BASIC ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

PROPOSED COAL MINING PERMIT ON PORTION OF PORTION 35 OF THE FARM MODDERFONTEIN 236 IR, MAGISTERIAL DISTRICT OF DELMAS, MPUMALANGA PROVINCE

CONSULTANT`S DETAILS

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APPLICANT`S DETAILS

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DMRE Ref: MP 30/5/1/1/3/13457 MP

BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

APPLICANT : Hlubi Properties (Pty) Ltd

Postal Address : House No.28, 3rd Street, Delmas, Mpumalanga, 2210

Contact Person : Mr N L Mgwenya

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DOCUMENT CONTROL	
Project Title:	Mining Permit Application on portion of Portion 35 of the farm Modderfontein 236 IR
Minerals	Coal
Site Location	Magisterial District of Delmas, Mpumalanga Province
Compiled on behalf of	Hlubi Properties (Pty) Ltd
Compiled By	Ms Boitumelo Mohololа
Reviewed By	Dr Kenneth Singo
Version 1	Draft BAR & EMPR
Submitted to	Department of Mineral Resources and Energy
Date	24 July 2022

DISCLAMER

The opinion expressed in this, and associated reports are based on the information provided by Hlubi Properties (Pty) Ltd to Singo Consulting (Pty) Ltd ("Singo Consulting") and is specific to the scope of work agreed with Hlubi Properties (Pty) Ltd. Singo Consulting acts as an advisor to the Hlubi Properties (Pty) Ltd and exercises all reasonable skill and care in the provision of its professional services in a manner consistent with the level of care and expertise exercised by members of the environmental profession. Except where expressly stated, Singo Consulting has not verified the validity, accuracy or comprehensiveness of any information supplied for its reports. Singo Consulting shall not be held liable for any errors or omissions in the information given or any consequential loss resulting from commercial decisions or acts arising from them. Where site inspections, testing or fieldwork have taken place, the report is based on the information made available by the Hlubi Properties (Pty) Ltd or their nominees during the visit, visual observations, and any subsequent discussions with regulatory authorities. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Singo Consulting is both complete and accurate. It is further assumed that normal activities were being undertaken at the site on the day of the site visit(s), unless explicitly stated otherwise. These views do not generally refer to circumstances and features that may occur after the date of this study, which were not previously known to Singo Consulting (Pty) Ltd or had the opportunity to assess.

EXECUTIVE SUMMARY

Singo Consulting (Pty) Ltd has been appointed as an independent Environmental Consultant by Hlubi Properties (Pty) Ltd to conduct Environmental Impact Assessment (EIA), Compile an Environmental Management Programme report (EMPr) and undertake Public Participation Process (PPP). This is done for processes of acquiring Environmental Authorization for the proposed Mining Permit Application on portion of portion 35 of the Farm Modderfontein 236 IR, under the Magisterial District of Delmas, Mpumalanga Province. (DMRE Ref: MP 30/5/1/1/3/ (13157) MP).

Mining Permit Application has been submitted for the exploitation of Coal resources on the property mentioned above. Mining activities will be undertaken over a period of two (2) years. This project will entail an open cast method of excavation. The mine design will be developed according to the dimension of the applied mineral deposit within the project area, but overall mining activities will be limited to an area of 5 Ha as per mining permit requirements. The topsoil will be stockpiled elsewhere on site preferably next to the farm boundary and will be used during rehabilitation period. Once a box cut has been made, the overburden and mineral resources where necessary will be loosened by blasting. The loosened material will then be loaded onto trucks by excavators. A haul road will be situated at the side of the open cast, forming a ramp up which trucks can drive, carrying ore and waste rock. Waste rock will be piled up at the surface, near the edge of the open cast (waste dump). The waste dump will be tiered and stepped, to minimize degradation. All the activities will be guided by the project's EMPr such that the project does not impact the environment negatively.

The Mpumalanga province occupies the eastern side of South Africa. It is surrounded by the four provinces, namely; Limpopo on the north, Gauteng to the west, Free State southwest and KwaZulu-Natal to the south. The province also shares a boarder with Swaziland on the east. The Mining Permit is situated approximately 15 Km west of Delmas town, approximately 0.5 Km west of the Gauteng border, approximately 2.4 Km west south of Daybreak poultry farm and approximately 2.2 Km southeast of EnviroServe Holfontein Landfill.

This Mining Permit application requires authorization in terms of the following interlinked pieces of legislation: the Mineral and Petroleum Resources Development Act, 2002 (MPRDA, Act 28 of 2002), as amended and the National Environmental Management Act, 1998 (NEMA, Act 107 of 1998), as amended. These pieces of core legislation stipulate the required studies, reports, and legal processes to be conducted and the results thereof are to be submitted to the relevant authorities for approval prior to commencement.

The project was announced through publication of newspaper and plugging site notices. Stakeholders and landowners were consulted through emails. A draft BAR & EMPR will be shared for 30 days review period.

