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**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT AND
ENVIRONMENTAL MANAGEMENT PLAN REPORT**

DMR REF NO: MP 30/5/1/2/2/ 10387 MR

PREPARED FOR KATMA CONSTRUCTION AND PROJECTS CC

PREPARED BY TPR MINING RESOURCES (PTY) LTD

"Makhura A Ngw ana kego Rongw a"



**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL
MANAGEMENT PLAN REPORT**

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

NAME OF APPLICANT: Katma Constructions and Projects

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FILE REFERENCE NUMBER SAMRAD: MP 30/5/1/2/2/ 10387 MR

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resource Development Act as amended, the Minister must grant Mining or Mining right if among others the mining will not result in unacceptable pollution, ecological degradation or damage to the environment’.

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

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

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

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

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

- (a) Determine the policy and legislative context within which the proposed is located and how the activity complies with and responds to the policy and legislative context.
- (b) Identify the alternatives considered, including the activity, location, and technology alternatives.
- (c) Describe the need and desirability of the proposed alternatives;
- (d) Through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
 - (i) The nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) The degree to which these impacts
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be managed, avoided or mitigated
- (e) Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to
 - (i) Identify and motivate a preferred site, activity and technology alternative;
 - (ii) Identify suitable measures to manage, avoid or mitigate identified impacts; and
 - (iii) Identify residual risks that need to be managed and monitored.

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PART A

SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

1.1 Details of the EAP

Table 1-1: Details of the EAP

Name	TPR Mining Resources (Pty) Ltd
Tel no:	012 345 6321
Fax no:	086 599 3318
E-mail address	info@tprmining-resources.co.za
Physical address	27 Geringer Street
	Witbank
	1035

1.2 Expertise of the EAP

TPR Mining Resources (Pty) Ltd is a mining environmental consulting firm established in 2015 by a group of young professionals with extensive experience in mining environmental management. It originated in Limpopo Province and has grown to offer consulting services in Mpumalanga, North-West, Gauteng, Kwa-Zulu Natal, Western Cape, Eastern Cape and Northern Cape Provinces.

1.2.1 Project Team Members

Team Authors

Project Manager: Mr. Thato Jimmy Ramoraswi

Mr. Thato Jimmy Ramoraswi obtained a Bachelor of Environmental Science in April 2009 from University of Venda as well as a Certificate in Waste Management from

VBK Business Venture in January 2015. He obtained extensive experience (over 5 years) in Environmental Management in the construction and mining sector. He completed

several EIA projects. He is affiliated to the South African wing of the International Association for Impact Assessment.

2. Project EAP: Ms. Pheladi Mphahlele

Ms. Pheladi Mphahlele obtained a Bachelor of Earth Science in Mining and Environmental Geology (BESMEG) in September 2017 from University of Venda. She obtained knowledge in storm water management projects while working on community project in 2015 (2 months) in the construction sector. She obtained extensive experience (over 3 years) in Environmental Management in the construction and mining sector. She also worked on research project while completing her honors in BESMEG. She is now registered with EAPASA as a registered EAP.

3. Team member: Ms. Lethabo Chauke

Ms. LF Chauke holds a National Diploma in Environmental Sciences from Tshwane University of Technology (TUT) which was completed in 2019 and she is currently in pursuit of an Advanced Diploma qualification in the same field. She is an Environmental Consultant (Junior) with over two years' experience in a wide-range of environmental related projects, Prospecting right and Mining permit applications. She has been training and working in an Environmental Consulting Company where she is being groomed and exposed into different environmental applications, processes and documentation. This includes Environmental Impact Assessment and Basic assessment and Environmental Management Plan.

2. LOCATION OF THE OVERALL ACTIVITY

The area where mining operation will take place is located approximately 10.7 km north-west of Breyten town along the R36 route to Carolina on portion of portion 9 of the farm Bankfontein 215 IS within the jurisdiction of Msukaligwa Local Municipality, District of Gert Sibande in the Mpumalanga province. Table 2-1 depicts site coordinates while table 2-2 shows the description of the locality.

Table 2-1: Site Co-ordinates of the application area

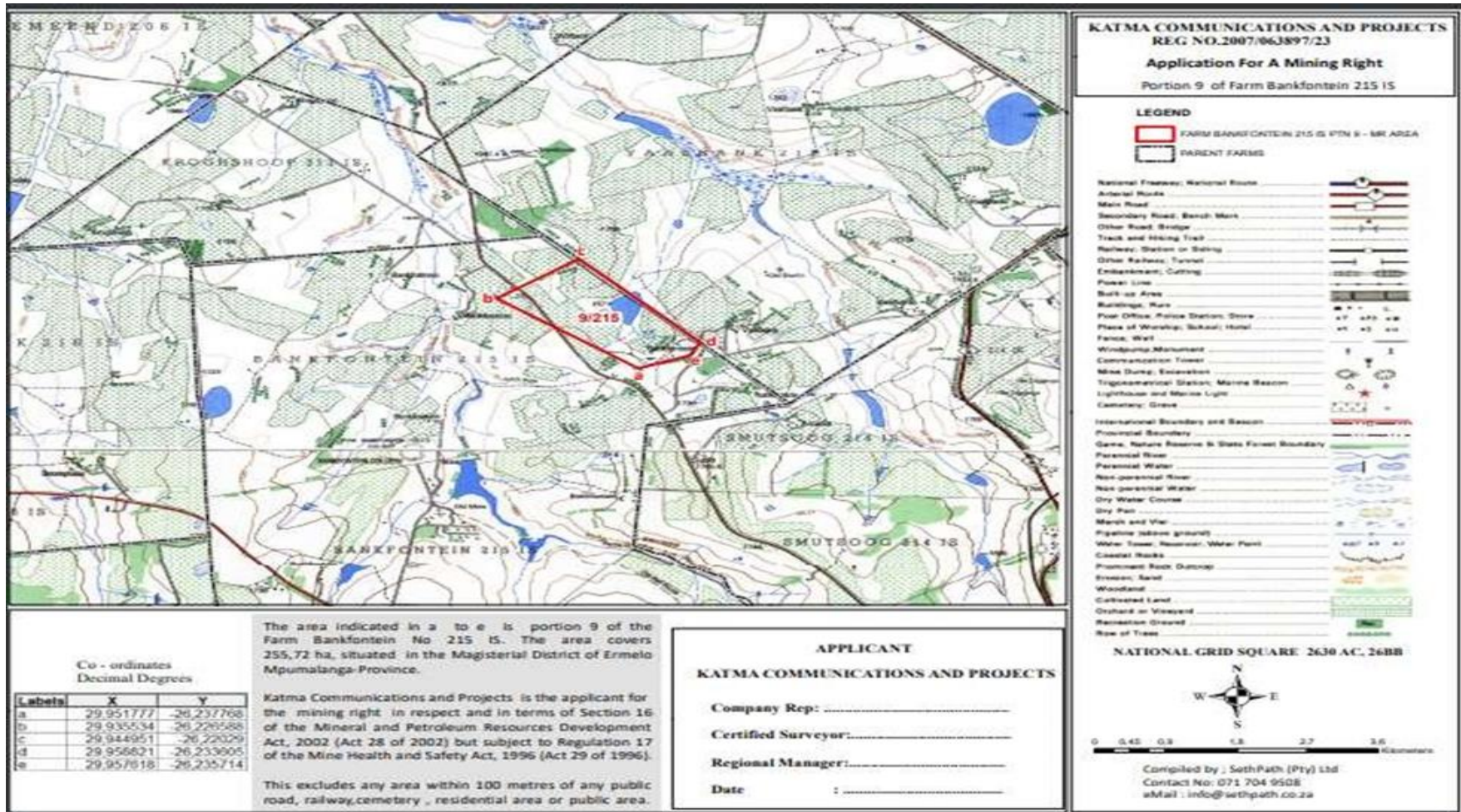
Latitude	Longitude
A. -26.237768 S	A. 29.951777 E
B. -26.226588 S	B. 29.935534 E
C. -26.22029 S	C. 29.944951 E
D. -26.233605 S	D. 29.958821 E
E. -26.235714 S	E. 29.957618 E

Table 2-2: Locality Description

<i>Farm name</i>	Portion of portion 9 of the Farm Bankfontein 215 IS
Application area (Ha)	250 Ha
Magisterial district	Breyten
Distance and direction from nearest town	Approximately 10.7km north-west of Breyten town
21 digit Surveyor general code for each farm portion	T0IS0000000002150009

3. LOCALITY MAP

Refer to Figure 3-1 below and Appendix A for the locality Map of the application area



4. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

4.1 Listed and specified activities

The applicable NEMA listed activities anticipated to be triggered by this project are outlined in Table 4.2

Table 4-2: Listed and preferred activities

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m ²	LISTED NOTICE AND ACTIVITY	DESCRIPTION	WASTE MANAGEMENT AUTHORISATION
Mining Right Boundary	255,72 Ha	Listing notice 2 R325 No: 17	Any activity (including the operation of that activity) which requires a mining right as contemplated in Section 22 of the MPRDA, including – a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.	-
Clearance of Vegetation and Site Establishment	250 Ha	Listing notice 2 R325 No: 15	The clearance of an area of 20 ha 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.	
Mobile Office and Ablution	10 Ha			
Open cast Mining(Pit area)	240 Ha			
Water supply & storage within Jojo tanks	8m ³ abstracted / day and stored within 2,500 litre tank			
Pollution Control Dam	0,5 Ha	Listing notice 1 R324 No: 13	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50,000 m ³ or more.	
Mobile Crushing and Screening plant	1 Ha	Listing Notice 2 R325 No: 21	[Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource in which	

			case activity 6 in this Notice applies.]	
Topsoil and Overburden Stockpile	4 Ha			Category B: 7,10 and 11
RoM Stockpile (moves with active mine area)	1 Ha			Category B: 7,10 and 11
Rehabilitation	255.72			Category B: 7 and 11
Access and Haul Road	3 Ha ((10km length X 5m wide)			
Storage of Dangerous Goods	3ha	Listing notice 1 R324 No: 14	The development and related operation of facilities or infrastructure for the storage/storage and handling of dangerous good, where such storage occurs in containers with a combined capacity of 80 m ³ or more, but not exceeding 500 m ³ .	

4.2 Description of the activities to be undertaken

4.2.1 Mining Method

A coal mining operation can be viewed as being made up of some, or all, of the following sub-activities:

- Construction of Access road
- Removal of topsoil, overburden and stockpiling.
- Establish mobile office, mobile toilets & sanitation
- Excavation of an open cast (including strip 1, 2)
- Blasting
- Construction of dirty water trench
- Construction of pollution control dam
- Temporary stockpiling of material (Topsoil stockpile, overburden and ROM)
- Mobile Crushing and Screening of Ore
- Loading and hauling to the stockpile area and
- Rehabilitation

4.2.2 Description of Site Activities

This application relates to the open cast surface mining of Coal. There are typically used in the power generation, export, domestic, metallurgical, liquefaction and chemical sectors.

Of the overall MRA, approximately 240 Ha will be earmarked for mining, whilst a further 10 Ha will be affected by surface infrastructure.

The deposit will be excavated by means of an open-cast mining. The method that will be employed is a very basic form of open cast mining, and a 255,72 Ha area will be demarcated for mining activities. Blasting and subsequent mining of the orebody utilising a truck and shovel operation will be conducted. The mined ore will be crushed and screened utilising a mobile crushing and screening plant. A front-end loader will be utilised to load the material into haulage trucks and transported to the stockpile area.

The project infrastructure and activities will include site clearance, removal of topsoil and overburden stockpiling, site establishment, including the establishment of an access route, mobilisation of equipment and preparation of area for mining, excavation of an open cast, blasting, loading zone, loading and dust control, crushing and screening of ore, hauling and transporting of ore, ablution facilities and waste storage area and rehabilitation of site. The mining operation will commence on the shallow side and continue through con-current rehabilitation (strip mining) in order to ensure that all the Coal ore is mined out.



4.2.1 Access Roads

Access roads exist on site. Any additional temporary roads created to gain access to site will be rehabilitated on completion of the mining right operations, to the satisfaction of the relevant landowner.

4.2.2 Water Supply

It is anticipated that water will be brought to site. The water will be sourced from the Local Contractor appointed by the applicant and it will be trucked in. An on-site water storage tank will be required for potable water supply to employees and workers. Additional water will also be required for dust suppression in order to prevent dust pollution on the untarred temporary roads

4.2.3 Establish mobile offices, ablution and Sanitation

Ablution facilities will be required on site. This may involve the installation of drum or tank type portable toilets. The toilets should be emptied twice every week through the services of a registered sewage waste service provider. The ablution facilities must be provided at a ratio of 15 :1, i.e. 15 people per 1 toilet. A temporary site office area may be erected on site. The office must be established distant from the water drainage line.

4.2.4 Construction of dirty water trenches

Dirty water trenches are constructed to remove groundwater and surface water from the mining site. Normally it is done by pumping or evaporation. It is also conducted before excavation for footings and will help to lower the water table that might cause problems during excavations.



Figure 4.2: Illustration of dirty water trench

4.2.5 Explosives

During the mining operation blasting will be undertaken to break the hard overburden and the ore. Explosives for blasting will be kept safe on site.

4.2.6 Waste

Waste generated from the mining areas will include minimal construction and domestic waste, some hydrocarbon and explosive waste and sewage. These will be collected and disposed of as part of the waste management plan and/or will be managed by contractors. Waste will be recycled as far as possible. Portable toilets will be used at the mining areas.

4.2.7 Temporary stockpile of material

Various stockpiles will be required on site. Long-term stockpiles will include topsoil, subsoil, soft overburden and hard overburden stockpiles, all of which will be erected as close as possible to the final void to aid in infilling and rehabilitation of final voids. In addition, the mine will have product and ROM stockpiles which will be temporary in nature.

4.2.8 Crushing and Screening of ore

Crushing is a dry process which involve particle size reduction of large material into smaller rocks. Equipment's used for crushing of coal jaw crusher or cone crusher. Screening is a practice of taking granulated ore material and separating it into multiple grades by particle sizes so coal will be screened and stockpiled in the mining area.



Figure 4.3: An illustration of Crushing and Screening

4.2.9 Loading and Hauling to the stockpile area

This is where a bucket or front end loader will be utilised to carry out the coal to the haul units. Hauling may be conducted by trucks or wagon. This is when the coal is driven to the stockpile area.

4.2.10 Site rehabilitation

When mining of coal ceases, mine facilities and the site is reclaimed and closed. The goal of mine site reclamation and closure should always be to return the site to a condition that most resembles the pre-mining condition. Mines that are notorious for their immense impact on the environment often made impacts only during the closure phase, when active mining operations ceased. These impacts can persist for decades and even centuries.



Figure 4.4: Illustration of rehabilitated site

Phase	Activity	Expertise Required	Duration
Construction	Logistical consultation with land owner. Construction of Access road Establish mobile office and security dwellings Establish mobile ablution facility Construction of clean water trench Construction of dirty water trench Construction of pollution control dam Establish mobile screening Construction of berm	Project Manager Contractor	2 Months

Operational	Clearance of vegetation Mining area (including strip 1, 2 & 3) Temporary stockpiling of material (Topsoil stockpile, overburden and ROM) Loading and hauling to the stockpile area and Rehabilitation	Project Manager Surveyor	20 months
Decommission and closure	Removal of mine infrastructure Rehabilitation of excavations and disturbed land Re-vegetation of land Closure report and application for closure certificate	Contractor Environmentalist	2 Months
Post closure monitoring	Monitor rehabilitation sustainability and liaising with land owner on matters requiring action.	Project manager	2 years

5. POLICY AND LEGISLATIVE CONTEXT

A description of the policy and legislative context within which the development is proposed is displayed in table 5-1 overleaf.

