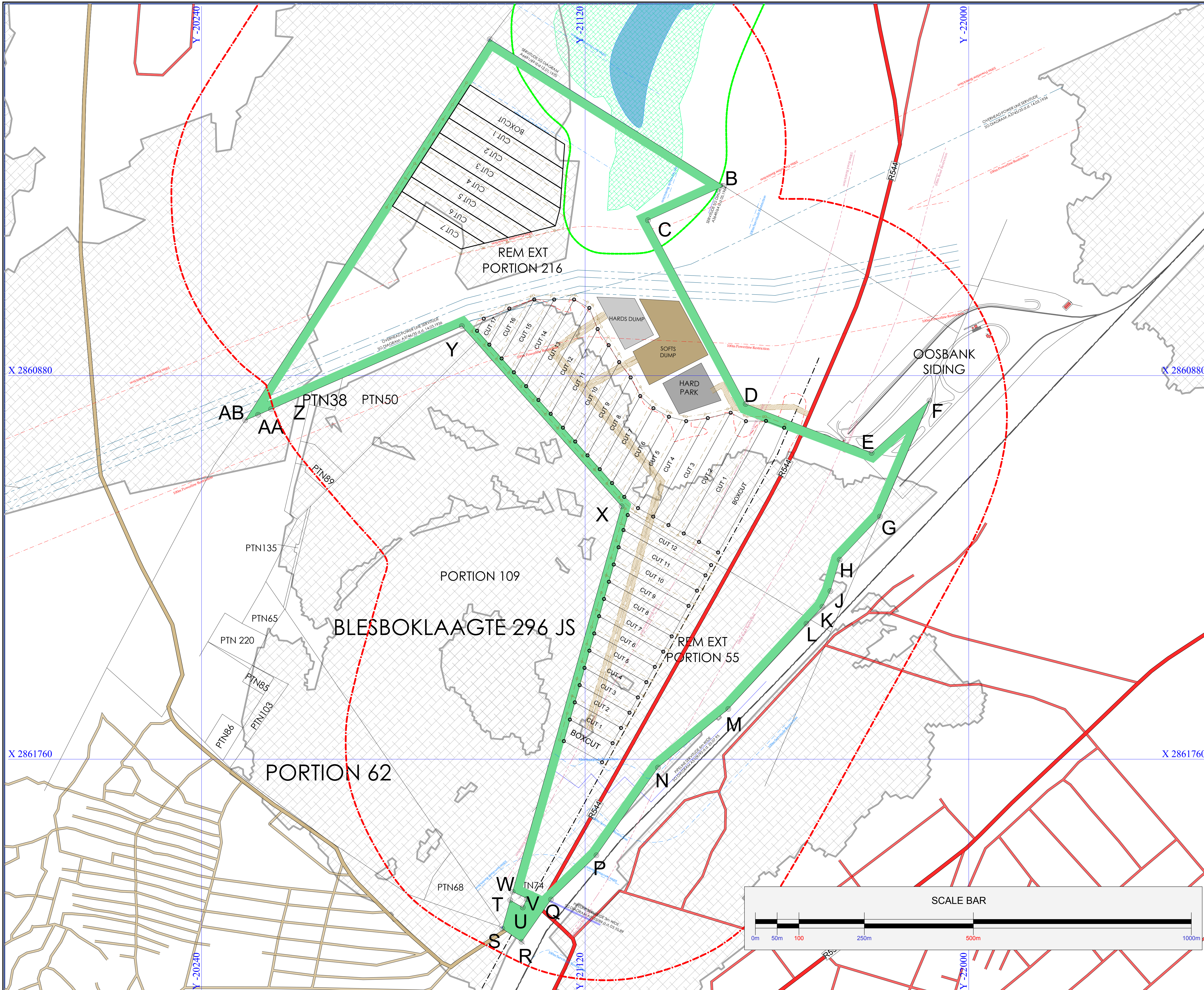
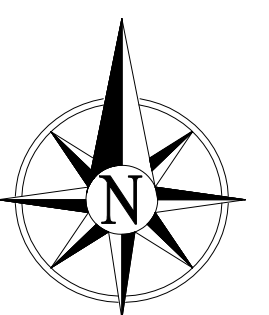
LEGEND