The Delmas town is known for producing maize, wheat, potatoes, and chickens in the region. During site assessment the area was found to be cultivated, with minimal natural vegetation and used mainly for maize cultivation.

IMPORTANT NOTICE

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

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

In terms of section 16(3)(b) of the BASIC ASSESSMENT 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 considered any minimum requirements applicable, or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or 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 Authorisation being refused.

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

OBJECTIVE OF THE 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 activity 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 the these aspects to determine:

e) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

f) the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be managed, avoided or mitigated;

g) 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

- identify and motivate a preferred site, activity and technology alternative;
- identify suitable measures to manage, avoid or mitigate identified impacts; and identify residual risks that need to be managed and monitored.

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APPENDICES

PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1 Contact person and correspondence address

a) Details of the Environmental Assessment Practitioner (EAP).

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Email address	boitumelo@singoconsulting.co.za

Details of the EAP who reviewed the report:

Name of Practitioner	Dr N.K Singo
Designation	Principal EAP
Tel No.	+27 13 692 0041
Fax No.	+27 86 514 4103
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b) Expertise of the EAP

Please refer to Appendix 1 for the EAP's qualifications and Curriculum Vitae.

Singo Consulting (Pty) Ltd is a growing organization in the field of geological sciences, environmental sciences and environmental management. This organization has provided sound practicable solutions to unavoidable environmental problems, particularly those triggered by human activities. This is achieved by tackling environmental problems using various fields of applied science, such as chemistry, hydrology, environmental geology, geochemistry, geophysics, and soil sciences. This leads to proper and sound environmental impact assessments and the production of enforceable environmental management plans. This organization has conducted over 26 successful Environmental Impact Assessments (basic assessments) in various provinces of South Africa, basic assessment reports and

environmental management plans (EMPs) which protect and promote the sustainable utilization of environment.

Qualifications of the EAP Intern

Education

NDip (Environmental Science)

Qualifications of the EAP Reviewer

Education

BSc (Hons) Mining & Environmental Geology

MSc (Environmental Geology)

Ph.D. (Geology, Applied Environmental Minerology and Geochemistry)

2 Location of the overall activity

Farm name	portion of Portion 35 of the Farm Modderfontein 236 IR
Application area (ha)	5 ha
Magisterial district	Magisterial District of Delmas, Mpumalanga Province
Distance and direction from nearest town	Approximately 15 km West of Delmas
21-digit Surveyor General code for each farm portion	T0IR00000000023600035

2.1 Locality map (show nearest town, scale not smaller than 1:250,000)

The Mining Permit is situated approximately 15 Km west of Delmas town, approximately 0.5 Km west of the Gauteng border and approximately 2.2 Km southeast of EnviroServe Holfontein Landfill. It can be accessed by the off ramp from the N12 into a gravel road named Main Road, alternatively it can be accessed from Delmas via the R50 which connects to the R555 then connect to a secondary road named Main Road, then into the Katboschfontein Road. The proposed project area is approximately 0.15 Km adjacent south to the N12.