Environmental Impact Assessment process, which includes a Scoping study, is required by legislation. The process ensures that all relevant information is presented in order to facilitate good management decision - making. The legislations that require development projects to undergo through the Scoping Process are:

5.1 The Constitution of the Republic of South Africa, 1996 (Act no 108 of 1996)

The Constitution is the most important piece of legislation that provides a framework for environmental management in South Africa. There are various sections that have implications for environmental management, hence for sustainable development. Section 24(b) (i) encourages prevention of pollution and ecological degradation. Section 24(b)(iii) promotes ecologically sustainable development.

According to chapter 2 of the Bill of rights, section 24 says:

Everyone has the right:

- a) To an environment that is not harmful to their health or well-being; and
- b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that
 - i) Prevent pollution and ecological degradation;
 - ii) Promote conservation; and
 - iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

5.2 National Environmental Management Act (Act 107 of 1998) (as Amended)

The National Environmental Management Act (Act 107 of 1998) generally known as “NEMA” is South Africa’s overarching framework for environmental legislation. The NEMA Act sets out the principles of Integrated Environmental Management (IEM). NEMA aims to promote sustainable development, with wide-ranging implications for national, provincial, and local government. Included amongst the key principles is that all development must be environmentally, economically and socially sustainable and that environmental management must place people and their needs at the forefront, and equitably serve their physical, developmental, psychological, cultural and social interest.

Section 2 of NEMA, sets out a range of environmental principles that are to be applied by all organs of state when taking decisions that may significantly affect the environment. Section 24, as amended, states that the activities that may significantly affect the environment and require authorization or permission by law must be investigated and assessed prior to approval. These activities are listed in Government Notice R983, R984 and R985, 08 December 2014.

5.3 Environmental Impact Assessment Regulations, 2014

The Environmental Impact Assessment (EIA) Regulations, 2014, promulgated in terms of Section 24(5) of the National Environmental Management Act ([NEMA], Act 107 of 1998) are divided into three Schedules, R983, R984 and R985. Schedule R983 defines activities which will trigger the need for a Basic Assessment and R984 defines activities which trigger a Scoping and Environmental Impact Assessment (S & EIA) process. If activities from both schedules are triggered, then an S & EIA process will be required. Regulation 985 defines certain additional listed activities per province for which a Basic Assessment would be required.

5.3.1 Environment Conservation Act (Act 73 of 1989)

The purpose of this Act is to provide for the effective protection and controlled utilization of the environment and for matters incidental thereto. The following relevant Sections of this Act are relevant:

- Sections 2-3 (Part I): Policy for Environmental Conservation;
- Sections 16-18 (Part III): Protection of Natural Environment;
- Sections 19-20 (Part IV): Control of Environmental Pollution; and
- Section 21-23 (Part V): Control of Activities which may have a Detrimental Effect on the Environment

5.4 National Environmental Management: Biodiversity Act (Act 10 of 2004)

The National Environmental Management: Biodiversity Act (NEMBA) provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; and provides for and includes:

- The protection of species and ecosystems that warrant national protection;
- The sustainable use of indigenous biological resources;
- The fair and equitable sharing of benefits arising from bio-mining involving indigenous biological resources;
- The establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.

5.5 National Heritage Resources Act

In terms of Section 38 (1)(c) i, ii, iii, iv (d) (e) of the Heritage Resources Act (Act No 25 of 1999), a Heritage Impact Assessment has to be undertaken for the following developments:

- Any development or other activity which will change the character of a site
 - Exceeding 5 000 m² in extent; or
 - Involving three or more existing erven or subdivisions thereof; or
 - Involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- The re-zoning of a site exceeding 10 000 m² in extent; or
- Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Section 34, no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority (SAHRA)

1.4 National Water Act (Act 36 of 1998)

The National Water Act ([NWA] Act 36, 1998) identifies 11 consumptive and non-consumptive water uses which must be authorized under a tiered authorization system. Section 27 of the NWA specifies that the following factors regarding water use authorization must be taken into consideration:

- The efficient and beneficial use of water in the public interest;
- The socio-economic impact of the decision whether or not to issue a license;
- Alignment with the catchment management strategy;
- The impact of the water use, resource directed measures; and
- Investments made by the applicant in respect of the water use in question.

Section 21 of the National Water Act identifies listed activities for which a Water use License should be obtained. The Section 21 listed activities include:

- (a) Taking water from a water resource;
- (b) Storing water;
- (c) Impeding or diverting the flow of water in a water course;
- (d) Engaging in a stream flow reduction activity contemplated in Section 36;
- (e) Engaging in a controlled activity identified as such in section 37(1) or declared under Section 38(1);
- (f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
- (g) Disposing of waste in a manner which may detrimentally impact on a

water resource;

- (h) Disposing in any manner which contains waste from, or which has been heated in any industrial or power generation process;
- (i) Altering the bed, banks, course or characteristics of a watercourse;
- (j) Removing, discharging, or disposing of waste found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
- (k) Using waste for recreational purposes.

5.7 National Environmental Management: Air Quality Act (Act No 39 of 2004)

The National Air Quality Act 39 of 2004 was promulgated but only enacted in September 2005. However, some sections of the Atmospheric Pollution Prevention Act (APPA) of 1965 are still valid and implemented and enforced by DEA and more specifically, the Chief Air Pollution Control Officer or CAPCO.

5.8 The National Environmental Management: Waste Act (Act 59 of 2008)

The National Environmental Management: Waste Act, 2008 (Act No. 58 of 2008) (the Waste Act), came into operation on the 1st of July 2009. The Waste Act repealed Section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) (ECA) and introduced new provisions regarding the licensing of waste management activities. In terms of the Waste Act the Minister may publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.

In terms of the Waste Act no person may commence, undertake or conduct a waste management activity except in accordance with:

- The requirements or standards determined in terms of the Waste Act for that activity; and

- A waste management license issued in respect of that activity, if a license is required.

A list of waste management activities was published on the 29th of November 2013. This list of activities identifies activities that may not be commenced, undertaken or conducted by any person unless a waste management license is issued in respect of that activity. The list of activities is divided into two Categories.

A person who wished to commence, undertake or conduct, an activity listed under Category A, must conduct a Basic Assessment process, and a person who wished to commence, undertake or conduct an activity listed under Category B, must conduct a Scoping and EIA process, as stipulated in the EIA Regulations made under NEMA, as part of a waste management license application in terms of the Waste Act.

5.9 Conservation of Agricultural Resources Act (Act No 43 of 1983)

To provide for the conservation of the natural agricultural resources of the Republic of South Africa by the preservation of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.

5.10 The minerals and Petroleum Resources Development Act (MPRDA), Act No.28

The Minerals and Petroleum Resources Development Act (MPRDA), Act No. 28 of 2002 and its Regulations (GNR 2, 7 April 2017). a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] the primary

processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;

An application for mining right was submitted to, and accepted by, the DMR in terms of the MPRDA. Submission of information has been on the prescribed forms, and submitted via the SAMRAD portal where applicable.

5.11 NEMWA National Dust Control Regulations (GNR827, November 2013)

An air quality study (including dispersion modelling) is currently underway as per the plan of the study for the EIA. A dust fallout monitoring programme will be outlined in the EMP. Monitoring data will be compared to the regulations to ensure dust fallout is within acceptable limits.

6. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

The socio-economic status of the area where mining will take place requires such establishment for mining, which will in turn contribute to the local economy through creation of job opportunities. The type of commodity proposed to be mined is in high demand due to established Coal-powered electricity power station around Mpumalanga province. The proposed mining of coal will be established along the R36 route north west of Breyten town.

6.1 Socio economic

The current socio-economic status of Breyten and Komkrans is dominated by informal settlements and low cost houses. Lack of job opportunities, poor road networks and dilapidated retail facilities are prevalent around the area. The distribution of coal reserves is in abundance around the areas of Breyten, komkrans, hendrina and Ermelo. This has attracted foreign investments to the local towns and nearby communities through mineral processing of Coal. Introduction of mining operations will attract businesses to invest within the surrounding areas, there is already mining developments taking place due to the coal reserves existing around the farm areas.

The town of Breyten and Komkrans consist of marginal residential site and few streets with retail facilities. Introduction of mining operations will attract businesses to invest within the surrounding area, as a result bring development of parks, shopping Malls recreation facilities. This will improve social cohesion for the local communities.

The unemployment rate is sitting at 26,8 % and youth unemployment rate at 34,5 %. This rate is amounted from a total population of 149 377. More than a third of the population between the ages of 20 and 64 years in the Gert Sibande District Municipality and the wards that encompass the Breyten are not economically active (Statistics South Africa, 2011). Furthermore, half of the population in Msukaligwa Local Municipality live off R3 200 or less a month, while this percentage increases to 63% for Chief Albert Luthuli Local Municipality (Boersema, 2013).

6.2 Location suitability

There are mining activities taking place around portion 9 of the farm Bankfontein 215 IS extracting the same commodity. All or part of the Ermelo, Witbank, Highveld, Eastern Transvaal, South Rand and KaNgwane coalfields are included in Mpumalanga Province. Several significant coal seams possessing diverse characteristics are present and have a variety of potential markets in the power generation, export, domestic, metallurgical, liquefaction and chemical sectors. This is the most important coal-producing area in South Africa and supports some 65 collieries working several seams in the Ecca coal measures.

7. MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVES

7.1 Preferred site

The geological characteristics of the farm where mining will take place comprises of coal seams. The coal seam topography, lithological and geological profile is summarised below and the following aspects of interest include:

The Ermelo Coalfield is located in the districts of Carolina, Dirkiesdorp, Hendrina, Breyten, Davel, Ermelo and Morgenzon in the southeast Mpumalanga Province. It extends approximately 75 km east-west, and 150 km north-south, covering an area of about 11,250,000 ha. The northern and eastern boundaries of the Ermelo Coalfield are defined by the sub-outcrop of the coal-bearing strata against pre-Karoo basement.

In the west, the Ermelo Coalfield shares a boundary with the Witbank and Highveld coalfields, and to the south with the Klip River and Utrecht coalfields of KZN (Greenshields, 1986). Between the Ermelo and westernmost part of the Highveld Coalfield there is an area of poor (thin) coal development where no coal mining takes place.

7.2 Activities and Technology alternatives

The mining method which is safe and environmental friendly is open-cast mining method with the strip mining type which encourages the con-current rehabilitation of the site. Only technological assessment can be made since preferred site is determined by the availability of the mineral of interest.

Activities – It will be open cast mining including the following activities;

- Construction of dirty water trench
- Construction of Pollution control dam

Technology alternatives – the applicant proposes to mine utilizing the following;

- Bulldozer
- Hydraulic excavator
- Dump trucks

- Motor grader
- Water bowzer

8. DESCRIPTION OF THE PROCESS FOLLOWED TO REACH PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE

8.1 Details of the development footprint alternatives considered

Due to the size of the mining area; some of the activities to be undertaken will rotate with the mining direction. In that, only the clean water and dirty water trenches are permanently placed around the mining operation including the pollution control dam. Other activities such as mobile offices, mobile security houses, mobile ablution and mobile crushing and screening machinery will definitely rotate with the operation. The mining direction has been dictated by the depth of the coal. In that, the mining operation will commence on the shallow side and continue through con-current rehabilitation (strip mining) in order to ensure that all the coal deposit is mined out.

8.2 The type of activity to be undertaken

- Construction of Access road
- Removal of topsoil and overburden and stockpiling.
- Establish mobile office, mobile toilets & sanitation
- Excavation of an open cast (including strip 1, 2)
- Blasting
- Construction of dirty water trench
- Construction of pollution control dam
- Temporary stockpiling of material (Topsoil stockpile, overburden and ROM)
- Mobile Crushing and Screening of Ore
- Loading and hauling to the stockpile area and
- Rehabilitation

8.3 The design or layout of the activity

The layout plan outlined depicts activities to be constructed within the mining area. (See attached appendix C)

- Construction of roads
- mobile offices
- Stockpiles area
- Box cut
- Pit mining area (strip 1,2)

8.4 The technology to be used in the activity

Open cast mining method is the best applicable method through strip mining type in order to allow the con-current rehabilitation to be implemented.

8.5 The operational aspects of the activity and Stockpile

- Electricity (Diesel Generator)
- Roads (Mine and Provincial)
- 1X Komatsu D155 Bulldozer
- 1 X Volvo 460 Hydraulic Excavators
- 2 X Volvo A30 Articulated 6X6 Dump truck
- 1 X Front end loader 966 CAT

8.6 The option of not implementing the activity

There was no option of implementing the activity.

8.7 Details of the public participation process followed

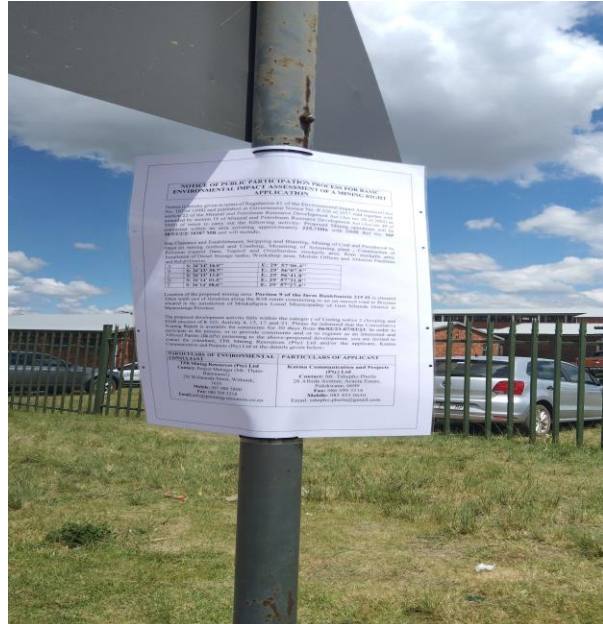
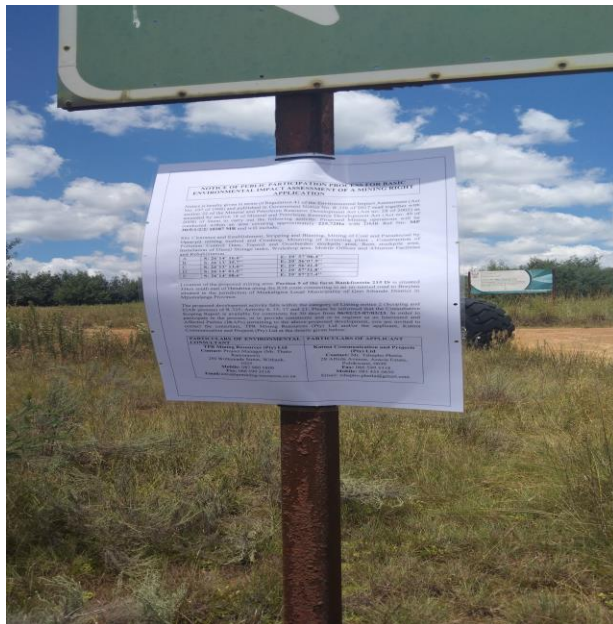
8.7.1 Confirmation of consultation

The interested and affected parties have been confirmed to this matter. Site notices were placed on and around the site in public areas of Komkrans and Breyten, public library and shopping complex. A newspaper advertisement was placed on the **27th January 2023** on the **Khanyisa Newspaper** to inform interested and affected parties of the proposed open-cast mining activities, any possible concerns in terms of possible impacts were communicated directly to the proponent. As directed on the acceptance letter from the competent authority, the applicant has informed and requested comments from landowner, See attached **Appendix D**.