- MINE BOUNDARY
- DAM
- OLD UNDERGROUND WORKINGS
- OPENCAST LAYOUT
- POWER LINE
- TELEPHONE LINE
- 100m SURFACE STRUCTURE PROTECTION
- 100m WETLAND RESTRICTION
- 500m BLAST RADIUS
- FENCE
- FARM BOUNDARY
- PORTION BOUNDARY
- TAR ROAD
- GRAVEL ROAD

NOTES:

Survey System
WGS84 - 29
SCALE 1:4000 (A1)

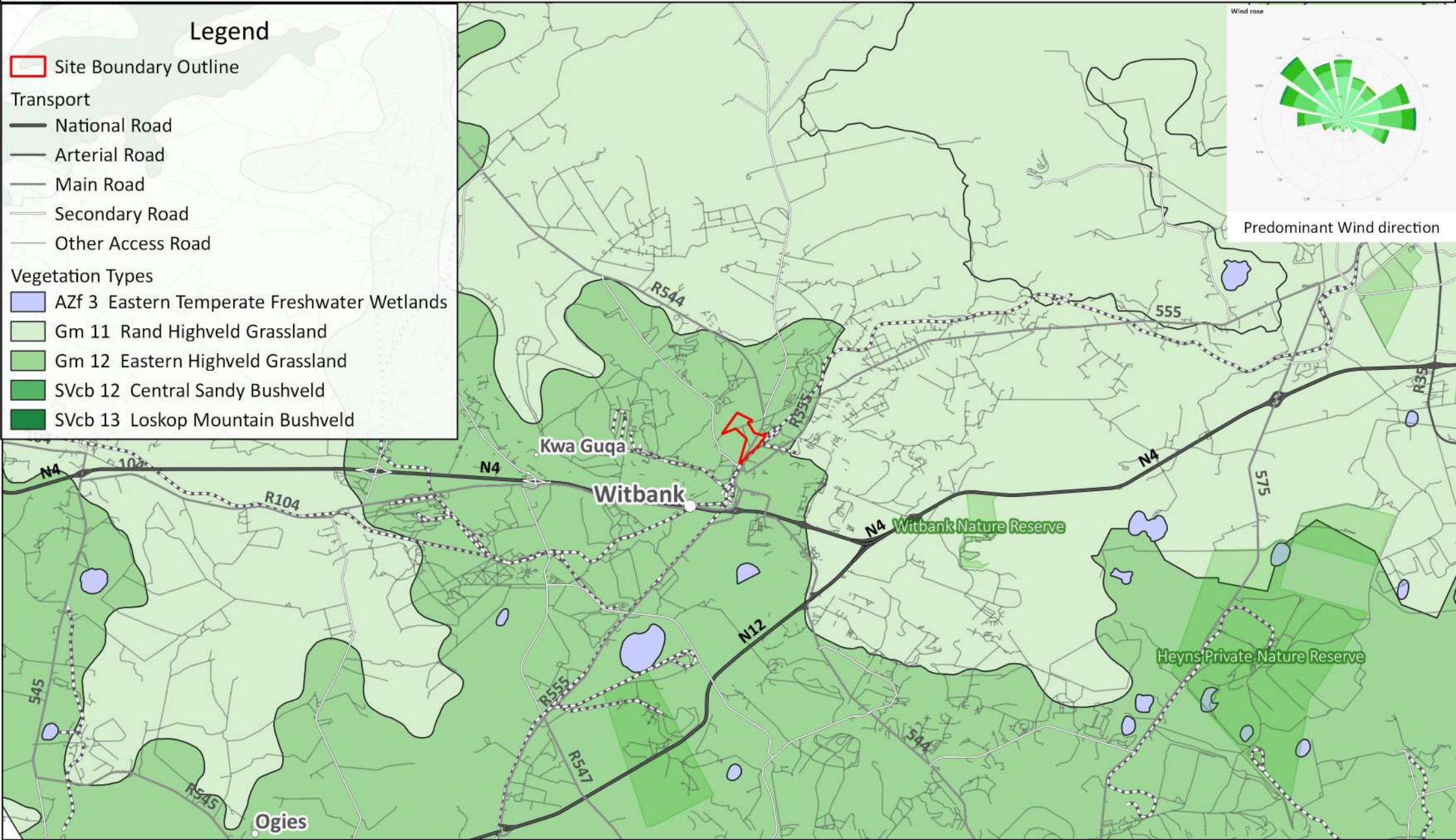
BLESBOKLAAGTE - WORKING PLAN
Date of print : 2019-07-23