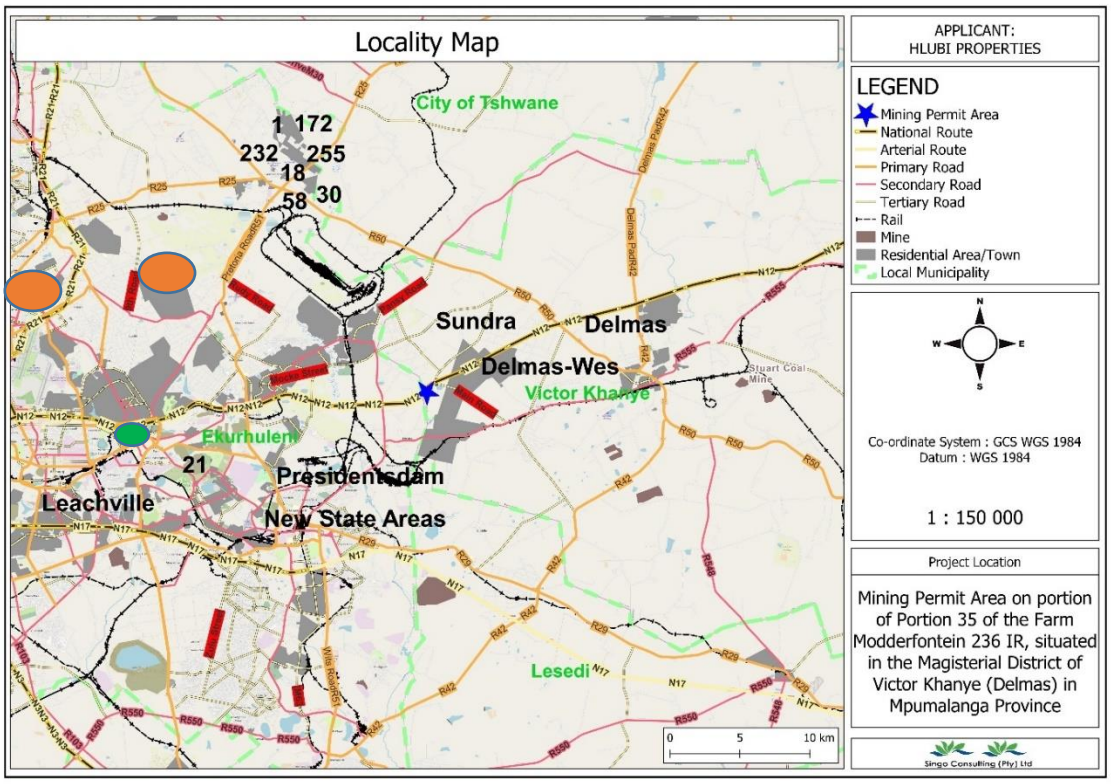

Figure 1: Locality map showing nearest towns (project area represented by a blue star)

(Singo Consulting (Pty) Ltd, 2022)

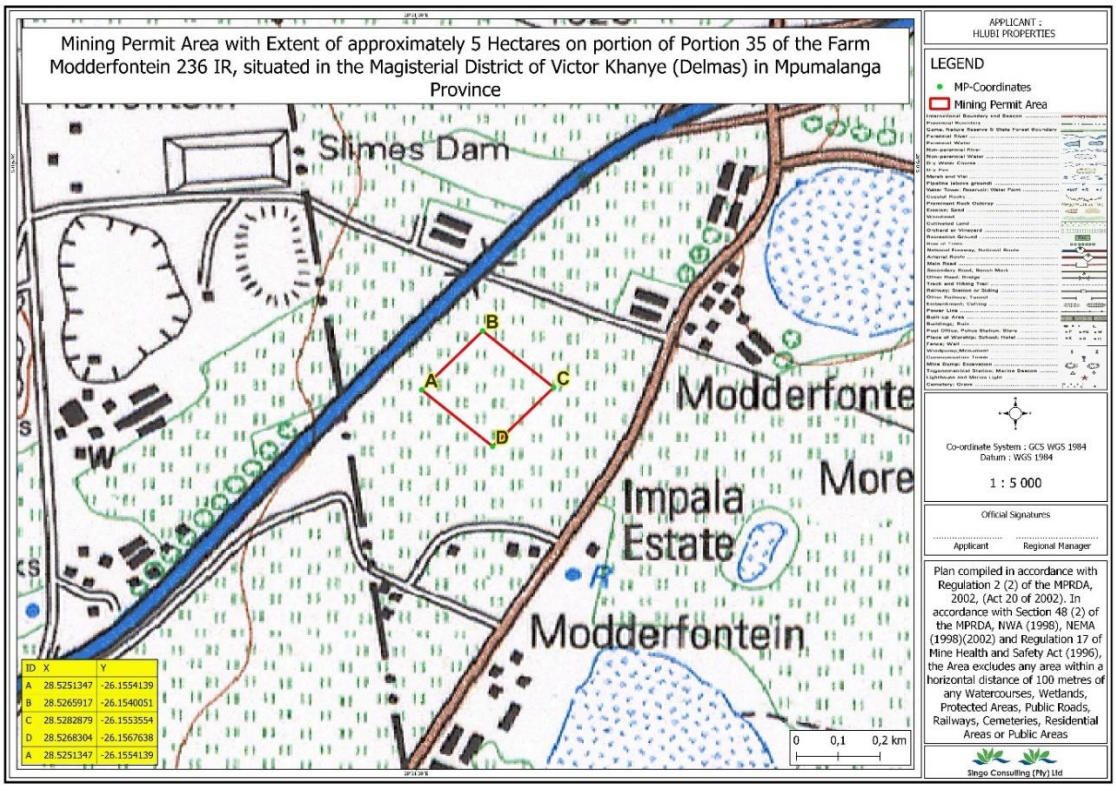

Figure 2: Locality map showing the boundaries and extent of the mining permit (red polygon)

(Singo Consulting (Pty) Ltd, 2022)

2.2 Description of the scope of the proposed overall activity

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

The mining method proposed involves open cast extraction of coal. The proposed mine at the site will be worked by cutting a bench which will be progressed in a north-easterly direction. The method that will be employed is a very basic form of open cast mining, and a 5-ha area will be demarcated for mining activities. Blasting and subsequent mining of the orebody utilizing a truck and shovel operation will be conducted. The mined ore will be crushed and screened utilizing a mobile crushing and screening plant that will be established within the boundaries of the mining area (see Figure 3). A front-end loader will be utilized to load the material into haulage trucks. The mine will operate for a two (2) year permit period with an option to renew for three (3) periods of which may not exceed one year. The product (coal) will be stockpiled and transported to clients via trucks and trailers. All activities will be contained within the boundaries of the mining site.