8.7.2 Record of the public participation and the results thereof

8.7.2.1 Identification of interested and affected parties

Landowner and their contact details were identified through a Title Deed search and through the public participation for the properties falling within the proposed mining area. Site notices were put on site, in Komkrans and Breyten public areas to allow members of the surrounding community to comment on the proposed mining right application. **See Appendix D**





8.7.3 The details of the engagement process

8.7.3.1 Description of the information provided to the community, landowners, and interested and affected parties

Meeting with the landowner of portion 9 of farm Bankfontein 215 IS was requested but to date we have not received response. Community meetings were held thus far in Komkrans (03 June 2023, follow-up meeting on the 29 July 2023 and Breyten meeting on the 13 July 2023). During a public participation meetings held so far, the following information was provided to the community:

Katma Constructions and Projects is planning to establish mining operations on portion of portion 9 of the farm Bankfontein 215 IS approximately 10.7 km along the existing R36 route north west of Breyten town. The mining operation will run for a period of 10 years depending on the availability of the coal deposits applied for, as per Minerals and Petroleum and Resource Development Act, 2002 (Act 28 of 2002).

Mining method to be used will be open-cast as determined by the shallow depth (50m) of the Coal deposits. The applicant has engaged with the landowner and members of the community during the initiation phase of the operation with regard to positive and negative impacts to be introduced as result of the proposed mining right operation.

8.7.3.2 List of which parties identified in above that were in fact consulted, and which were not consulted.

Table 8-1: Landowners and I&APs of the proposed area have been consulted.

Name of Interested /affected parties	Contact Details	How did the Consultations take place?	What were His/her concerns about the operation?
Mr. Come Butter (Landowner)	Mobile: 073 798 6005 Email: come.butter@gmail.com	Emails were sent and documents were submitted.	Still waiting for comments
Mpumalanga Tourism and Parks Agency (affected party)	Khumbelo Makhuvha (Land advisory unit) Email: Thabile.mnisi@mtpa.co.za	Emails were sent	Still waiting for comments
Msukaligwa Local Municipality	Email:cmakhanye@msukaligwa.gov.za Cnr kerk and Taute Streets Ermelo 2350 017 801 3500	Emails were sent	Still waiting for comments.
Department of Rural Development and Landform (Land claims Commission)	Private Bag x 11305 Nelspruit 1200 Tel :013 755 3499 Email:joy.gumbi@drdlr.gov.za	Document were submitted	Still waiting for comments.
Department of Water and Sanitation	Private bag x 11259 Nelspruit 1200 MatsiD@dws.gov.za	Document were submitted	Still waiting for comments

Inkomati-Usuthu Catchment Management Agency	Dlaminim@iucma.co.za	Emails were sent	Still waiting for comments
SANRAL	NRstat.nra.co.za	Emails were sent	Still waiting for comments
SAHRA	www.sahris.org.za	Documents were uploaded	Still waiting for comments
Gert Sibande District	Lindokuhlem@gsibande.gov.za	Emails were sent	Still waiting for comments
ESKOM		Emails were sent	Still waiting for comments
Department of Labour		Emails were sent	Still waiting for comments
Department of Agriculture, Fisheries and Forestry		Emails were sent	Still waiting for comments
Department of Environmental Affairs		Emails were sent	Still waiting for comments
Department of Health		Emails were sent	Still waiting for comments
South African Police Service		Emails were sent	Still waiting for comments
Breyten Community	Breyten Community Hall	Meeting	
Komkrans Community	Komkrans Sports Ground Kwezankwebu Creche	Meeting	

8.7.3.3 List of views raised by consulted parties regarding the existing cultural, socio-economic or biophysical environment.

(a) Socio-economic

Interested and Affected parties have been consulted on the matter through meetings and the following issues were raised:

- Most people in the community have qualifications yet no experience and most companies need experience when hiring, so the community is more concerned if the applicant will provide skills and training to qualified personnel.
- During prospecting/ mining activities, land use will be disturbed (hunters, farmers and elderly people) directly affected so will the applicant engage with them and come up with mitigation measures to not affect the above-mentioned.
- None of these projects have water-use license yet there's work taking place. This is affecting us as the community, because they use our water supply.

(b) Biophysical environment

- The community was concerned that the applicant has consulted and notified all the community members with regard to prospecting/ mining activities and blasting as there have seen machinery and heavy vehicles moving up and down their streets. If there didn't, then proper protocols should be followed.
- The water resources won't be contaminated by the prospecting or mining activities.

8.7.3.4 Confirmation that minutes and records of the consultations are appended.

See attached **Appendix D** for records of consultation.

8.7.3.5 Information regarding objections received.

Currently there are no objections from interested and affected parties.

8.7.3.6 The manner in which the issues raised were addressed

The interested and affected parties together with landowners and lawful occupiers were given an opportunity to raise their concerns through meetings, emails, site notices, newspaper advertisement and telephonically and were addressed accordingly.

8.8 SUMMARY OF ISSUES RAISED BY I&APS

Table 7-2 below depict the table summarising comments and issues raised, and reaction to those responses.

Table 8-2: Summary of issues raised by I&APs

Interested and Affected parties List the names of persons consulted in this column Mark with an X where who must be consulted were in fact consulted		Date comments received	Issues raised	Eap 's response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues or responses were incorporated
Affected parties					
Landowner/s	X				
Mr Come Butter	X				Appendix D
Lawful occupier/s of the land					
N/A					
Landowners or lawful occupiers of adjacent properties					
Mabembefarm (082 464 5421) Themba Sibeko(079 968 0395) BhekiMahlangu (079 4855315) Iquecious Zwane(0792811159)	X				

Bongani Nkosi (0721427176)					
Municipal Councillor					
Mr Zulu	X		Stated that there are pleased that the EAP has notified regarding the proposed mining right application and would like to be updated of every process the applicant undertakes and can also involve them in organizing public participation meeting with the Breyten community.	The EAP gave thanks to the councillors for agreeing to meet with them in such short notice and will ensure that there are updated in every step of the way.	
Municipality					
Msukaligwa Local Municipality	X		Still waiting for response		Appendix D
Organ of state (Responsible for infrastructure that may be affected Roads department, Eskom, Telkom, DWA	N/ A				
SANRAL			Still waiting for response		
SAHRA			Still waiting for response		
ESKOM			Still waiting for response		
IUCMA			Still waiting for response		
Communities					
Komkrans and Breyten			Minutes and attendance register attached		Appendix D
Department of Land Affairs					

Department of Rural Development and land reform (Office of the Land claims Commissioner)	X		We are still waiting for response		Appendix D
Traditional Leaders					
Embhuleni Tribal Council for Komkrans	X		<p>Komkrans and surrounding farms are low laying areas; hence the impact by the projects to them is going to be immense.</p> <p>Your assessment report should show how the following will be mitigated: Water Management, impact on water resources, impacts on fauna, Avifauna and flora, loss of current land use capability and loss of topsoil, Noise and generation of dust (Air pollution)</p>	<p>The EAP acknowledged receipt of the comments.</p> <p>Mitigation of the mentioned problems were provided on page 56-64 and 79-84 of the report</p>	Appendix D
Department of Environmental Affairs					
Gert Sibande District Environmental Impact Management	X		Still waiting for responses		Appendix D

Other Competent authorities affected	X				
					Appendix D
Other affected parties					
Mpumalanga Tourism and Parks Agency Khumbelo Makhuvha (Land Advisory Unit)	X		Still waiting for responses		Appendix D
			Still waiting for responses		Appendix D
Interested parties	N/A				
Lucky Groening (Secretary of Kuhle Ngathi Structure) kromkrans Committee)			<p>The interested party gave thanks for being notified in terms of the mining right application.</p> <p>Stated that he is a secretary representing people who are looking for employment and businesses as well as socially. There would like to participate in public consultation as affected parties. Kindly provide with more information.</p> <p>Also stated that there have noticed a yellow</p>	<p>The EAP acknowledged receipt of the mail received and have registered the Kuhle Ngathi Structure as one of the affected party and look forward to notify them of public meetings to be arranged in order to get inputs, issues raised, and comments from the community members.</p> <p>The EAP also forwarded the relevant documentations and</p>	

			plant machinery and we are not sure if it belongs to TPR Mining.	declared that the yellow machinery does not belong to TPR Mining instead it was also identified along the way to the site for inspection.	
Nduduzo Sibiya (Inhlelentfo Economic Transformation forum)			Requested to be registered as an IAP and be invited to meetings	The EAP acknowledged the mail and was invited to the first meeting and follow-up meeting.	Appendix D

8.9 ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

8.9.1 Baseline environment

8.9.1.1 Type of environmental affected by the proposed activity

(a) Topography and Soil pattern

The site is characterised by undulating slopes with multiple land-uses being practised on around the farm area. The area dominated by veld type after (Acocks 1988) north eastern sandy Highveld which stretches further on adjacent farm portions over to Breyten town. There is a combination of soil pattern, the classification of which is used to determine the potential agricultural value of soils in the area. Currently the farm is utilized for grazing.



Figure 8-1: The view of the site terrain and vegetation that is currently existing within the proposed mining area

(b) Hydrology

The average annual rainfall in this area is approximately 750mm, most of which occurs as heavy, isolated thunder showers between October and March. Storm water runoff is generally in the form of sheetwash, which flows towards the nearest local drainage course and the adjacent Vaal river and Douglas dam.

The permanent groundwater consists of deeply weathered sandstone and siltstone in the area and will decompose to form residual soils with a clay-silt and sand texture and may extend to depths of up to 20m. The sandstone which occur in the area are generally coarsely bedded and fractured and are also closely jointed, and it is within the structural fabric of the rock that a secondary aquifer of limited extent will be developed. These aquifers are usually restricted by the depth of weathering, the presence of aquitards, such as intruded dykes and the thickness of the geological formation.

(c) Climate

The project area is situated in a high altitude region characterized by regular summer rains but where the winters are cool, dry and windy, resulting in conditions ideal for the drying of the environment and the wind entrainment of any loose material. Areas most affected by dust from the mine will generally lie to the west and northwest of the mine when synoptic level flow dominates while local meteorological conditions appear to favour dispersion to the south.

The area is characterised by low temperatures with mean annual temperatures of 14.4 °C and mean annual maximum temperatures of 23.1°C. Temperatures drop to a mean annual minimum temperatures of 12°C with extreme minimum of -8.1°C, this indicates that the area is gradually considered to be cold. However at the same temperatures can rise to extreme of about 32°C in summer seasons. Similarly while temperature drop to a low -8°C, the area still receives mean annual precipitation of 706 mm.

(d) Geology and Mineral Potential

All or part of the Ermelo, Witbank, Highveld, Eastern Transvaal, South Rand and KaNgwane coalfields are included in Mpumalanga Province. A number of significant coal seams possessing diverse characteristics are present and have a variety of potential markets in the power generation, export, domestic, metallurgical, liquefaction and chemical sectors. This is the most important coal-producing area in South Africa and supports some 65 collieries working several seams in the Ecca coal measures. In this case, Breyten falls under the Ermelo Coalfields.

The Ermelo coalfield contains a large and very important resource of high yield export quality steam coal, especially in the No. 4 seam. In the adjacent Highveld coalfield the equivalent or No. 2 seam contains low-grade bituminous coal which is better suited to synfuel and power production. As a rule, close to the surface the coal seams are highly weathered to dross and are not amenable to coal recovery from small-scale surface pig-rooting. In some cases, accidents of topography may permit the recovery of limited quantities of coal from low-cost adit mining, but generally the scope for small-scale operations is restricted to the value that may be recovered from the hand sorting of waste tips at operating collieries.

Geohydrology

Typically, five distinct aquifer types: – Basement (fractured Achaean-Proterozoic igneous/metamorphic) – Karst/ dolomite (dissolution) – Karoo sediments (sandstone and coal beds) fractured and influenced by dykes) – Porous (intergranular Quaternary alluvial, Aeolian and other surficial unconsolidated deposits)

The study area falls under the soft to medium hardrock (e.g. Shale and siltstone, occasional sandstone beds and coal beds of the Karoo sediment). For effective borehole yields, the boreholes must target the fracture zones in this area.

It is understood that majority groundwater is stored within the sedimentary unit within South Africa, however, there are secondary aquifers known as basement rocks which also comprise

groundwater. According to Dippenaar et al. (2009), most of the basement complexes can be identified at the surface along the northern portions of South Africa. The basement rocks refer to bedrock such as granites, granitoids, migmatites, etc. According to Abiye et al. (2011), groundwater supply in the northern portions of South Africa is typically sourced from either crystalline aquifers (basement) or alluvial aquifers.

Air Quality

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

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

Noise

In summary the results of the noise baseline indicated that existing sources of noise in the Project area are: • Natural sounds of the bush; • Noise of existing mining activities near to the site; and • Noise from roads (incl. domestic traffic as well as trucks carrying coal from the mines).¹¹ Noise and vibration are not monitored at the proposed site as it is not currently being mined and used for agricultural activities. As with air quality, the surrounding mines and industries impact on noise levels from vehicular and mechanical equipment. The current ambient noise levels are generally comparable with the levels associated with farming activities. Due to numerous daytime sources including traffic on the adjacent national roads, haul roads and mining related blasting activities, the noise and vibration levels are most

prominent during the daytime and the noise emitted during these activities is occasionally intrusive to the wellbeing of the community. In the proposed coal mining area, the noise will be coming from vehicles moving to and from the site, the Carolina road (R38) construction of houses (Kwazamokuhle Ext 8) and blasting that will occur when extracting deeper resource

(e) Fauna and Flora

The majority of the project area is dominated by Eastern Highveld Grassland. This vegetation unit is rated Endangered and it has been found that 72% of the Eastern Highveld Grassland is under medium pressure from mining developments with only approximately 0.8% of these grasslands included under statutory reserves.

Screening Tool Report Results

A screening tool report is generated from the National Web Based Environmental Screening Tool in order to assess the environmental sensitive areas in the proposed site and provides a motivation for the various specialist studies identified to be conducted. It also discusses whether the specialist studies forming part of this project are required to comply with the above Protocol. A site sensitivity is conducted through site inspection by the EAP in order to verify the current use of the proposed site for development as well as the site's environmental sensitivity, in accordance with the DEA Screening Tool (Appendix F), to determine the need for specialist inputs in relation to the themes.

According to the Screening Tool Report (Appendix F), the proposed site is located within a very high sensitivity for aquatic biodiversity theme, paleontology theme and terrestrial biodiversity theme, a high sensitivity area of agriculture theme, medium sensitivity of animal species theme and plant species theme and low sensitivity of Archaeological and cultural heritage theme, civil aviation theme and Defence theme.

Based on the screening tool report result and site inspection, the EAP concluded that it is important to conduct an ecological study as the site mostly comprises of black wattle trees and different vegetation, aquatic study, as there is a water resources within the mining right boundary that covers approximately 10Ha and heritage study as the landowner has confirmed that there are a few graves within the proposed site hence, specialist inputs were deemed necessary to be undertaken in order to consider their recommendations and come up with mitigation measures.

8.9.1.2 Description of the current land uses

The portion of portion 9 of farm Bankfontein 215 IS located approximately 10.7 km north west of Breyten town along the R36 road. The land is currently being used for crop and livestock farming and there is a small concentration of habitation scattered around the farm. The current land-use activities will be avoided during the operation phase. The applicant intends to prevent impacts on the abandoned pits, dry watercourses, graveyards and seasonal farming as we have assessed and identified species and habitats that will be potentially impacted by the proposed activities as shown on the site pictures in Appendix D. The existing grass is utilized by livestock for grazing and habitation.