Legend

- Site Boundary Outline
- Transport**
- National Road
- Arterial Road
- Main Road
- Secondary Road
- Other Access Road
- Vegetation Types**
- AZf 3 Eastern Temperate Freshwater Wetlands
- Gm 11 Rand Highveld Grassland
- Gm 12 Eastern Highveld Grassland
- SVcb 12 Central Sandy Bushveld
- SVcb 13 Loskop Mountain Bushveld



Data Sources:

Surveyor General of South Africa (Jan 2018)
 South Africa Protected Area Database (Dec 2017)
 South Africa Conservation Areas Database (Sept 2017)
 SANBI Vegetation Biomes (2006)

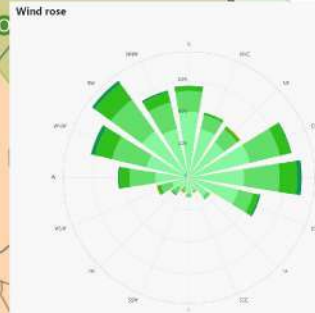


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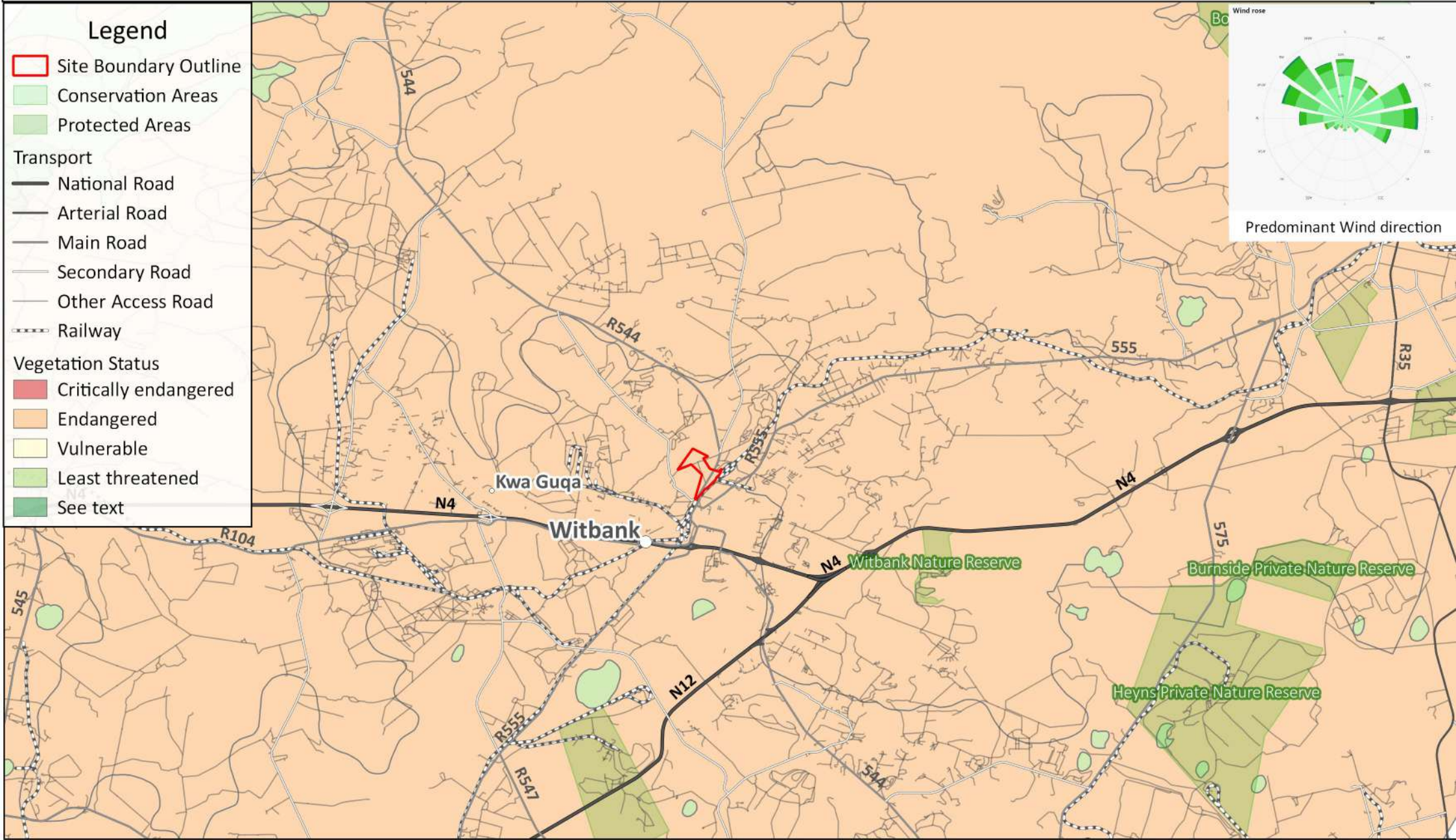