The project infrastructure and activities will include the following:

- Site clearance.
- Removal of topsoil and overburden and stockpiling.
- Site establishment, including the establishment of an access route, mobilization of equipment and preparation of area for mining.
- Excavation of an opencast.
- Blasting.
- Loading zone.
- Loading and dust control.
- Hauling and transporting of ore.
- Crushing and screening.
- Ablution facilities and waste storage area.
- Rehabilitation of site and Monitoring.

Figure 3: Mine layout Plan (Singo Consulting (Pty) Ltd, 2022)

2.3 Listed and specified activities

NAME OF ACTIVITY E.g., for prospecting: drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office and access route; and for mining: excavations, blasting, stockpiles, discard dumps/ dams, loading, hauling, transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads,	Aerial extent of the activity Ha or m²	Listed activity Mark with X where applicable	Applicable listing notice (GN 517/2021)

pipelines, power lines and conveyors.			
Open cast mining and crushing to produce coal specs required by clients	4.47 Ha	X	GN 517/2021, Listing notice 1 activity 21: Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the mining permit.
A closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)	4.47 Ha		Not listed
Vegetation Clearance	4.47 Ha		Not Applicable, area used for cultivation. No clearance of indigenous vegetation.
Overburden stockpile	0.09Ha		Not listed
Topsoil stockpile	0.09Ha		Not listed
ROM stockpile area	0.07Ha		Not listed
Mobile offices	0.02Ha		Not listed
Toilets and sanitation	0.01Ha		Not listed
Pollution Control Dam (PCD) construction	0.06Ha		Not listed
Box cut construction	1.48Ha		Not listed
Ripping, Drill & Blasting	2.99Ha		Not listed

Coal extraction	4.47 Ha		Not listed
Rehabilitation	5 Ha		Not listed

2.4 Description of the activities to be undertaken

Describe methodology/technology to be employed, including type of commodity to be prospected/mined, a linear activity and a description of the route of the activity.

The mining method proposed involves open cast extraction of coal from a proposed mine. The proposed mine at the site will be worked by cutting a bench which will be progressed in a north-easterly direction. The mining methods will include blasting with explosives to loosen the hard rock (overburden) when necessary. The material will be loaded with excavators and hauled to the mobile crushing and screening plants that will be established within the project area. The coal will be stockpiled and transported to clients via trucks and trailers. All activities will be contained within the boundaries of the mining site.