Figure 8-2: The proposed mining area is dominated by grazing site.

8.9.1.3 Description of specific environmental features and infrastructure on the site

The proposed mining area is surrounded by cultivated farmlands, grazing sites, breyten and komkrans resident that are located approximately 7 km from the proposed site.. The area also

enjoys access from the R36 road approximately 10.7 km north-west of the proposed site, which will be used access road for transporting the product to the end user.

8.9.1.4 Environmental and Current land use Map

Refer to Appendix A and B of this Report for the Environmental and Current Land Use Map

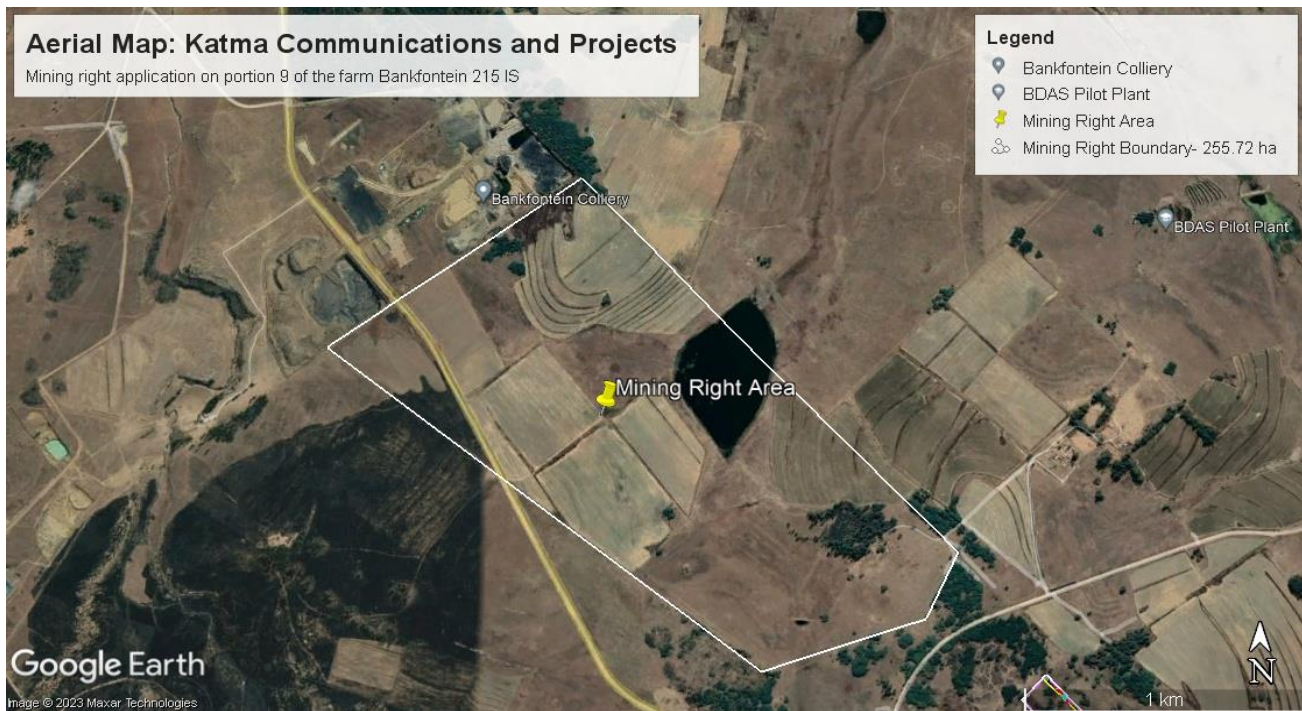


Figure 8.3: Aerial Map

8.10 Impacts and risks identified including the nature, significance, consequences, extent, duration and probability of the impacts, including the degree of these impacts

8.10.1 Assessment of impacts and identified risk of open-cast mining activities

Table 8-1 overleaf shows a list of the potential impact 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 consultation with affected parties together with the significance, probability, and duration of the impacts, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated.

Table 8-8-3: Impact Assessment

Activity	Environmental Impact	Environmental aspect	Measures to prevent, mitigate, minimize or manage the impacts
CONSTRUCTION PHASE			
Access road	Noise	Movement of vehicles during the creation of road	Equipment and vehicles equipped with standard exhaust systems which minimize the amount of emissions Mining-related machine and vehicles must be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installing exhaust mufflers. Noisy machinery to be used during daylight hours preferably. Grievance mechanism to record complaints should be kept on site and investigated. Noise monitoring to take place.
	Air	Dust caused by Clearance of vegetation	Dust suppression measures such as spraying with water Dust monitoring must be undertaken in accordance to monitoring program
	Water	Disturb the smooth flow of surface water	Water monitoring program will take place and management of water will be conducted and contained within the mining area
	Soil	Clearance of vegetation	Managed and monitored

Mobile toilets	Noise	None	None
	Air	None	None
	Water	None	None
	Soil	None	None
Construction of dirty water trench	Noise	To prevent the noise emanating from construction machinery from impacting on the sensitive receptors	Mining-related machine and vehicles must be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installing exhaust mufflers. Noisy machinery to be used during daylight hours preferably. Grievance mechanism to record complaints should be kept on site and investigated. Noise monitoring to take place.
	Air	Dust Clearance of vegetation and topsoil	Dust suppression measures such as spraying with water

	Water	<p>Disturb smooth flow of surface water</p> <p>To protect existing users of surface water impacts on water quality</p>	<p>Area of disturbance must be in line with the mine plan provided to minimize the loss of catchment area</p> <p>The area excavated should have berms that are vegetated in order to separate dirty and clean water systems, and an erosion control measure</p>
	Soil	<p>Clearance of vegetation and topsoil</p>	<p>The soil will be managed accordingly with the mining area</p>
Construction of Pollution control dams	Noise	<p>To prevent the noise emanating from construction machinery from impacting on the sensitive receptors</p>	<p>Mining-related machine and vehicles must be serviced on a regular basis to ensure noise suppression mechanisms are effective e.g. installing exhaust mufflers. Noisy machinery to be used during daylight hours preferably. Grievance mechanism to record complaints should be kept on site and investigated. Noise monitoring to take place.</p>
	Air	<p>Dust</p> <p>Clearance of vegetation</p>	

	Water	Prevent contamination of surface and ground water	The area excavated should have berms that are vegetated in order to separate dirty and clean water systems, and an erosion control measure
	Soil	Clearance of vegetation and topsoil	The soil will be managed accordingly within the mining area
Waste facilities	Noise	None	None
	Air	None	None
	Water	Prevent contamination of surface water by disposing on the wet land	Storage facility with bonding must be constructed Debris will be removed and disposed off in approved sites
	Soil	None	Place waste receptacles at strategic points Monitor housekeeping behaviour and insist on corrective action Waste will be disposed off in approved sit

OPERATIONAL PHASE			
Preparation of mining area (Box cut, strip 1,2)	Noise	Prevent the noise emanating from the construction machinery from impacting on the sensitive receptors	The operation will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislation regarding noise control. Employees will be equipped with ear plugs and other protective gear. All vehicles will be equipped with silencers and maintained in a roadworthy condition
	Air	Dust	Dust suppression measures such as spraying with water
	Water	Land degradation, land-use and capability	Siltation of surface water resources will be minimized by road wetting. The areas excavated should be have berms that are vegetated in order to separate dirty and clean water systems while enhancing the maximization of clean and minimization of dirty areas and water systems respectively, and as an erosion control measure. The stockpiles must be vegetated to prevent erosion and subsequent siltation of clean and dirty water streams as well as surface water resources. Upslope diversion and down slope silt containment structures will be constructed. Monitoring of surface water resource pre-mining and during construction must be implemented in order to be used during operation, decommissioning and post-closure as per the

			monitoring programme
	Soil	Limit the soil disturbance outside the mining area	Movement of vehicles will be restricted to designated areas.
Waste facility	Noise	None	None
	Air	None	None
	Water	Water pollution	Container will be placed on a designated area, waste will be disposed in approved site
	Soil	None	Place waste receptacles at strategic points Monitor housekeeping behavior and insist on corrective action Waste will be disposed off in approved site
Overburden, stockpile topsoil, ROM	Noise	To prevent the noise emanating from the construction machinery from impacting on the sensitive receptors	A noise barrier in the form of a berm should be constructed on proposed area of disturbance (as per current mine plan) so that it is situated between the main noise source and sensitive noise receptor, as close to the noise sources as possible. The berm will help with the

			attenuation of noise produced by the mining activities
	Air	Reduction of dust fallout levels and particulate matter	Vegetation needs to be encouraged on all soil stockpiles to reduce dust levels.
	Water	Contamination	Prevent soil erosion and keep water channel clean, monitor groundwater Siltation of surface water resources will be minimized by road wetting. The areas excavated should be have berms that are vegetated in order to separate dirty and clean water systems while enhancing the maximization of clean and minimization of dirty areas and water systems respectively, and as an erosion control measure
	Soil	Reduction of area of soil compaction	Ensure all activities occur within designated areas. Compile accurate soil map showing classification, thickness, fertility status. Remove and stockpile topsoil in berms or heaps less than 2 – 3 m high. Do not use as storm water control feature. Vegetate with diverse grass mix to control erosion. Wetland soils should only be stockpiled at heights of 1 – 2 m. Subsoil stockpiles can be bigger but must be protected against erosion similar to topsoil stockpile
Loading and hauling of material	Noise	Movement of vehicles	
	Air	Dust	Dust suppression by watering
	Water	Water pollution	Operate outside 100 m distance from stream or any water body

			Control and manage storm water Prevent soil erosion and keep water channel clean, monitor groundwater
	Soil	Reduction of area characterised by soil compaction	All vehicles must remain on haul roads and within demarcated area
DECOMMISSIONING AND CLOSURE PHASE			
Activity: De-establishment / removal of infrastructure	Noise	Movement of vehicles	The operation will comply with the provisions of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations as well as other applicable legislation regarding noise control Employees will be equipped with ear plugs and other protective gear. All vehicles will be equipped with silencers and maintained in a roadworthy condition
POST CLOSURE			
Ground water monitoring	Water(ground water	Contamination of ground water	Existing boreholes will be utilized to monitor the quality of the underground two years after closed Sealing of the pit at mine closure to prevent decant at pit, allow groundwater levels to recover and baseflow to be reinstated. Water will then be discharged via the natural/present ways (e.g. springs). The water quality of the springs must be monitored; and The monitoring programme and data should be reviewed

			<p>by an independent hydrogeologist annually and routinely amended if necessary; Investigate the vertical profile of hydraulic conductivities specifically in relation to the coal seams in shallow and deep coal seam areas including coal seam, seam roof and -floor; Carry out a recharge investigation to quantify specifically (i) stream loss on high ground and (ii) direct infiltration; Conduct further geochemical testing, including testing of country rock and field testing, to provide more confidence in the current results which are not statistically robust. Subject to the results of these tests, it is recommended that the mine residue management strategy be reviewed, when necessary.</p>
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8.11 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of environmental impacts and risks

8.11.1 Definitions and concepts:

(a) Environmental significance

The concept of significance is at the core of impact identification, evaluation and decision-making. The concept remains largely undefined and there is no international consensus on a single definition. The following common elements are recognized from the various interpretations:

-
- Environmental significance is a value judgment

The degree of environmental significance depends on the nature of the impact

- The importance is rated in terms of both biophysical and socio-economic values

Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. Intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEA (2002) Impact Significance, Integrated Environmental Management, Information Series 5)

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of particular consequences being realized (Environment Australia (1999) Environmental Risk Management).

(b) Impact Description

It provides the assessment impacts related to mining for the operational phase. The potential geological impact is the collapse of overlaying strata and creation of voids due to the historical high extraction of open-cast mining. Furthermore, due to the extraction of the aggregate seam and the removal of associated geological material for the open –cast passages and through fare, voids are created. This results in a permanent effect on geology.

The predicted surface subsidence within historical areas of high extraction will vary between 0.8 and 1.5m. Undisturbed strata or bord and pillar mining areas area highly unlikely to experience subsidence. As in the case of geology, topography is also permanently changed by open-cast high extraction mining. The general landform of the areas within which high extraction mining has taken place will not change from the existing gently sloping landform. In the short term some localised changes to drainage patterns will occur, however on a micro

level topography will be punctuated by surface undulations or humps, surface cracking and the formation of sub-surface cracks.

(c) Impact

The positive or negative effects on human well-being and / or the environment.

(d) Consequence

The intermediate or Final outcome of an event or situation or it is the result, on the environment, of an event.

(e) Likelihood

A qualitative term covering both probability and frequency.

(f) Frequency

The number of occurrences of defined event in a given time or rate.

(g) Probability

The likelihood of a specific outcome measured by the ratio of a specific outcome to the total number of possible outcomes.

(h) Environment

Surrounding in which an organization operates, including air, water, land, natural, resources, flora, fauna, humans and their interrelation (ISO 14001, 1996).

(i) Methodology

The environmental significance assessment methodology is based on the following determination:

- Environmental Significance = Overall Consequences x Overall Likelihood

(j) Determination of Overall Consequence

Consequence analysis is a mixture of quantitative and qualitative information and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: Severity/Intensity, Duration and Extent/Spatial Scale. Each factor is assigned a rating of 1 to 5, as described in the tables below.

(k) Determination of Severity / Intensity

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

Table 8-3 will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 8-8-4: Rating of Severity

Type of criteria	Rating				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / non-harmful	Small / potentially harmful	Significant / harmful	Great / harmful	Disastrous / Extremely harmful
Social/community response	Acceptable/I&AP satisfied	Slightly tolerable/possible objections	Intolerable/sporadic complaints	Unacceptable Widespread complaints	Totally unacceptable/possible legal actions
Irreversibility	Very low cost to mitigate/high potential to mitigate impacts to level of insignificance/easily reversible	Low cost to mitigate	Substantial cost to mitigate/potential to mitigate impacts/potential to reverse impacts	High cost to mitigate	Prohibitive cost to mitigate/little or no mechanism to mitigate impact irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change deterioration or disturbance	Moderate change/deterioration or disturbance	Significant change/deterioration or disturbance	Very significant change/deterioration or disturbance	Disastrous change/deterioration or disturbance

(I) Determination of Likelihood:

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5 as described below and in tables 8-4 and 8-5.

(m) Determination of frequency

Frequency refers to how often the specific activity related to the event, aspect or impact is undertaken.

Rating of Frequency:

Table 8-8-5: Frequency rating

Rating	Description
1	Once a year or once/more during operation
2	Once/more in 6 months
3	Once/more a month
4	Once/more a week
5	Daily

(n) Determination of probability

Probability refers to how often the activity or aspect has an impact on the environment.

Rating of probability:

Table 8-8-6: Probability rating

Rating	Description
1	Almost never/almost impossible
2	Very seldom/highly unlikely
3	Infrequent/unlikely/seldom
4	Often/regularly/likely/possible
5	Daily/highly likely/definitely

(o) Overall likelihood

Overall likelihood is calculated by adding the factors determined above and summarized below, and then dividing the sum by 2.

Table 8-8-7: Example of calculating overall likelihood

Consequence	Rating
Frequency	Example 4
Probability	Example 2
SUBTOTAL	6
TOTAL LIKELIHOOD (Subtotal divided by 2)	3

Determination of overall environmental significance.