Legend

- Site Boundary Outline
- Conservation Areas
- Protected Areas
- Transport**
- National Road
- Arterial Road
- Main Road
- Secondary Road
- Other Access Road
- Railway
- Vegetation Status**
- Critically endangered
- Endangered
- Vulnerable
- Least threatened
- See text



Predominant Wind direction



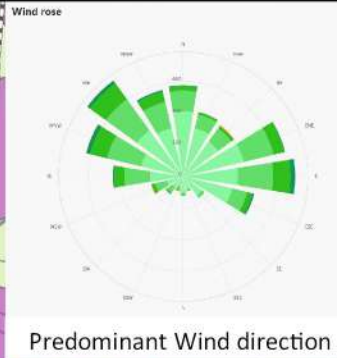
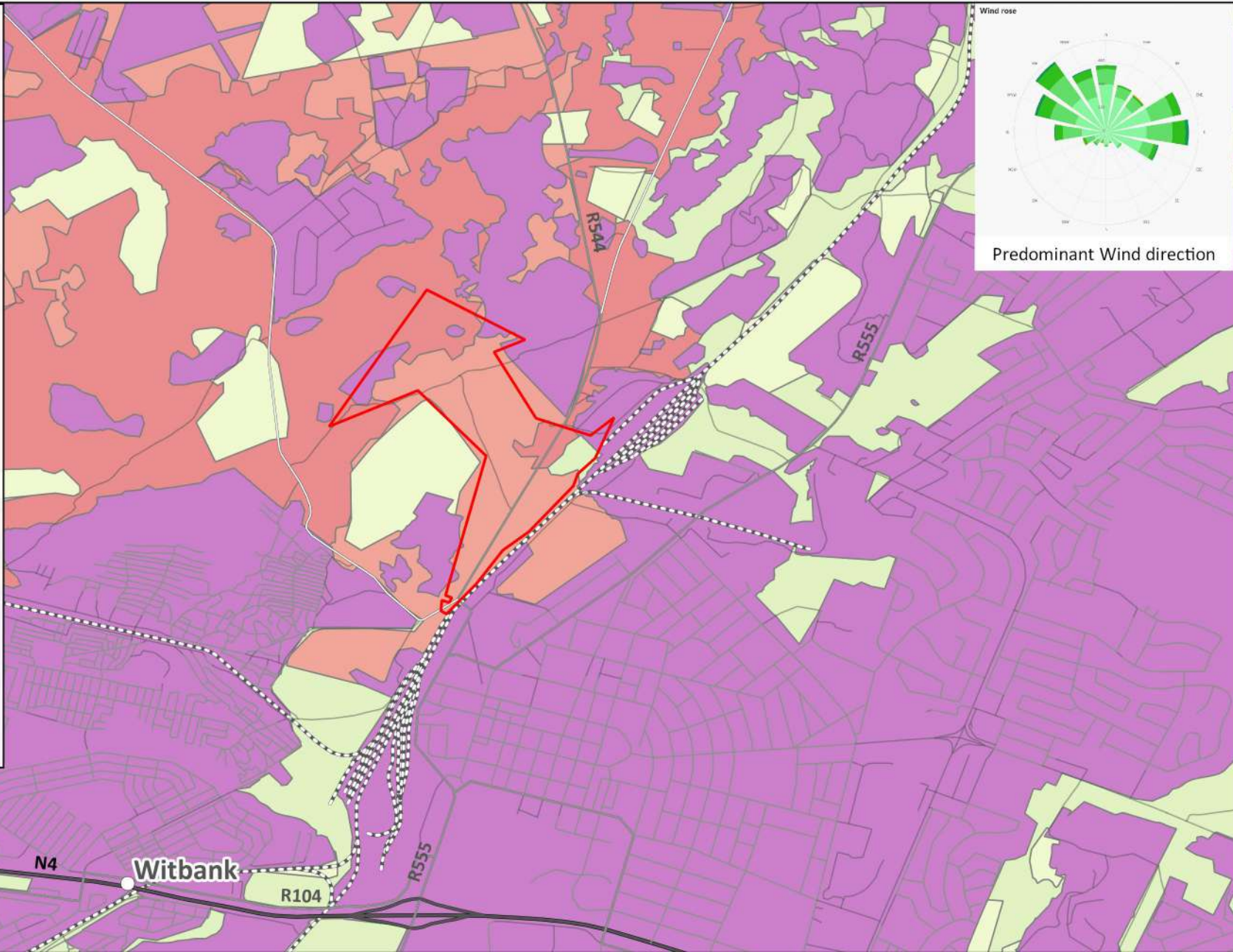
Data Sources:

Surveyor General of South Africa (Jan 2018)
 South Africa Protected Area Database (Dec 2017)
 South Africa Conservation Areas Database (Sept 2017)
 SANBI MBSP-Mpumalanga (?)



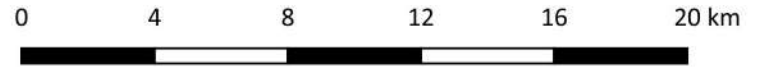
Legend

- Site Boundary Outline
- Transport**
- National Road
- Arterial Road
- Main Road
- Secondary Road
- Other Access Road
- Railway
- MBSP**
- CBA Irreplaceable
- CBA Optimal
- ESA Landscape corridor
- ESA Local corridor
- ESA Protected Area buffer
- ESA Species Specific
- Heavily modified
- Moderately modified- Old lands
- Other Natural Areas
- PA National Parks & Nature Reserves
- PA Protected Environment: Modified
- PA Protected Environment: Natural



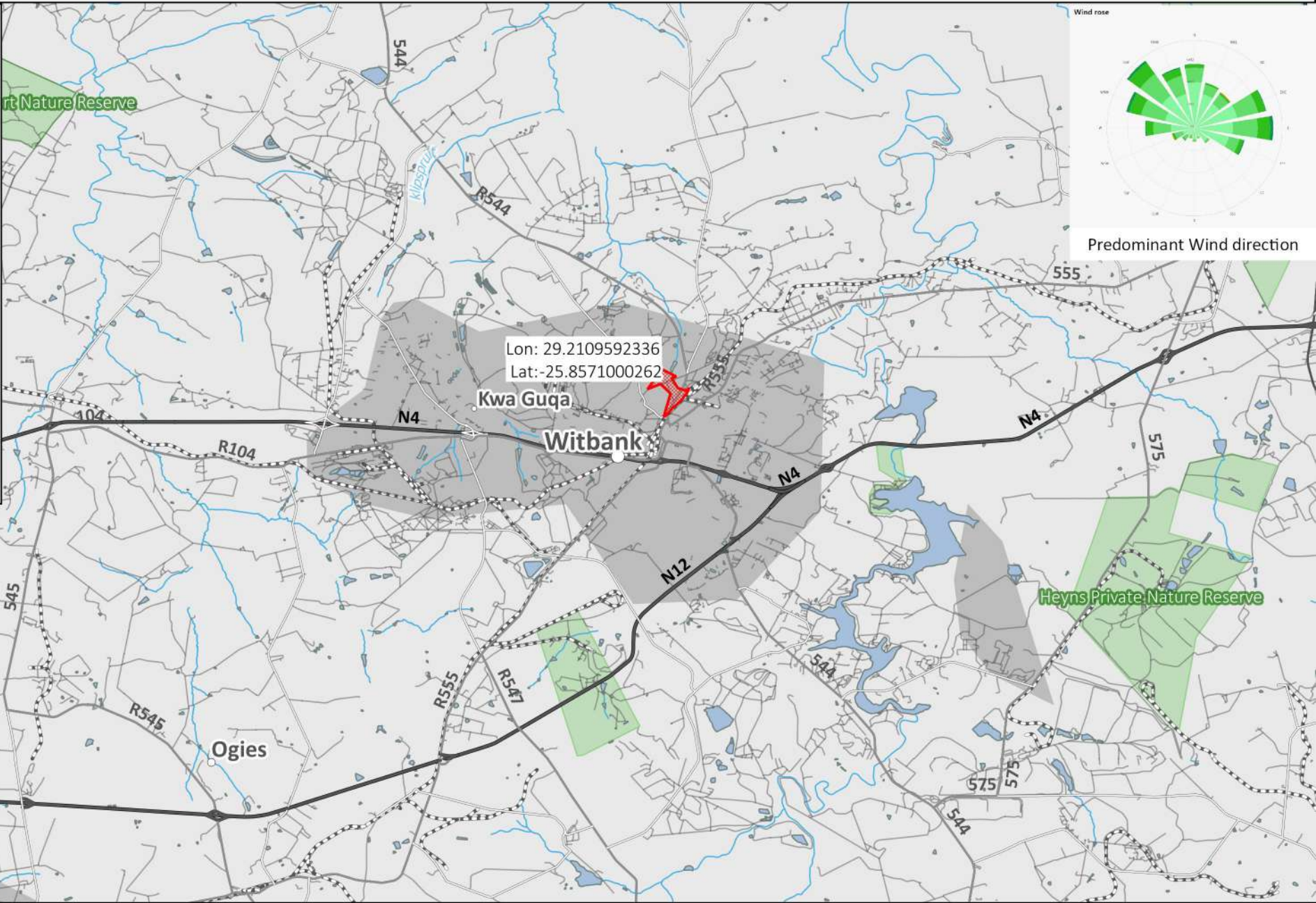
Data Sources:

Surveyor General of South Africa (Jan 2018)
 South Africa Protected Area Database (Dec 2017)
 South Africa Conservation Areas Database (Sept 2017)



Legend

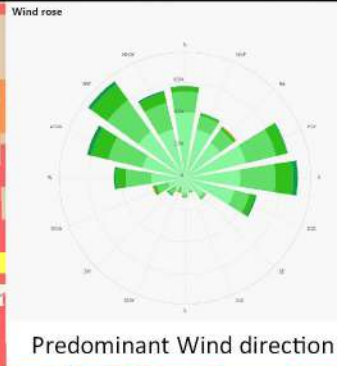
-  Site Boundary
-  Protected Areas
-  Conservation Areas
- Transport**
-  National Road
-  Arterial Road
-  Main Road
-  Secondary Road
-  Other Access Road
-  Railway
- Inland Water**
-  Dam
-  Non-Perennial River
-  Perennial River





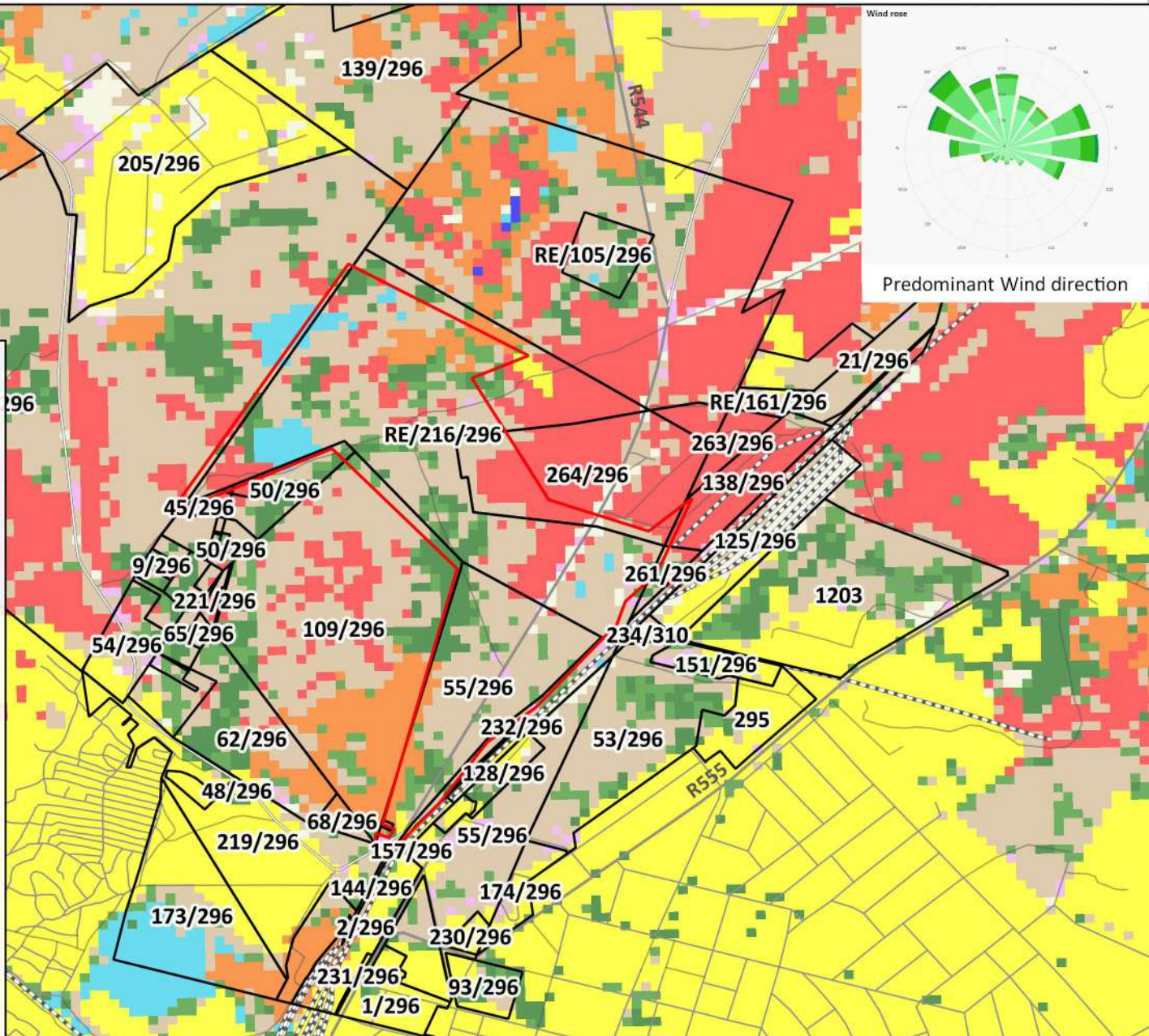
Legend

Site Boundary Outline	Transport
Boundary Farm Portions	National Road
	Arterial Road
	Main Road
	Secondary Road
	Other Access Road
	Railway



Landcover

Indigenous Forest	Fynbos - Bare Ground
Thicket / Dense Bush	Nama Karoo - Forest
Woodland / Open Bush	Nama Karoo - Thicket
Low Shrubland	Nama Karoo - Open Bush
Plantations / Woodlots	Nama Karoo - Low Shrub
Cultivated Commercial Crop Non-Pivot	Nama Karoo - Grassland
Cultivated Commercial Crop Pivot	Nama Karoo - Bare Ground
Cultivated Commercial Orchards	Succulent Karoo - Forest
Cultivated Commercial Vines	Succulent Karoo - Thicket
Cultivated Subsistence Crops	Succulent Karoo - Open Bush
Settlements	Succulent Karoo - Low Shrub
Wetlands	Succulent Karoo - Grassland
Grasslands	Succulent Karoo - Bare Ground
Fynbos - Forest	Mines
Fynbos - Thicket	Waterbodies
Fynbos - Open Bush	Bare Ground
Fynbos - Low Shrub	Degraded
Fynbos - Grassland	