Figure 4: Opencast mining **(Singo Consulting (Pty) Ltd, 2021)**

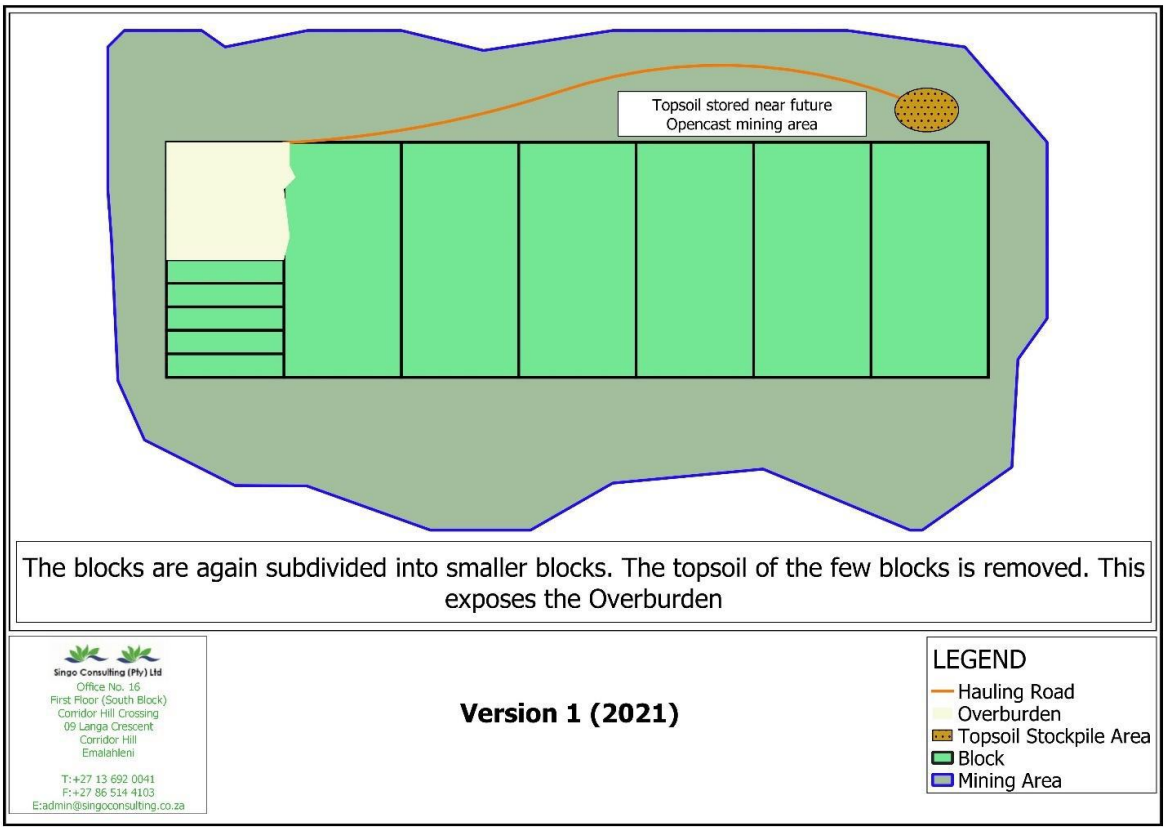

Figure 5: Topsoil removal **(Singo Consulting (Pty) Ltd, 2021)**

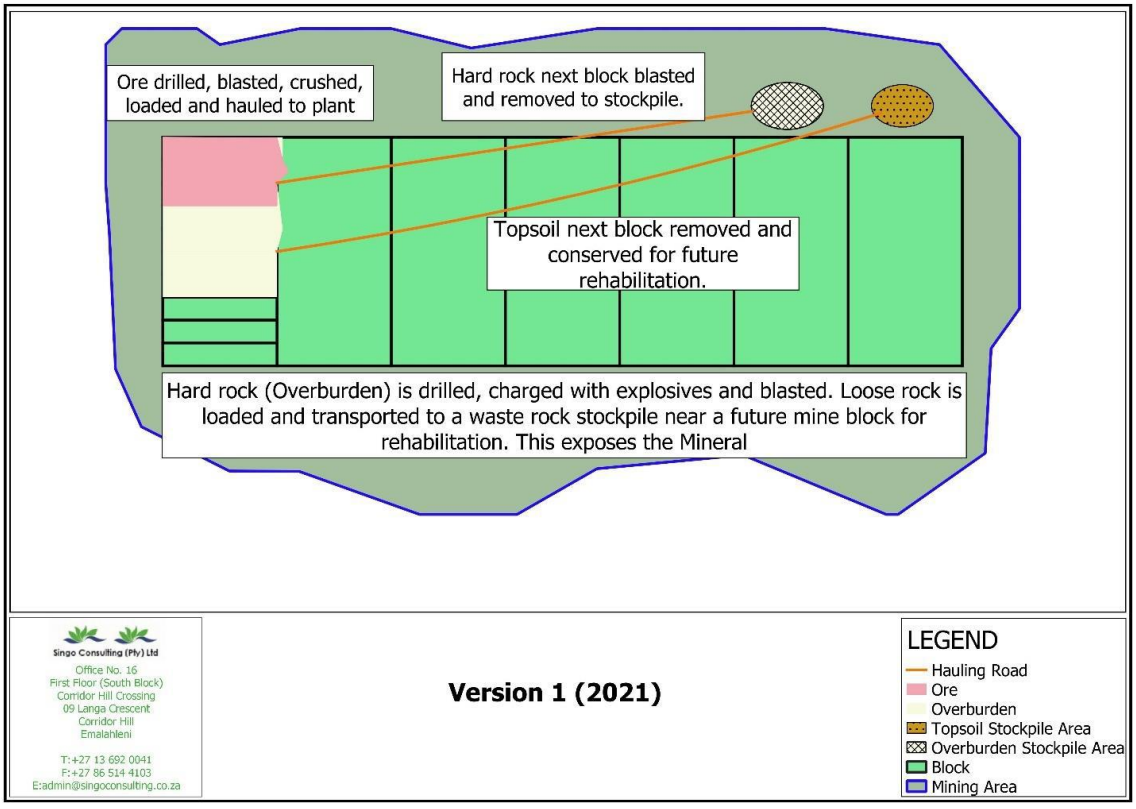

Figure 6: Overburden blasting and removal **(Singo Consulting (Pty) Ltd, 2021)**

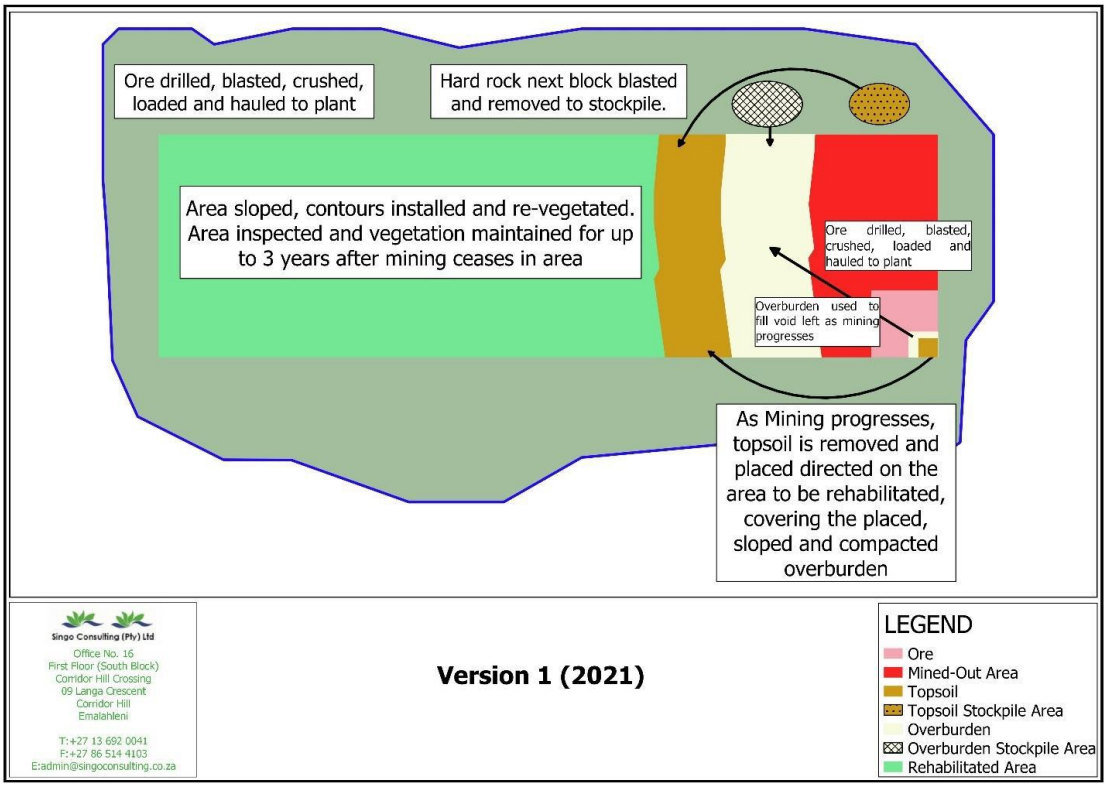

Figure 7: Backfilling and rehabilitation stage **(Singo Consulting (Pty) Ltd, 2021)**

This project will be carried out in terms of National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014 (as amended) read together with regulation 40-43 of the Act. The trigged activities as reflected on GN 517/2021; LN 1 Activity 21:

- Activity 21: Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the mining permit.
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Phase	Activity no	Activity
Construction	1	Site clearing: Removal of topsoil and vegetation
	2	Construction of any surface infrastructure, e.g., Haul roads, pipes, storm water diversion berms (incl. transportation of materials and stockpiling)
	3	Free digging and development of initial box cut for mining
	4	Temporary storage of hazardous products (fuel, explosives) and waste
Operation	5	Removal of overburden and backfilling when possible (incl. drilling/free digging of hard overburden and stockpiling)

	6	Use and maintenance of haul roads.
	7	Extraction of Coal (mining process) and run of mine (RoM) coal stockpile
	8	Water use and storage on site
	9	Storage, handling and treatment of hazardous products (fuel, explosives, oil) and waste activities (waste, discard)
	10	Concurrent replacement of overburden, topsoil and re-vegetation
Decommissioning	11	Removal of all infrastructure (incl. transportation off site)
	12	Rehabilitation (spreading of soil, re-vegetation and profiling)
	13	Installation of post-closure water infrastructure
	14	Environmental monitoring of decommissioning activities
	15	Storage, handling and treatment of hazardous products (fuel, explosives, oil) and waste activities (waste discard)
Post-closure	16	Post-closure monitoring and rehabilitation

2.4.1 Site establishment/construction phase