8.12 Potential impact of each main activity in each phase, and corresponding significance assessment

(a) Stripping and stockpiling of topsoil:

Visual intrusion associated with the establishment of the mining area.

Rating: Low Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	4	1	2.5	5

Dust nuisance caused by the disturbance of soil

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	3	2	2.6	4	3	3.5	9.1

Noise nuisance caused by machinery stripping and stockpiling the topsoil

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	2	2.3	4	3	3.5	8.1

Infestation of the topsoil heaps by weeds or invader plants

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	1	2.3	4	2	3	6.9

Loss of topsoil due to incorrect storm water management

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	3	3.5	9.1

Contamination of area with hydrocarbons or hazardous waste material

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	3	1	2.3	4	3	3.5	8.1

(b) Excavations:

Visual intrusion associated with the excavation activities

Rating: Medium-High

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	5	2	3	5	5	5	15

Dust nuisance due to excavation activities

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	5	4	4.5	13.5

Noise nuisance generated by excavation equipment

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	2	2.6	4	4	4	10.4

Contamination of surface or groundwater due to effluent runoff from excavation area

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	4	3	3.5	10.5

Unsafe working conditions for employees

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		

3	4	1	2.6	3	3	2	5.2
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Negative impact on the fauna and flora of the area

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	5	3	4	10.4

Potential damage or cultural or heritage aspects

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	1	1	1	1.6

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	3	3.5	9.1

(c) Stockpiling and Transporting of material

Visual intrusion the associated with the stockpiled material and vehicles transporting the material

Rating: Medium-high

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	5	5	5	15

Loss of material due to ineffective storm water handling

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	3	3.5	9.1

Weed and invader plant infestation of the area due to the disturbance of the soil

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	2	3	7.8

Dust nuisance from stockpiled material and vehicles transporting the material

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	4	5	4.5	13.5

Degradation of access roads

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	4	4	4	12

Noise nuisance caused by vehicles

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	2	2.6	4	5	4.5	11.7

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	3	3.5	9.1

Weed and invader plant infestation of the area to the disturbance of the soil

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	1	2.6	4	2	3	7.8

Dust nuisance from stockpiled material and vehicles transporting the material

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	4	5	4.5	13.5

(d) Sloping and Landscaping:

Visual intrusion associated with sloping and landscaping activities

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	2	2	4	1	2.5	5

Soil erosion

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	5	1	3	4	2	3	9

Health and safety risk posed by un-sloped areas

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
4	5	1	3.3	4	5	4.5	14.9

Dust nuisance caused during sloping and landscaping activities

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	4	1	2.5	3.3

Noise nuisance caused by machinery

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	4	1	2.5	3.3

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	4	1	2.5	3.3

(e) Replacing the Topsoil and Re-Vegetation of the disturbed area

Visual intrusion associated with the replacing of the topsoil and re-vegetation of the mining area.

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	1	1.5	2

Loss of reinstated topsoil due to the absence of vegetation

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	3	1	2	4

Infestation of the area by weed and invader plants

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	4	2	3	6

8.12.1 Assessment of potential cumulative impacts

The proposed mining activity will entail establishment of a mining area within a natural environment. The disturbance of the natural areas will however be contained within the boundaries of the site.

The cumulative impacts associated with the establishment of the industrial area could be the following:

Additional traffic on the local roads during construction and operational phases.

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	2	2.6	4	4	4	10.4

The influx of people in the area during construction and operational phases

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
1	4	1	2	4	5	4.5	9

Additional water supply to the areas

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
1	4	1	2	5	5	5	10

8.13 THE POSITIVE AND NEGATIVE IMPACTS THAT THE PROPOSED ACTIVITY AND ALTERNATIVES WILL HAVE ON THE ENVIRONMENT AND THE COMMUNITY THAT MAY BE AFFECTED

8.13.1 Positive impacts

The area applied for constitutes numerous mining activities which all apply similar mining method including the mining type. As a result, the mining commence at the shallow areas of the coal deposit and continue with con-current rehabilitation applied at the same time.

Minimal activities are planned on site, which appears that alternatives were not possible. In many cases, the mine design take into consideration the control on the storm water as well as the groundwater which also dictates the mining operation.

8.13.1.1 Economic development

The Project will create an income stream for the business that operates within the proposed farm area and the beneficiaries of the project especially the Msukaligwa local municipality residents as well as those of the municipalities within the Gert Sibande District. Acceleration of infrastructural developments in the area and the other rural under developed areas.

8.14 MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

8.14.1 Proposed mitigation measures to minimize adverse impacts.

8.14.1.1 List of actions, activities, or processes that have sufficiently significant impacts to require mitigation

(a) Stripping and stockpiling of topsoil:

- Visual intrusion associated with the establishment of the mining area.
- Dust nuisance caused by the disturbance of the soil
- Noise nuisance caused by machinery stripping and stockpiling the topsoil
- Infestation of the topsoil by weed or invader plants
- Loss of topsoil due to incorrect storm water management
- Contamination of area with hydrocarbons or hazardous waste materials

(b) Excavations:

- Visual intrusion associated with the excavation activities
- Dust nuisance due to excavation activities
- Noise nuisance generated by excavation equipment

Contamination of surface or groundwater due to effluent runoff from excavation area

- Unsafe working conditions for employees
- Negative impact on the fauna and flora of the area
- Contamination of the area with hydrocarbons or hazardous waste materials

(c) Stockpiling and Transporting of material

- Visual intrusion associated with the stockpiled material and vehicles transporting the material
- Loss of material due to ineffective storm water handling
- Weed and invader plant infestation of the area due to the disturbance of the soil
- Dust nuisance from the stockpiled material and vehicles transporting the materials

- Degradation of access roads
- Noise nuisance caused by vehicles
- Contamination of area with hydrocarbons or hazardous waste materials

Sloping and landscaping

- Visual intrusion associated during stockpiling and landscaping activities
- Soil erosion
- Health and safety risk posed by un-sloped areas
- Dust nuisance caused during sloping and landscaping activities
- Contamination of area with hydrocarbons or hazardous waste materials

Replacing the Topsoil and Re-Vegetating of the disturbed area:

- Visual intrusion associated with the replacing of the topsoil and re-vegetation of the mining area.
- Loss of reinstated topsoil due to the absence of vegetation
- Infestation of the area by weed and invader plants

8.14.1.2 Concomitant list of appropriate technical or management options

(Chosen to modify, remedy, or stop any action, activity or process which will cause significant impacts on the environment, socio-economic conditions and historical and cultural aspects as identified. Attach detail of each technical or management option as appendices)

(a) Visual Mitigation:

- The site is screened by alien trees and the permit holder will need to protect the trees on the road side to mitigate the visual impact.
- The site needs to have a neat appearance and be kept in good condition at all times.
- Upon closure the site needs to be rehabilitated and sloped to ensure that the visual impact on the aesthetic value of the area is kept to a minimum

(b) Dust Handling

- The liberation of dust into the surrounding environment should be effectively controlled using, inter alia, water spraying and /or other dust-allaying agents.

- The site manager should ensure continuous assessments of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.
- Speed on the access roads should be limited to 30km/h to prevent the generation of excess dust.
- Roads must be sprayed with water or an environmentally friendly dust-allying agent that contains no PCB's (e.g DAS products) if dust is generated above acceptable limits.
- All stockpiles should be thoroughly soaked to ensure dust suppression on the site

(c) Noise Handling:

- The applicant should ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours
- All mining vehicles should be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.

(d) Management of weed and invader plants:

- A weed and invader plant control management plan should be implemented at the site to ensure eradication of all listed plants in terms of Conservation of Agricultural Act (Act no 43 of 1327)
- Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
 - "The plants can be uprooted, felled or cut off and can be destroyed completely"
 - The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with directions for the use such as herbicide"
 - The temporary topsoil and overburden stockpiles need to be kept free of weeds

(e) Storm water Handling:

- Storm water should be diverted around the topsoil heaps, stockpile areas and access roads to prevent erosion and loss of material,

- Runoff water should also be diverted around the stockpile areas with trenches and contour structures to prevent erosion of the work areas.
- Mining should be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water Affairs and any other conditions which that department may impose.
- Clean water (rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water system.
- Dirty water must be prevented from spilling or seeping into clean water system
- The storm water management plan must apply for the entire life cycle of the mine and over different hydrological cycles (rainfall patterns)
- The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management plan.

(f) Management of Health and Safety Risks:

- Workers should have access to the correct personal protection equipment (PPE) as required by law
- All operations should comply with the Occupational Health and Safety Act.

(g) Waste Management

- No processing area or waste pile may be established within 100m of the edge of any river channel or other water bodies.
- Any vehicle repairs may only take place within the temporary service bay service bay area and all waste products must be disposed of in a 200 litre closed container/bin found inside the emergency service area.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility
- Spills must be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil by disposing of the at a recognized facility
- Suitable covered receptacles should be available at all times and conveniently placed for the disposal of waste

- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc, should be stored in a container with a closable lid at a collecting point and collected on a regular basis and disposed of at a recognized landfill site. Specific precautions should be taken to prevent refuse from being dumped on or in the vicinity of the mine area. Biodegradable refuse generated should be handled as indicated above.

(h) Management of Access Roads

- Newly constructed access roads (if applicable) must be adequately maintained so as to minimize dust, erosion or undue surface damage.
- Storm water should be diverted around the access roads to prevent erosion,
- Erosion of access road: Vehicular movement must be restricted to existing access routes to prevent crisscrossing of tracks through undisturbed areas.

(i) Topsoil Handling

- Where applicable the first 300m of topsoil should be removed in strips and stored at a demarcated and signposted stockpile area. Stockpiling of topsoil must be done to protect it from erosion, mixing with overburden or other material. The topsoil must be used to cover the rehabilitated area and improve the establishment of natural vegetation.
- The temporary topsoil stockpiles of each removed strip should be kept free of weeds.
- Topsoil stockpiles should be placed on a levelled area and measures should be implemented to safeguard the piles from being washed away in the event of heavy rains/storm water.
- Topsoil heaps should not exceed 2m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.
- Storm and runoff water should be diverted around the stockpile area and access roads to prevent erosion.

(j) Protection of fauna and flora:

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

- A search and rescue exercise should be conducted prior to any mining taking place at the site, to ensure that all protected and or sensitive plants is removed from the mining area.

8.15 Review the significance of the identified impacts.

(After bringing the proposed mitigation measures into consideration)

(a) Stripping and stockpiling of topsoil

Visual intrusion associated with the establishment of the mining area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	1	2	3.2

Dust nuisance caused by the disturbance of the soil

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	2	2.5	3.3

Noise nuisance caused by machinery stripping and stockpiling the overburden

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	2	2.5	3.3

Infestation of the topsoil heaps by weeds or invader plants

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	2	2.5	4

Loss of topsoil due to incorrect storm water management

Rating: Low

			Consequence			Likelihood	Significance

Severity	Duration	Extend	Consequence	Probability	Frequency	Likelihood	Significance
3	1	1	1.6	2	1	1.5	2.4

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low

Severity	Duration	Extend	Consequence	Probability	Frequency	Likelihood	Significance
3	1	1	1.6	3	2	2.5	4

(a) Excavations:

Visual intrusion associated with the excavation activities

Rating: Medium

Severity	Duration	Extend	Consequence	Probability	Frequency	Likelihood	Significance
2	4	1	2.3	4	5	4.5	10.4

Dust nuisance due to excavation activities

Rating: Low

Severity	Duration	Extend	Consequence	Probability	Frequency	Likelihood	Significance
2	2	1	1.6	3	2	2.5	4

Noise nuisance generated by excavation equipment

Rating: Low-Medium

Severity	Duration	Extend	Consequence	Probability	Frequency	Likelihood	Significance
2	4	1	2.3	2	3	2.5	5.8

Contamination of surface or groundwater due to effluent runoff from excavation area

Rating: Low

Severity	Duration	Extend	Consequence	Probability	Frequency	Likelihood	Significance
3	1	2	2	2	1	1.5	3

Unsafe working conditions for employees

Rating: Low

Severity	Duration	Extend	Consequence	Probability	Frequency	Likelihood	Significance

3	1	1	1.6	2	1	1.5	2.4
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Negative impact on the fauna and flora of the area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	2	2	2.6

Potential damage to cultural or heritage aspects

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	3	2	2.5	4

(b) Stockpiling and Transporting of Material

Visual intrusion associated with the stockpiled material and vehicles transporting the material

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	3	1	2	4	5	4.5	9

Los of material due to ineffective storm water handling

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	2	1	1.5	2.4

Weed and invader plant infestation of the area due to the disturbance of the soil

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	2	2.5	4

Dust nuisance from stockpiled material and vehicles transporting the material

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		

2	1	1	1.3	2	2	2	2.6
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Degradation of access roads

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	2	1.6	3	2	2.5	4

Noise nuisance caused by vehicles

Rating: Low-Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	4	1	2.3	3	3	3	6.9

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	1	1	1.6	3	2	2.5	4

(c) Sloping and landscaping

Visual intrusion associated with sloping and landscaping activities

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
1	2	1	1.3	2	1	1.5	2.4

Soil erosion

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	1	1.5	2

Health and safety risk posed by un-sloped areas

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		

2	3	1	2	2	1	1.5	3
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Dust nuisance caused during sloping and landscaping activities

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	1	2	2.6

Noise nuisance caused by machinery

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	4	1	2.5	3.3

Contamination of area with hydrocarbons or hazardous waste material

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	1	2	2.6

(d) Replacing the Topsoil and Re-Vegetation of the disturbed area:

Visual intrusion associated with the replacing of the topsoil and re-vegetation of the mining area

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	2	1	1.5	2

Loss of reinstated topsoil due to the absence of vegetation

Rating: Low

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
2	2	1	1.6	3	1	2	3.2

Infestation of the area by weed and invader plants

Rating: Low

			Consequence			Likelihood	Significance
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Severity	Duration	Extend		Probability	Frequency		
2	1	1	1.3	3	2	2.5	3.3

All impacts are deemed to be of low significance due to the establishment of the proposed mining area in a formerly disturbed area. The above mentioned mitigation measures will however be implemented to ensure that the activity is managed to have the lowest possible impact on the surrounding environment. Removal of vegetation during the operation can also expose land to erosion, particularly during the rainy season. Given proper mitigation this is a short term impact of low – medium significance.

8.16 Motivation where no alternative sites were considered

The mining (opencast) methods to be used will minimize potential impacts to the preferred site. Although the applicant has applied for a 250 Ha area, it is only the specified excavated points that will be disturbed. The excavation methods to be used will provide reduction of spillages.

8.17 Statement motivating the alternative development location within the overall site

The geology of the Bankfontein 215 IS area comprises sedimentary lithologies of the coal-bearing Ermelo coalfields. These lithological units consist of shale, shaly sandstone, grit, sandstone, conglomerate and coal. The sequence was laid down on a highly irregular basement resulting in great variations in thickness in the stratigraphic units.

9. DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS, AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE.

The type of mining method to be used that will be applied for is opencast mining as such, there is minimal expectations of impacts for the proposed activity on the preferred site. The following steps best describes the process:

Risk Classification

The risks associated with the mining were assessed and ranked according to their environmental significance. The ranking process coded each activity as high, moderate or low risk in accordance with the following process:

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The activities were assessed against two criteria: the likelihood of environmental harm occurring and the level of the environmental impacts.

The likelihood of environmental impact was determined by assessing the following:

- Past environmental performance
- Current environmental performance
- Potential contributing factors

The level of environmental impact was assessed by considering factors such as the quantity and toxicity of the material and the sensitivity of the receiving environment.