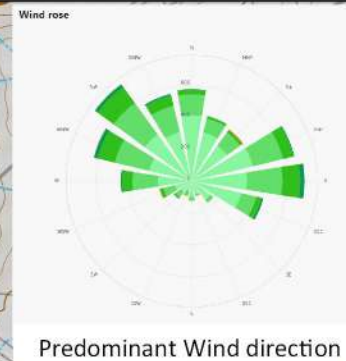
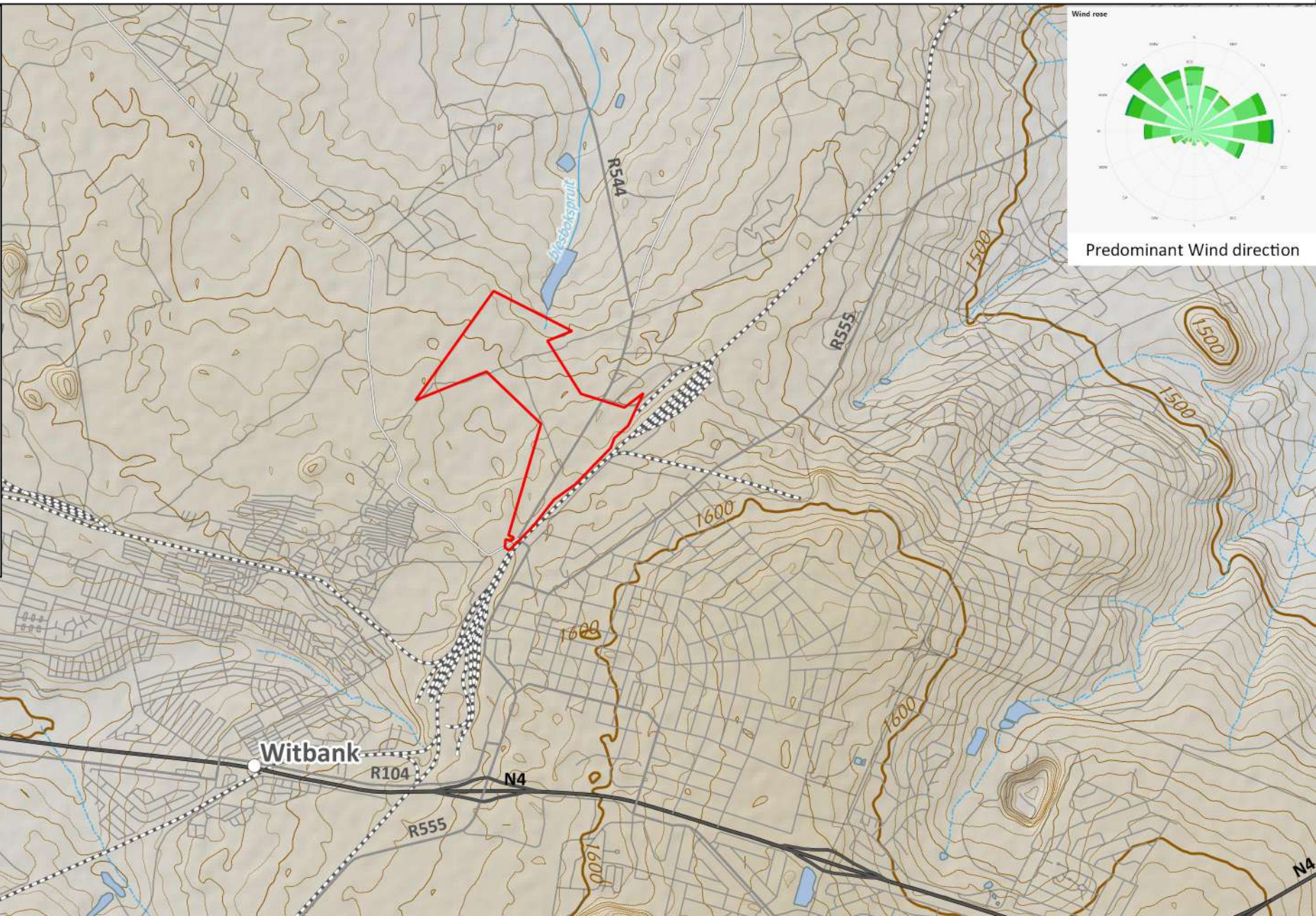
Data Sources:

Surveyor General of South Africa (Jan 2018)
 South Africa Protected Area Database (Dec 2017)
 South Africa Conservation Areas Database (Sept 2017)
 Geo-i 5m Contours (2014)



Legend

- Site Boundary Outline
- Transport**
 - National Road
 - Arterial Road
 - Main Road
 - Secondary Road
 - Other Access Road
 - Railway
- Contours**
 - 100m
 - 20m
 - 5m
- Inland Water**
 - Dam
 - Non-Perennial River
 - Perennial River




Data Sources:







Surveyor General of South Africa (Jan 2018)
 South Africa Protected Area Database (Dec 2017)
 South Africa Conservation Areas Database (Sept 2017)
 SANBI NFEPA Project (2011)



Legend

 Site Boundary Outline

Transport

-  National Road
-  Arterial Road
-  Main Road
-  Secondary Road
-  Other Access Road
-  Railway

Rivers

-  Non-Perennial River
-  Perennial River
-  NFEPA Rivers
-  NFEPA Wetlands
-  Surface Water Buffer Zones