During site establishment, the applicant must demarcate the site boundaries and clear the topsoil and overburden from the extension area to open it for free digging. Upon stripping, the topsoil and overburden will be stockpiled along the boundaries of the proposed mine for use during the rehabilitation phase. Topsoil stripping will be restricted to the areas to be mined. The complete A-horizon (topsoil – the top 100-200 mm of soil, which is generally darker in colour due to high organic matter content) will be removed. If it is unclear where the topsoil layer ends, the top 300 mm of soil must be stripped.

The topsoil will be stockpiled in the form of a berm alongside the boundary of the mine proposed mine where it will not be driven over, contaminated, flooded, or moved during the operational phase. The topsoil berm will measure a maximum of 1.5 m high and indigenous grass species must be planted on it, if vegetation does not naturally establish within 6 months of stockpiling, to prevent soil erosion and discourage weed growth. The roots of the grass will improve soil viability for rehabilitation purposes. The stripped overburden will be stockpiled on a designated area after the topsoil has been removed.

Overburden is waste rock consisting of consolidated and unconsolidated material that must be removed to expose the underlying ore body. It is desirable to remove as little overburden as possible in order to access the ore of interest, but a larger volume of waste rock is excavated when the mineral deposit is deep. The removal techniques that will be employed are cyclical with interruption in the extraction (drilling, blasting and loading) and removal (haulage) phases. This is particularly true for hard rock overburden which must be drilled and blasted first. An exception to this cyclical effect are, dredges used in hydraulic surface mining and some types of loose material mining with bucket wheel excavators. The fraction of waste rock to ore excavated is defined as the stripping ratio. Stripping ratios of 2:1 up to 4:1 is not

uncommon in large mining operations. Ratios above 6:1 tend to be less economically viable, depending on the commodity. Once removed, overburden can be used for road and tailings construction or may have non-mining commercial value as fill dirt.