Environmental Non-Compliance Matrix (Compliance colour coding)

Level of Non-Compliance	Certain	Likely	Less Likely
Moderate - High			
Low - Moderate			
Compliant			

9.1 Assessment of each identified significant impact and risks

Table 9-1: Assessment of each identified significant impact and risks

Name of Activity	Potential impact	Aspects affected	Phase	Significance	Mitigation type	Significance (if mitigated)
Site Clearance, removal of topsoil, initial strip	Dust generation	Air quality	Construction phase	Minimal negative impact	Dust suppression	Negligible negative
	Loss of topsoil	Soils	Construction phase	Minimal negative impact	Soil stripping	Negligible negative
	Loss of fauna & flora	Fauna & flora	Construction phase	Minimal negative impact	Limited infrastructure footprint	Negligible negative
	Sedimentation of wetlands	Wetlands	Construction phase Operational phase	Minimal negative impact	Buffer zones	Negligible negative
	Sedimentation & contamination of surface watercourses	Surface water	Operational phase	Minimal negative impact	Limited infrastructure footprint	Negligible negative
	Groundwater contamination	Groundwater	Operational phase	Minimal negative impact	Avoidance and spillage attention	Negligible negative
	Noise generation	Noise	Decommission phase/closure phase	Minimal negative impact	Adhering to operating hours	Negligible negative

Establishment of Box cut, strip 1,2	Soil compaction and erosion	Soils	Operational phase	Minimal impact	negative	Vegetation, restrict access	Negligible negative
	Sedimentation of wetlands	Wetlands	Operational phase	Minimal impact	negative	Buffer zones	Negligible negative
	Contamination of groundwater	Groundwater	Operational phase	Minimal impact	negative	Consent from landowners from water usage	Negligible negative
Rehabilitation and closure		Traffic (transport of loading trucks)	Operational phase	Minimal impact	negative	Establishment of speed humps,	Negligible negative
	Sedimentation of surface watercourses	Surface water	Decommission phase	Minimal impact	negative	Rehabilitation of sumps	Negligible negative
	Soil compaction & erosion	Soils	Decommission phase	Minimal impact	negative	Backfilling and topsoil levelling	Negligible negative
	Dust generation from trucks	Air quality	Decommission phase	Minimal impact	negative	Dust management plan, vegetation	Negligible negative

10. SUMMARY OF SPECIALISTS REPORTS

Table 10-1: Summary of Specialists Report

List of studies undertaken	Recommendations of specialists reports	Specialists recommendations that have been included in the EIA report	Reference to applicable sections where specialists recommendation have been included in the EIA report
Soil Impact Assessment	Not applicable	X	Individual specialists report was not conducted
Fauna & flora	any activities or edge effects associated with the proposed project or infrastructure are likely to affect wetlands, it must be ensured that the disturbance	X	

	<p>footprint is minimized and that the duration of disturbance is limited. Connectivity of the wetland features in the systems need to be maintained in order to ensure linear protection of water quality within these systems as well as ensuring the continuity of the habitats and resources. The transformed habitat unit is considered to be of very low ecological sensitivity, and any activities situated in these areas, provided that they are implemented responsibly and the mitigation measures contained in this report are adhered to, are expected to have an insignificant impact on the receiving environment</p>		
<p>Wetlands Impact Assessment</p>	<p>the wetland system has been subjected to continuing anthropogenic activities. The ecological significance of the wetland system is moderate but may contribute to the local footprint by providing foraging and breeding habitats for migratory and seasonal species. The proposed development is likely to have moderate to high impacts on the wetland system if these wetlands are not protected. A 100m buffer around the wetlands shall be a barrier to prevent the undesired activities. All indirect and direct</p>	<p>X</p>	

	<p>impacts on the wetland shall be managed accordingly to allow a natural flow of surface or/and groundwater into the wetland that will maintain its current status. Considering all the gathered information, it is recommended that stormwater management plan and a rehabilitation plan which will include erosion control be developed to respond to any impact caused.</p>		
Groundwater impact assessment	Underway	X	Specialist report was not conducted.
Heritage impact assessment	<p>• No structures older than 60 years, graves or any palaeontological remains were identified. The structures that are older than 60 years have already been demolished long ago as explained in the survey observation. • No heritage resources as described under Section 3 of the National Heritage Resource Act (25 of 1999), as well as in the literature cited were identified. • Development will go ahead once the graves that exist to the south of the prospecting site have been identified and a decision based on and complies with the specifications of the National Heritage Resource Act (25 of 1999) as amended has been taken. 21 It should be kept in mind</p>		

	<p>that archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal materials be revealed on the sites during construction activities, such activities should be halted, and a cultural/archaeological heritage specialist notified in order for an investigation and evaluation of the finds to take place</p>		
<p>Blasting Impact Assessment</p>	<p>All overburden blasting that occurs closer than 1200 m from any crops should be designed to reduce the charge mass per delay and thus limit vibration to below 7.0 mm/s in these areas where people live. This can be done by reducing hole diameters or introducing multiple charge decks into each hole or a combination of these two. 2. Holes will need to be fired one at a time during a blast at distances closer than 2000 m from any third party structures. This is best achieved using accurate detonators. The blasting designs of an experienced explosives engineer to control the vibration will have to be based on seismic characterization of the area during the early stages of mining in the north. The explosives contractor will be able to assist in carrying out this work, which will provide site-specific attenuation</p>		

	<p>curves and signature traces. These tools are necessary for effective blast designs to control vibration.</p>		
Rehabilitation plan	underway		
Traffic Impact Assessment	underway		
Geo-hydrological Study	<p>groundwater monitoring plan is required to prevent a portion of a portion 9 of Farm Bankfontein 215IS site activities from negatively impacting the groundwater quality. As part of the monitoring plan the following actions are required: Drill at least one monitoring boreholes at the site within EIA phase. This is critical as soil profiles, borehole logs and local static water level are data gaps required to assess groundwater vulnerability and to discuss alternatives if applicable. The one monitoring boreholes will form a groundwater monitoring network including a background monitoring borehole, impact monitoring borehole as early warning of groundwater contamination and an interception monitoring borehole for plume off-site migration. Groundwater levels should be monitored from monitoring boreholes in order to determine the local groundwater</p>		

	<p>flow direction and the hydraulic gradient. It is also suggested that surface water monitoring of the Vaalwaterspruit and neighbouring rivers in the vicinity of the Bankfontein 215 IS should be undertaken to assess any impact during the construction phase and when the Bankfontein 215IS is operational. It is recommended that solid waste be collected and disposed of at an appropriate municipal waste disposal site. The pond needs to be lined to prevent any seepage of waste water</p>		

11. ENVIRONMENTAL IMPACT STATEMENT

11.1 Summary of the key finding of the environmental impact assessment

Table 11-1: Summary of key findings of the EIA

Project phase	Receiving environment	Impact description	Pre-mitigation significance	Post-significance
Construction phase	Social	Nuisance impacts due to heavy vehicles transporting construction materials	Insignificant negative	Minor negative
	Soil, land capability	Loss of topsoil resources and capability through removal of topsoil for establishment of Box cut, initial strip	Minor negative	
	Fauna & flora	Loss of fauna & flora through clearance of vegetation for establishment of PCDs, Mobile offices, mobile toilets & sanitation	Minor negative	
	Surface water	Sedimentation& contamination of surface water	Major negative	
	Groundwater	Groundwater contamination	Major negative	
Operational phase(Social	Nuisance impact due to earthworks, heavy vehicles and transporting trucks loading ROM	Minor negative	

Rehabilitation /closure phase	Soil ,land-use& capability	Soil compaction	Minor negative	
	Wetland	Contamination of wetlands	Minor negative	
	Surface water	Contamination of surface watercourses	Major negative	
	Air quality	Elusive dust generation	Minor negative	
	Soil ,land-use &land capability	Soil contamination, restoration of land capability	Major negative	
	Fauna & flora	Destruction of suitable habitat	Minor negative	
	Surface water	Contamination & sedimentation of surface watercourse	Major negative	

11.2 Final site Map

See attached Final site Map **Appendix A**

11.3 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

Phase –activity	Impact/risk	Alternatives
<p>Construction</p> <ul style="list-style-type: none"> - Access road - Mobile structure - Trench - Pollution control Dam <p>Operational</p> <ul style="list-style-type: none"> - area - Hauling and Loading - Stockpiling - screening <p>Closure</p> <ul style="list-style-type: none"> - Removal of foreign material - Scruping and contouring - Rehabilitation - Retrenchment 	<p>Increased ambient noise levels resulting from mining activities.</p> <p>Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on environmental resources utilized by communities, landowners and other stakeholders.</p> <p>Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on ecosystem functioning.</p> <p>Increased vehicle activity within the area resulting in the possible destruction and disturbance of fauna and flora.</p> <p>Poor access control to farms which may impact on cattle movement, breeding and grazing practices.</p> <p>Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime.</p>	<p>Due to the size of the operation, minimal alternative could be identified</p>

12. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND IMPACT MANAGEMENT OUTCOMES

Compilation of the EMPr assist in determining the manner in which impact realised and suggest mitigation, monitoring and management strategies in turn developing greater outcomes of the proposed project

Recommendations that derived from the impact management.

- Avoidance of detrimental negative impacts of the sensitive areas
- Prevention of long term effect/impacts from the proposed project
- Restore the proposed areas of interest to its natural form
- Provide sufficient information to strategically plan the mining activities as to avoid unnecessary social and environmental impacts. In that, monitoring boreholes as recommended by Groundwater Study
- Provide sufficient information and guidance to plan mining activities in a manner that would reduce impacts (both social and environmental) as far as practically possible.
- Ensure an approach that will provide the necessary confidence in terms of environmental compliance. Provide a management plan that is effective and practical for implementation.
- Through the implementation of the proposed mitigation measures, it is anticipated that the identified social & environmental Impacts can be managed and mitigated effectively. Through the implementation of the mitigation and management measures it is expected that: Noise impacts can be managed through consultation and through the restriction of operating hours;
- The pollution of soil and water resources can be effectively managed through containment by water management infrastructure.
- Ecological impact can be managed through the implementation of pollution prevention measures, minimizing land clearing, restricting working hours (faunal disturbance) and rehabilitation.
- Concerns regarding access control to farms can be managed through the development and ensuring compliance to an appropriate access control procedure.
- Risks associated with crime can be mitigated through avoiding recruitment activities on site, as well as monitoring and reporting.
- Visual impact can be minimized through giving consideration to site infrastructure placement and materials used

13. ASPECT FOR INCLUSION AS CONDITIONS OF AUTHORISATION

The proposed strategies ranging from mitigation measures, monitoring and management systems should be part of the conditions of the authorisation.

14. DESCRIPTION OF ANY ASSUMPTION, UNCERTAINTIES AND GAPS IN KNOWLEDGE

The type of commodity to be mined being Coal (Bituminous), which largely involves a minimal impact approach to the environment, having said that the information provided in this report will assist the competent authority to arrive with an appropriate conclusion to the proposed activity in question.

15. OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

15.1 Reasons why the activity should be authorized or not

The proposed activity should be authorised considering the need and desirability of the activity relevant to the location of the area where the proposed activity is to be conducted on. The type of commodity to be mined will have minimal impact on the environment as measured by the economic benefits notwithstanding the recommendations and measures to be put in place to monitor impact response and minimisation.

15.2 Conditions that must be included in the authorisation

As discussed above the recommendations, mitigation measures proposed in the EIAr and EMPr will suffice as conditions.

16. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The mining right will expire in 10 years similarly the authorisation should be active until the permit expires, as contents of the authorisation will no longer serve value when mining has been decommissioned has ended that is after having done closure and rehabilitation has been concluded.

17. UNDERTAKING

Project team confirms that the undertaking that is applicable to the draft S and EIAR is made available at the last section of the report.

18. FINANCIAL PROVISION

In accordance with the requirements of regulation 54(i) of the Mineral and Petroleum Resource Development Act, 2002 (Act 28 of 2002) Katma Constructions and Projects has calculated the environmental closure liability for the proposed project according to the Department of Minerals Resources guidelines. The cost closure is estimated to the total of **R 10 608 354,83 (See Appendix F)**

18.1 Explain how the aforesaid amount was derived

18.1.1 Quantum calculations

Provide a calculation of the quantum of the financial provision required to manage and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulations 54 (1) in respect of each of the phases referred to).

18.1.1.1 Confirm that this amount can be provided for from the operating expenditure

It is hereby undertaken that the amount of **R 10 608 354,83** will be paid in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P of the Act: Financial provision for remediation of the proposed mining activities.

19. Deviations from the approved scoping report and plan of study.

19.1.1 Deviations from the methodology used in determining the significance of potential environmental impacts and risks.

(Provide a list of activities in respect of which the approved scoping report was deviated from, the reference in this report identifying where the deviation was made, and a brief description of the extent of the deviation was made, and a brief description of the extent of the deviation).

19.1.2 Motivation for the deviation

20. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

20.1 Compliance with the provision of section 24(4)a and b read with section 24(3) and 7 of the National Environmental Management Act(107 of 1998).The EIA report must include

20.1.1 Impact on the socio-economic conditions of any directly affected persons

The project generates an approximate of about 1000 employment opportunities and business opportunities for SMMEs through contracts for construction, operation and also during rehabilitation phases.

20.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resource Act

There are a few graveyards identified within the proposed mining area, this was in consultation with the landowners and appropriate measures have been proposed to protect such sites from the impact arising from the project should other heritage site be discovered during operation.

21. OTHER MATTERS REQUIRED IN TERMS OF SECTION 24(4)A AND B OF THE ACT

The report is compiled together with the attachments such as proof of consultations, site visits etc.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. DETAILS OF EAP

Details of the Environmental Assessment Practitioner has been included in **Part A (section 1)**

2. DESCRIPTION OF THE ASPECT OF THE ACTIVITY

Description of the aspect of the activity has been included in **Part A (section 1)**

3. COMPOSITE MAP

A Map containing all the required information regarding the proposed mining site. **See Appendix A**

4. DESCRIPTION OF THE IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENT

4.1 Determination of closure objectives

The closure objectives for the proposed mining activity include the following:

- Rehabilitation of the mining sites
- Reduction of the visual impact of the mining sites
- Information provision to the competent authority
- Submit monitoring results to the relevant competent authority
- Ensure that all the soil profile is return in accordance with their original horizons.
- Preserve the topsoil and ensure that it keep its fertility in order to retain the vegetation of the area.
- Ensure that all foreign material including carbonaceous material are cleared from the site.
- Contour the area in order to ensure that storm water does not wash the topsoil into the nearby stream.
- Encourage the vegetation growth through watering and seeding the rehabilitated areas.

4.2 Volume and rate of water use required for the mining, trenching or bulk sampling operation.

Water usage will be limited to the following activities

- A water use is triggered a licence will be applied for in terms of section 21 of the National Water Act, 1998 (Act 36 of 1998)

4.3 Has a water-use licence been applied for

The use of groundwater will be Generally Authorized in terms of the NWA. Based on the outcomes of discussions with the Department of Water and Sanitation, the potential abstraction of water due to mining activities will be clarified.