Surface mining is a mine in which the ore lies near the surface and can be extracted by removing the covering layers of rock and soil. Almost all surface mining operations are exposed to the elements and require no roof support. Open cast mining method employ a conventional mining cycle of operations to extract minerals: rock breakage is usually accomplished by drilling and blasting for consolidated materials and by ripping or direct removal by excavators for unconsolidated soil and/or decomposed rock, followed by materials handling and transportation. Open cast mining method was considered based on the geological data, extrapolation of resource from nearby mines, life span of a permit and the closure advantage of open cast mining.

During the development and exploitation stages of mining when natural materials are extracted from the earth, remarkably similar unit operations are normally employed. The unit operations of mining are the basic steps used to produce mineral from the deposit, and the auxiliary operations that are used to support them. The steps contributing directly to mineral extraction are production operations, which constitute the production cycle of operations. The ancillary steps that support the production cycle are termed auxiliary operations. The production cycle employs unit operations that are normally grouped into rock breakage and materials handling. This cyclic operation will be employed to recover PGMs, Chrome ore, Copper, Nickel ore, Vanadium ore and Iron ore resources.

Breakage generally consists of drilling and blasting, and materials handling encompasses loading or excavation and haulage (horizontal transport) and sometimes hoisting (vertical or inclined transport).

Thus, the basic production cycle consists of these unit operations:

Production cycle=Drill+ Blast + Load+ Haul

Although production operations tend to be separate and cyclic in nature, the trend in modern mining and tunnelling is to eliminate or combine functions and to increase continuity of extraction. For example, in PGMs, Chrome ore, Copper, Nickel ore, Vanadium ore and Iron ore and other soft rock mines, continuous miners break and load the mineral to eliminate drilling and blasting. The cycle of operations in surface and underground mining differs primarily by the scale of the equipment. Specialized machines have evolved to meet the unique needs of the two regimes.

The applicant will introduce the mining equipment to the area during the site establishment phase. The equipment to be used on site will include but not limited to:

- Weigh bridge
- Mobile crusher plant
- Mobile toilet
- Drilling equipment
- Excavating equipment
- Earth moving equipment

2.4.2 Operational phase

Drilling and blasting can be defined as the controlled use of explosives and other methods such as gas pressure blasting pyrotechnics, to break rock for excavation. It is practiced most often in mining, quarrying and civil engineering such as dam, tunnel, or road construction. The result of rock blasting is often known as a rock cut.

Drilling and blasting currently utilizes many different varieties of explosives with different compositions and performance properties. Higher velocity explosives are used for relatively hard rock in order to shatter and break the rock, while low velocity explosives are used in soft rocks to generate more gas pressure and a greater heaving effect. For instance, an early 20th-century blasting manual compared the effects of black powder to that of a wedge, and dynamite to that of a hammer. The most commonly used explosives in mining today are ANFO based blends shown in figure 8 due to lower cost than dynamite.

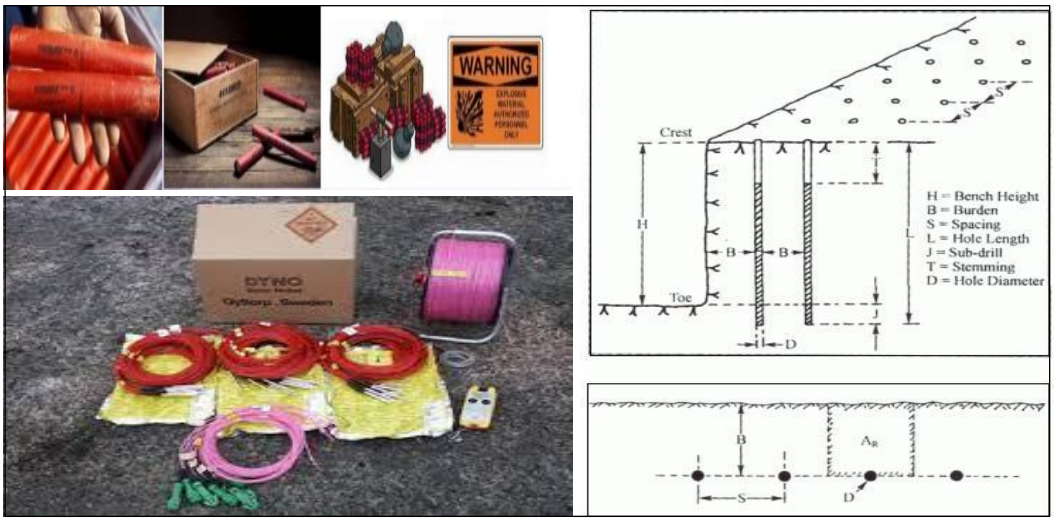


Figure 8: Accessories, Blasting Design and pattern (https://www.alamy.com)

2.4.3 Decommissioning phase

The closure objectives include making the coal proposed mine safe and ensuring that the

remainder of the site is fit for agricultural use. The coal proposed mine will be incorporated into the closure objectives of the proposed extension area, which will entail the benching of the site. Benches will be built with overburden, top-dressed with topsoil and vegetated with an appropriate grass mix if vegetation is not naturally established in the area within six months of the replacement of the topsoil. Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding (if applicable) has been done in an area. Site management will implement an alien invasive plant management plan during the aftercare period to address germination of problem plants in the area.