4.4 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

4.4.1 Measures to rehabilitate the environment affected by the undertaking of any listed activity

No	Activity	Affected Environment	Objectives	Mitigation/Management measure	Frequency of mitigation	Legal Requirements	Recommended Action Plans	Timing of implementation	Responsible Person	Management Cost
1	Recruitment, procurement and employment	Socio-economic	Ensure that recruitment strategies for the mine prioritises the sourcing of local labour, and share in gender equality. Empower the workforce to develop skills that will equip them to obtain employment in other sectors of the economy. Contribute to the sustainable development of a community (not dependent on the mine) surrounding the area of operation	Positive impact will be implemented through LED initiative as part of local development and need to be managed. Ad-hoc, informal recruitment at the gate or through other unapproved channels by setting up recruitment stands in built up areas should be prohibited. Relationships with local government through LED programmes should be developed. Stakeholder database should be established to identify partners and develop collaborative networks	Ongoing	As per LED	The social plans to involve action plans aimed at providing development opportunities and benefits to the affected local communities.	Construction phase and operational phase	HR manager	N/A

2	Transport of construction material	Soil	Minimization of disturbed area and prevention of compaction of soil	All heavy machinery operators and truck drivers should stay in designated areas	Ongoing	Rehabilitation and closure plan	Life of Mine (LoM)	Mining engineer and environmental coordinator	R 15 000
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Table 4-1: Measures to rehabilitate the environment affected by undertaking any listed activity

5. IMPACT MANAGEMENT OUTCOMES

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

Table 5-1: Measures to rehabilitate the environment affected by undertaking any listed activity

Activity	Aspects Affected	Phase	Size and Scale of Disturbance	Mitigation Measure
Column 1	Column 2	Column 3	Column 4	Column 5
Site Clearance	Social Nuisance	Construction Phase (transport of construction materials)	Limited to the mining site	Keep soils moist to suppress possibility of dust;
				Site clearing to take place during daylight hours only
				Vehicles and machinery will be properly maintained to minimise operating noise
				Ensure that dust suppressants are applied to gravel or unpaved roads that are in use;
	Soils	Construction Phase (topsoil removal, overburden)	100 m ²	Ensure topsoil is stored in one dedicated stockpile, less than 1 m high, and within the demarcated mining site; and

				<p>Topsoil stockpiles will be covered with a plastic liner during windy and rain conditions so as to prevent erosion (October to March). ▪</p> <p>Only remove vegetation when and where necessary;</p>
Coal removal and stockpiling	Fauna and Flora	Construction Phase (establishment of Box cut, initial strip)	100 m ²	Minimise the size of the excavated sites as far as possible
				Indigenous trees will not be removed
				Drainage lines, and indigenous vegetation will be avoided
				Use existing access road
	Wetlands	Construction Phase	Local	<p>Ensure site clearing is limited to the designated areas</p> <p>All watercourses will be avoided and the stipulated buffer will be implemented</p>
Water use around site	Surface water	Construction Phase	Local, Continues	All dirty water must be captured and recycling of water must be emphasized and implemented throughout the mine
				Water within the excavated site must be diverted to the water sump. Waste water management plan/procedure
				All watercourses will be avoided and the stipulated buffer will be implemented
Pollution control dams	Groundwater	Construction phase	Local	All potential hydrocarbon spillages and leaks must be cleaned up immediately and the soils remediated;
				Spillage control kits will be readily available on site to contain the mobilisation of contaminants and clean up spills;
				All vehicles and machinery to be serviced in a hard park area or at an off-site location
	Noise	Construction Phase	Site Specific	Site clearing to take place during daylight hours only

				<p>Vehicles and machinery will be properly maintained to minimise operating noise</p> <p>Vehicles will obey speed limits</p>
	Social Nuisance	Operational Phase	Limited	<p>Maintain excavation equipment and, if possible, fit silencing equipment</p> <p>excavation will only take place during daylight hours</p> <p>Use a dust suppressant and keep access roads moist</p> <p>Cover stockpiles with a plastic liner in windy and rain conditions so as to prevent topsoil from eroding</p>
	Noise	Operational Phase	Site Specific	Maintain drilling equipment and, if possible, fit silencing equipment
	Fauna and Flora	Operational Phase	100 m ²	<p>Remove alien invasive species as and when they occur</p> <p>Maintain excavation equipment and, if possible, fit silencing equipment</p> <p>All personnel are to remain on the demarcated mining site only</p> <p>to prevent the footprint of the site expanding and further vegetation loss</p>
Concurrent replacement of overburden and topsoil and revegetation	Soil	Operational Phase Rehabilitation Phase	Site Specific	<p>The replacement of overburden and top soil should be replaced so it follows the original contouring of the land prior to mining. The area would need to be revegetated to decrease the risk of erosion.</p> <p>Machinery and vehicles must be serviced and maintained off site at a workshop and drip trays must be in place to capture the spillage</p>
Vehicular activity on haul roads and conveying of	Air quality	Operational Phase	Local, As and when required	Road surfaces, for example the access road, will be sprayed and treated with water and a dust binding agent. Water will be applied to haul roads three times daily, except during periods of rainfall. All coal haul trucks must be covered. The overland conveyor belt will also be covered and where coal on the conveyor will be sprayed to reduce emissions.

coal				<p>The limit value for the 24-hour average for PM10 is 75 ug/m³ and this may not be exceeded 4 times within a year. The limit value for the yearly average for PM10 is 40ug/m³.</p> <p>Berms on the periphery of the mining site will be inspected daily and maintained to ensure runoff from within the</p> <p>mining site does not report to the catchment</p>
	Biodiversity & Aquatic Environment	Operational Phase	Local, As and when required	<p>Wetting of the haul road to suppress dust creation as well as cover haul trucks to prevent dust emissions during transport. The overland conveyor belt will also be covered and where coal on the conveyor will be sprayed to reduce emissions</p>
				<p>Daily inspection of the excavation must be undertaken prior to the commencement of Excavation and routine maintenance must be undertaken to prevent the likelihood of fluid dispersing and breakdowns</p>
Final replacement of overburden and topsoil revegetation	Surface Water	Operational Phase Rehabilitation phase	Local	<p>The replacement of overburden and top soil should be replaced so it follows the original contouring of the land prior to mining. The area would need to be revegetated to decrease the risk of erosion.</p> <p>Scarify roads and stockpile areas to a depth of 500mm and infrastructure areas and restore topsoil cover. Implement soil conservation measures. Integrate disturbed area to most appropriate land use to ensure long-term stability of restored topsoil. Rehabilitation must ensure long-term stability and not compromise post-mining land use objectives.</p>
	Soil	Operational Phase Rehabilitation Phase	100 m ²	<p>Sumps will be backfilled and the site levelled immediately after has concluded</p> <p>All compacted areas will be ripped to loosen the soils during rehabilitation</p>
	Fauna and	Rehabilitation Phase	100 m ²	<p>Remove alien invasive species as and when they occur</p>

	Flora				<p>An alien invasive management plan must be established</p> <p>All compacted areas will be ripped to loosen the soils during rehabilitation and seeded with an appropriate seed mixture</p>
Post closure monitoring and rehabilitation	Soil, Surface Water, Biodiversity and Wetlands	Rehabilitation Phase	250 Ha area(on-going post mining)		<p>Woody vegetation should be establishment to minimize water ingress into the discard will be applied. Soil will be required to cover the mined area. The quantities of soil required as well as the timing of the operation will depend on the design and operation of these facilities.</p> <p>Surface water runoff controls will be engineered to prevent future soil erosion of the rehabilitated area. Re-vegetation will assist in controlling erosion by wind and water. Monitoring will be ongoing for 3years to determine potential water contamination. For the first year</p>
Post closure monitoring and rehabilitation	Soil, Surface Water, Biodiversity and Wetlands	Rehabilitation Phase	250 Ha area(on-going post mining)		<p>Analyse soils, treat to ameliorate salinity or contamination and dispose of untreatable soil at an approved disposal site. Restore overburden to recreate slope form and topsoil with optimal fertilisation based on soil analysis. Implement soil conservation measures. Integrate available land with activities in adjacent areas. Rehabilitation must ensure long-term stability and not compromise post-mining land use objectives. Take into account developments in surrounding areas and design post-mining land use options to support and enhance long-term development options. Ongoing monitoring to establish status of environment post closure</p>

6. IMPACT MANAGEMENT ACTIONS

Table 6-1: impact management actions

Activities	Potential Impacts	Mitigation Type	Time Period for Implementation	Compliance with Standards
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The list of activities for the Project are displayed in Table 4-1	The potential impacts associated with each activity are outlined in Table 4-2	The mitigation types of each of the potential impacts are outlined in Table 4-2	The time periods for each of the potential impacts are outlined in Table 4-1	The compliance with the standards for the potential impacts are outlined in Table 4-1
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7. FINANCIAL PROVISION

7.1 Determination of the amount of financial provision

7.1.1 Minimum closure objectives that will be adhered to

Environmental risk or Issue	Objective or requirement	Control measure
Storm water control	To prevent and restrict siltation and groundwater pollution	<p>Management Objective: to ensure that no harm to the receiving environment occurs. To comply with the provision of government notice 704 and not reduce the sub catchment yield.</p> <ul style="list-style-type: none"> ➤ Management Criteria: ➤ All clean water collected as runoff from areas up gradient of the mining sites should be separated from the sites by means of berms to divert clean water to the surrounding areas, to allow natural runoff into the nearby stream. ➤ The mining site will be

		<p>considered a dirty area and demarcated as such.</p>
<p>Soils</p>	<p>Contamination of soils</p>	<p>Management Objective: To prevent contamination of soils.</p> <ul style="list-style-type: none"> ➤ Management criteria: ➤ All topsoil is to be removed from the site prior to stockpiling. ➤ Any contamination of soils should be suitably handled by an appropriately trained person. ➤ Should soils be contaminated in such a way as to lead it being classified as waste, it should be disposed of at a suitable disposal site
	<p>Erosion and siltation</p>	<p>Management Objective: to prevent unnecessary loss of soil through bad management.</p> <ul style="list-style-type: none"> ➤ Management criteria: ➤ All surface run-off shall be managed in such a way so as to ensure erosion of soil does not occur. ➤ All surfaces that are susceptible to erosion, shall be protected either by cladding with biodegradable material or to layer of soil being seeded with grass seeded/planned with suitable groundcover. ➤ The applicant should adhere to

		<p>the requirements of the Department of Agriculture in the design of effective erosion control measures on bare soils.</p>
	<p>Conserving topsoil</p>	<p>Management Objective: To prevent loss of valuable topsoil.</p> <ul style="list-style-type: none"> ➤ Management criteria: The top layer of all areas to be excavated for the purpose of mining must be tripped and stockpiled, in areas where this material will not be damaged, removed or compacted. This stockpiled material shall be used for the rehabilitation of the site upon completion sampling in areas as deemed necessary. ➤ When stripping of topsoil takes place, the grass component shall be included in the stripped topsoil. This soil will contain a natural grass seed mixture that may assist in the re-growth of grass once the soil is used for back filling and rehabilitation
	<p>Surface water: To prevent contamination of water courses</p>	<p>Management Objective: To prevent contamination of streams by mining activities.</p> <ul style="list-style-type: none"> ➤ Management Criteria: All streams should be monitored before the mining activities commence.

Hydrology	Prevent the pollution of groundwater	<p>There will be no clearing of vegetation or stripping of soils until clean-water diversions (for diversions of runoff from upstream catchment) and dirty water collection facilities has been established</p> <p>There shall be environmental conditions included in the contractual agreement to make successful miner of the necessity to prevent accidental spillages by the implementation of good housekeeping practices.</p> <ul style="list-style-type: none"> ➤ Management Objective: To ensure groundwater is not polluted by the mining activities – particularly in areas were groundwater is generally shallow. ➤ Management criteria: Chemical toilets and mining activities that may cause negative impact on ground water quality must be suitably managed and monitored. <p>No waste material shall at any stage be disposed of on site. All solid waste must be removed and transported to a recognised waste disposed site by suitably qualified service provider (contractor).</p> <p>Land use Minimise the impact on land</p>

Land-use	Minimise the impact on land-use to areas specifically used for mining activities	<ul style="list-style-type: none"> ➤ Management Objective: To minimise impact on land use areas demarcated as mining sites. ➤ Management criteria: All mining activities are to take place within the designated footprint areas as per mining standard.
		<ul style="list-style-type: none"> ➤
Floral and Fauna biodiversity and Ecological functioning	To ensure that the mining activities pose no significant harm to the surrounding areas as well as any sensitive species of fauna and flora – if present.	<ul style="list-style-type: none"> ➤ Management Objective: To ensure that no loss of ecological function of the surrounding areas occurs due to mining activities. ➤ Management criteria: All activities associated to the mining activities should occur within their designated areas and there should not

Land capability		be encroachment into the surrounding areas. Any areas to be rehabilitated shall be rehabilitated with no-invasive species
	Prevent the invasion of the areas with invasive species	<ul style="list-style-type: none"> ➤ Management Objective: To eradicate all invasive alien species. ➤ Management criteria: Invasive alien species shall be eradicated as part of the rehabilitation programme. All alien species should be removed prior to flowering season of the relevant species.
	To retain the flora and fauna assets on site	No floral assets of conservation concern were identified which need to relocate or left in situ.
	None	No management of impacts on and capability can be implemented since the proposed project activities will not degrade the land based on their meagre impacts from a land capability perspective.
Social impact	Air quality	<ul style="list-style-type: none"> ➤ Management Objective: To limit public and staff exposure to unnecessary dust. ➤ Management criteria: Dust pollution could occur during both initial stages of mining each strip - especially during the dry months.

		<p>Regular and effective damping down must be carried out to avoid dust generation that will have a negative impact on the surrounding environment</p>
	<p>Noise impact</p>	<ul style="list-style-type: none"> ➤ Management Objective: To prevent Public and staff exposure to noise. ➤ Management criteria: Mining crew(s) should comply with the DMR and provincial noise requirements <p>All equipment shall be subject to routine maintenance, which will include the checking of noise decibels or emissions.</p> <p>Personnel will be trained in techniques to reduce noise during operation of equipment</p> <p>The applicant will record and respond without delay to complaints about disturbing noise.</p> <p>The applicant should employ an open door policy with the landowners, nearby farmers and any other affected parties regarding issues that impact upon them.</p>
<p>Waste management</p>	<p>To avoid, reuse or recycle material where possible, correctly dispose of unusable waste(s) and do not generate pollution</p>	<ul style="list-style-type: none"> ➤ Management Objective: Comply with existing good waste management practices in terms of NEMA principles.

		<ul style="list-style-type: none"> ➤ Management Criteria: Contain all waste within designated dirty areas of development – that is, mining sites. Ensure waste storage area does not generate pollution Cover any wastes that are likely to wash away or contaminate storm water.
Archaeological and cultural interest	Sites of archaeological and cultural interest	<ul style="list-style-type: none"> ➤ Management Objective: To avoid disturbing sites of archaeological and cultural interest ➤ Management criteria: If archaeological and cultural materials are recognised during mining, protocol according to SAHRA requirements will be followed
	Graves	<ul style="list-style-type: none"> ➤ Management Objective: To avoid disturbing burial sites. ➤ Management criteria: No graves were identified on the proposed project site.
Sensitive Landscapes	Nature conservation or ecological sensitive areas	<ul style="list-style-type: none"> ➤ Management Objective: Conservation of ecologically sensitive areas. ➤ Management criteria: There are no sensitive areas on the proposed mining project site.

<p>Regional Socio-Economic Structure</p>	<p>Socio-economic benefits of the project</p>	<ul style="list-style-type: none"> ➤ Management Objective: To eventually enhance the socio-economic benefits and create job opportunities for locals. ➤ Management criteria: No regional socio-economic benefits are foreseen at mining phase since there shall not be any profit generation
<p>Interested and Affected Parties</p>	<p>To ensure that all stakeholders are informed and aware about the proposed mining</p>	<ul style="list-style-type: none"> ➤ Management Objective: To inform all interested and affected parties about the proposed mining project as the need may arise. ➤ <input type="checkbox"/> Management criteria: The applicant should ensure that all communication channels are available in order for interested and affected parties to voice opinions or raise concerns The applicant should strive to develop a relationship of trust and credibility with interested and affected parties. ➤ Applicant should ensure that all information is shared and correspondence with I&APs is fully and accurately documented.

— 7.1.2 Confirm specifically that the environmental objectives in relation to closure have been consulted with the

7.1.3 Provide a rehabilitation plan that describes and shows the aerial extent of the main mining activities

Rehabilitation of the mine has become an important consideration for government bodies, the general public and mining companies. The development of detail environmental legislation has largely reflected public and in turn government concern that mined sites retain at least a pre mining land capability and that environmental degradation be repaired. Mine design and scheduling asset's in determining every activity associated with the proposed project. In that, it is critical to understand the setup of the mining activities to ensure that concurrent rehabilitation is practical and possible.

Site Clearing – Topsoil, subsoil and overburden (2 months)

Concurrent rehabilitation commences with handling the topsoil, subsoil and overburden material within the proposed area. Handling of soil material plays a critical role when conducting concurrent rehabilitation. In that, the quantity of the soil material must be known as well as the area required for storage. This is a key factor in handling the soil material since mining contractor will be shown the location appropriate for storage and possible quantities expected. The management of soil material during mining is important to ensure that the chemical and physical properties are maintained.

Initial mining strip (3-5 months)

The proposed mining operation will commence on the southern side of the property. Topsoil, subsoil and overburden will be placed adjacent accordingly as illustrated on the mining layout. Three cuts will be required as well as the sequential of replacing the soil material. The proposed mining operation will follow the same route depicted in this document to ensure proper concurrent rehabilitation.

Operational Phase (6-8 months)

Following the initial mining strip, no overburden and/or any soil material will be send for storage on the mining area. Overburden stockpile will be placed at the bottom of the initial strip and grit parting will then follow.

Final void (4-7 months)

The overburden stockpile which was stored when developing the initial strip will be utilised to backfill the Final void. The material will be loaded into the trucks and discharged into the pit. The Final void is the only risk in terms of environmental liability to the Department of Mineral Resources. On the completion of filling the void, the surface (i.e. overburden and R.O.M stockpile areas) will be scrapped of any coal material and commence with re-vegetation. During this phase all infrastructure on site will be removed and every surface cleaned.

7.1.4 Explain why the rehabilitation is compatible with the closure objectives

The rehabilitation plan has been compiled in support of the primary closure objective which is to rehabilitate the excavated mining sites to their natural or predetermined state, or to land use that conforms to the generally accepted principles of sustainable development through restoration, remediation, rehabilitation and stabilisation remediation of the impact land to a post-mining land use capable of supporting grazing activities.

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

(Provide a calculation of the quantum of the financial provision required to manager and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulations 54 (1) in respect of each of the phases referred to)

The calculation of the quantum for financial provision was according to Section b of the working manual.

See attached Quantum calculations (appendix F)

7.1.6 Confirm that the financial provision will be provided as determined

The amount of financial provision will be paid by Katma Constructions and Projects immediately after the Environmental Management Plan has been approved.

8. MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING

8.1 Monitoring of Impact Management Actions

8.1.1 List of Identified Impacts Requiring Monitoring Programmes

High level monitoring:

Bi-annual performance assessment must be conducted in line with the MPRDA (Regulation 55).

Establish a structured system of internal and external communication of incidents.

Any changes to the approved EMP which have an impact on interested and affected parties to be communicated to them and the EMP amended accordingly.

Complaints register to be established and kept up to date.

Interested and affected parties concerns to be incorporated into the project implementation.

Operational Level monitoring:

On a weekly basis all registers, procedures and records are checked against the prescripts of the EMP. Corrective action must be taken in cases of transgress where necessary.

Internal audits to be conducted by an environmentalist when deemed necessary.

Employees assigned to specific tasks.

Should the mitigation measure not be in line with the prescripts, amendments will be made and the employees will be made aware of the changes and encouraged to adhere to such.

On monthly basis, all site personnel will be inducted at the site and will be taken through the EMP and other relevant legal requirements to familiarize them with same.

Simplified signalling will be placed on site to sensitize the workers of the legal requirements attached to this EMP.

i) Responsible persons

The Site Manager is responsible for oversight of all EMP requirements. He/she may appoint an assistant to conduct internal monitoring of activities.

The latter will be responsible for the monitoring of day-to-day activities related to the mining process and report any environmental incidents to the Site Manager as per procedure to be established by both parties.

Communication lines will be drawn and will cascade from the Site Manager through to the general workers.

8.1.1.1 Roles and Responsibilities for the Execution of the Monitoring Programmes

Supervisors must be appointed to monitor the potential impacts of the above mentioned activities and Project Managers will foresee that all of the management plans are implemented. Once the mining activities have been completed, Katma Constructions and Projects will appoint an independent environmental officer to conduct a site visit to audit the rehabilitation and a report will be compiled and submitted to the DMR.

Table 8-1: Roles and Responsibilities

Monitoring Aspect	Role	Responsibility
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<p>Dust Monitoring</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - Control the liberation of dust into surrounding environment by the use of inter alia, water spraying and / or other dust allaying agents - Limit speed on the access roads to 30km/h to prevent the generation of excess dust. - Spray roads with water or an environmentally friendly dust allaying agent that contains no PCB's (eg DAS products) if dust is generated above acceptable limits. - Assess effectiveness of dust suppression equipment. - Re-vegetate all disturbed or exposed areas as soon as possible to prevent any dust source from being created. - Thoroughly soak all stockpiles to ensure dust suppression on the site.
<p>Noise Monitoring</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - Ensure that employees and staff conduct themselves in an acceptable manner while on site. - Ensure that all mining vehicles are equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.
<p>Management of weed/invader plants</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - Implement a weed and invader plant control management plan. - Control declared invader or exotic species on the rehabilitated areas. - Keep the temporary topsoil stockpiles free of weeds
<p>Storm water Monitoring</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental</p>	<ul style="list-style-type: none"> - Divert storm water around the topsoil heaps, stockpile areas and access roads to prevent erosion and loss of material - Divert runoff water around the stockpile areas with trenches and contour structures to prevent erosion of the work areas. -

	Control Officer	Conduct mining in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water Affairs, and any other conditions which that department may impose.
Management of health and safety risks	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - Ensure that workers have access to the correct PPE as required by law. - All operations to adhere to the Occupational Health and Safety Act
Waste management	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p> <p>Compliance to be monitored by the Environmental Control Officer</p>	<ul style="list-style-type: none"> - Ensure that vehicle repairs only take place at the off-site (The applicant's Road Camp) - Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility - Clean spills immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognized facility - Ensure the availability of suitable covered receptacles at all times and conveniently placed for the disposal of waste - Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc, in a container with a closable lid at a collecting point. Collection should take place on a regular basis and disposed of at the recognized landfill site Ermelo. Prevent refuse from being dumped on or in the vicinity of the mine area. - Biodegradable refuse to be handled as indicated above.
Management of access roads	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMP.</p>	<ul style="list-style-type: none"> - Maintain newly constructed access roads so as to minimize dust, erosion or undue surface damage. - Divert storm water around the access roads to prevent erosion.

	Compliance to be monitored by the Environmental Control Officer	- Erosion of access road: Restrict vehicular movement to existing access routes to prevent crisscrossing of tracks through undisturbed areas
Topsoil Monitoring	Site Manager to ensure compliance with the guidelines as stipulated in the EMP. Compliance to be monitored by the Environmental Control Officer	- Remove the first 300mm of topsoil in strips and store at the stockpile area. - Keep the temporary topsoil stockpiles free of weeds. - Place topsoil stockpiles on a leveled area and implement measures to safeguard the piles from being washed away in the event of heavy rains/storm water. - Topsoil heaps should not exceed 2m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. - Divert storm and runoff water around the stockpile area and access roads to prevent erosion.
Surface Water Monitoring	Site Manager to ensure compliance with the guidelines as stipulated in the EMP. Compliance to be monitored by the Environmental Control Officer	- Conduct quarterly water analysis when water is present in the stream bordering the site.

8.2 Monitoring and reporting frequency

8.2.1 Committed time frames for monitoring and reporting

Table 8-2: Monitoring and Reporting Frequency

Monitoring Aspect	Time Frames	Reporting
Dust monitoring	Throughout Construction, Operational and Decommissioning Phase	- Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control

		Officer
Noise Monitoring	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Management of weed/invaser plants	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Storm water Monitoring	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Management of health and safety risks	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Waste Management	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer
Management of access roads	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control

		Officer
Topsoil Monitoring	Throughout Construction, Operational and Decommissioning Phase	<ul style="list-style-type: none"> - Daily compliance monitoring by site management - Quarterly compliance monitoring of site by an Environmental Control Officer

8.3 Responsible Persons

Roles and responsibilities with mining operation to the monitoring programme were discussed on the monitoring section.

8.4 Time Period for Implementing Impact Management Actions

This was discussed on the impact management action section table

8.4.1 Mechanism for Monitoring Compliance

The method of monitoring the implementation of the impact management actions, the frequency of monitoring the implementation of the impact management actions were discussed on the monitoring phase, an indication of the persons who will be responsible for the implementation of the impact management actions, the time periods within which the impact management actions must be implemented and the mechanism for monitoring compliance with the identified impact management actions.

Activity	Impacts requiring monitoring programme	Functional requirements for monitoring	Roles and Responsibilities
Prospecting: Closure and Rehabilitation Phase	Successful rehabilitation of impacted area	Follow-up site inspection of rehabilitated prospecting areas to be conducted until the applicable areas have been successfully revegetated or cultivated by the landowner (whichever comes first)	Prospect manager to keep 6 monthly photographic record of rehabilitated sites until closure certificate have been obtained. Independent environmental consultant or specialist to conduct follow-up site inspection during closure and decommissioning and provide additional rehabilitation recommendations if required.

9. INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ENVIRONMENTAL AUDIT REPORT

A performance assessment report for the Project will be submitted on an annual basis to the DMR during proposed mining operation and on a two yearly basis during operation.

10. ENVIRONMENTAL AWARENESS PLAN

10.1 Employee communication process

(Describe how the applicant intends to inform his or her employees of any environmental risk which may result from their work).

Alarms will be set at all time to ensure that if there is any risk on site it should prevent employees to be endangered. The applicant will inform his or her employees of any risk on a daily basis should any such risk be identified. This will include Health and Safety as well as Environmental Risks.

10.1.1 Description of solutions to risks

(Describe the manner in which the risk must be dealt with in order to avoid pollution or degradation of the environment)

The operations manager must ensure that he/she understands the EMPR document and its requirement and commitments before any mining takes place. An environmental Control Officer needs to check compliance of the mining activities to the management programmes described in the EMPR.

The following list represents the basic steps towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks.

10.1.1.1 Site Management:

- Stay within boundaries of site – do not enter adjacent properties

- Keep tools and material property stored.
- Smoke only in designated areas.
- Use toilets provided – report full or leaking toilets

10.1.1.2 Water Management and Erosion

- Check the rainwater flows around the work areas that are not contaminated
- Report any erosion
- Check that dirty water is kept from clean water.
- Do not swim in or drink from streams

10.1.1.3 Waste Management

- Take care of your own waste
- Keep waste separate into labelled containers – report full bins
- Place waste in containers and always close lid
- Don't burn waste
- Pick-up any litter laying around

10.1.1.4 Hazardous Waste Management (Petrol, Oil, Diesel and Grease)

- Never mix general waste with hazardous waste
- Use only sealed, non-leaking containers
- Keep all containers closed and store only in approved areas
- Always put drip trays under vehicles and machinery
- Empty drip trays after rain
- Stop leaks and spills, if safe
- Keep spilled liquids moving away
- Immediately report the spill to the site manager/supervision
locate spill kit/supplies and use to clean-up, if safe
- Place spill clean-up wastes in proper containers
- Label containers and move to approved storage area

10.1.1.5 Discoveries:

- Stop work immediately
- Notify site manager/supervisor
- Includes - Archaeological finds, cultural artifacts, contaminated water, pipes, containers, tanks and drums, any buried structures

10.1.1.6 Air quality:

- Wear protection when working in very dusty areas
- Implement dust control measures:
- Sweep paved roads
- Water all roads and work areas
- Minimize handling of material
- Obey speed limit and cover trucks

10.1.1.7 Driving and noise:

- Use only approved access roads
- Respect speed limit
- Only use turn-around areas –no crisscrossing through undisturbed areas
- Avoid unnecessary load noises
- Report or repair noisy vehicles

10.1.1.8 Vegetation and Animal life:

- Do not remove any plants or trees without approval of the site manager
- Do not collect fire wood
- Do not catch, kill, harm, sell or play with any animal, reptile, bird or amphibian on site
- Report any animal trapped in the work area
- Do not set snares or raid nests for eggs or young

10.1.1.9 Fire management:

- Do not light any fires on site, unless contained in a drum at demarcated area
- Put cigarette butts in a rubbish bin
- Do not smoke near gas, paints or petrol
- Know the position of firefighting equipment
- Report all fires

- Don't burn waste or vegetation

10.1.1.10 Environmental awareness training

- Describe the general environmental awareness training and training on dealing with emergency situations and remediation measures for such emergencies)
- The operations manager must ensure that he/she understands the EMP document and its requirement and commitment before any mining takes place.
- In addition to the meeting to be held with the site employees to inform them of the basic steps towards environmental awareness, the operators of earth moving equipment should be informed of the following requirements:
 - Mining within demarcated areas;
 - No-go areas;
 - Establishment of access roads;
 - Handling of hazards waste;
 - Handling of biodegradable and non-degradable waste;
 - Temporary vehicle maintenance;
 - Mining methods to be followed;
 - Handling and storing of topsoil;
 - Sloping of excavations;
 - Speed control in order to reduce dust;
 - Emergency procedure awareness.
- Labourers should be informed of the following during "toolbox talks":
 - Reporting of unusual observations to management (e.g. fossils, graves, etc.);
 - Reporting of spills to management;
 - Felling or damaging trees for firewood not allowed;
 - Making fires not allowed;
 - Demarcated areas for mining;
 - Establishing of access roads and erection of gates in fence lines;
 - Status of gates of property owner;
 - Toilet facilities and hygiene measures;
 - Handling of waste;
 - Emergency procedures awareness.

11. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

The financial provision for the environmental rehabilitation and closure requirements of Mining operations is governed by National Environmental Management Act, 1998, Act 107 of 1998), as amended, (NEMA) which provides in Section 24P that the holder of a mining right must make financial provision for rehabilitation of negative environmental impacts. The financial provision will be reviewed annually.

12. UNDERTAKING

The EAP herewith confirms

- The correctness of the information provided in the reports
- The inclusion of comments and inputs from stakeholders and I&APs ;
- The inclusion of inputs and recommendations from the specialist reports where
- relevant; and
- that the information of inputs and the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein



Signature of the Environmental Assessment Practitioner:

TPR MINING RESOURCES (PTY) LTD

Name of Company:

03 October 2023

Date:

-END-

13. THE FOLLOWING APPENDIXES ARE ATTACHED

- **Appendix A - Site Map**
- **Appendix B - Photographs**
- **Appendix C - Facility illustrations**
- **Appendix D - Consultation Report**
- **Appendix E – Specialist Reports**
- **Appendix F- Quantum Calculation**
- **Appendix G –Screening Tool Report**
- **Appendix H - Other information**