The decommissioning activities will include:

- Sloping and landscaping during rehabilitation
- Replacing of topsoil
- Implementation of an alien invader plant management plan

2.5 Policy and legislative context

This Mining Permit application requires authorization in terms of the following interlinked pieces of legislation:

- The Mineral and Petroleum Resources Development Act, 2002 (MPRDA, Act 28 of 2002), as amended.
- The National Environmental Management Act, 1998 (NEMA, Act 107 of 1998), as amended.

These pieces of core legislation stipulate the required studies, reports, and legal processes to be conducted and the results thereof are to be submitted to the relevant authorities for approval prior to commencement. In addition to the above, there are various pieces of legislation which govern certain aspects of the mining operations, and these are summarized in Table 1, together with the main legislative requirements mentioned above

Table 1: Policy and Legislative context.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
A description of the policy and legislative context within which the development is proposed, including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity		E.g., In terms of the National Water Act (NWA)a Water Use License has/has not been applied for.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
and are to be considered in the assessment process.		
Minerals and Petroleum Development Resources Act, Act 28 of 2002 (MPRDA) and the MPRDA Amendment Act, Act 49 of 2008	Application for a mining permit DMRE reference: MP 30/5/1/1/3/13157 MP	GN 517/2021, Activity 21: Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the mining permit.
Constitution of South Africa, specifically everyone has the right to: an environment that is not harmful to their health or wellbeing have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation, and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development	Republic of South Africa	The mining activities will only proceed after effective consultation.
Environmental Impact Assessment (EIA) regulations	Application for environmental authorization: DMRE Reference: MP30/5/1/1/3/13157MP	GN 517/2021 Activities 21
National Environmental Management Act, Act 107 of 1998 (as amended) (NEMA)	Application for environmental authorization: DMRE Reference: MP30/5/1/1/3/13157MP	GN 517/2021 Activities 21
National Water Act, 1998 (Act 36 of 1998), and GN 704 regulation. Best Practice Guidelines: Series A, G, & H	(S 21 & S 26) Water use & mine water management	Best practice guidelines will be followed for water management, water characterization, water resource protection, water treatment, and the development of the mine water management model
National Environmental Management: Waste Act, Act 59 of 2008 (NEMWA)NEM: WA	Management measures Environmental awareness plan	All type of waste will be managed as prescribed by the regulation (NEMWA)
National Heritage Resources Act, 25 of 1999 (NHRA)	Management measures	No mining activities will take place within 500 m of any identified heritage resource, such as a grave.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
		No graves have been identified on the site in question.
Municipality By-Laws: Waste Management by-law Act 59 of 2008, Air Quality Management By-law Act 39 of 2004, Noise control by-law, Spatial Planning and Land Use Management act no 16 of 2013 (SPLUMA).	Environmental Management measures awareness plan	Best practice guidelines will be followed for any by-law's management and the development of the mine environmental and other legislative management.

2.6 Environmental Authorization Process

2.6.1 Mineral and Petroleum Development Act

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002), a Mining Permit must be issued prior to the commencement of any mining activities. As per Section 79(4)(a) and (b) of the MPRDA, the Applicant is required to conduct a Basic Assessment and submit an EMPR for approval as well as to notify in writing and consult with Interested and Affected Parties (I&APs) within 90 days of acceptance of the application. The MPRDA also requires adherence with related legislation, chief amongst them is the National Environmental Management Act (Act 107 of 1998, NEMA) and the National Water Act (Act 36 of 1998, NWA).

Several amendments have been made to the MPRDA. These include, but are not limited to, the amendment of Section 102, concerning amendment of rights, permits, programmes and plans, to requiring the written permission of the Minister for any amendment or alteration; and the Section 5A(c) requirement that landowners or land occupiers receive twenty-one (21) days' written notice prior to any activities taking place on their properties. One of the most recent amendments requires all mining related activities to follow the full NEMA process as per the 2014 basic assessment Regulations (as amended), which came into effect on 8th of December 2014.

A Mining Permit is exclusive, transferable, valid for two (2) years and may be renewed for three periods of which may not exceed one year.

2.6.2 National Environmental Management Act

The main aim of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) is to provide for co-operative governance by establishing decision-making principles on matters affecting the environment. In terms of the NEMA Environmental Impact Assessment (EIA) regulations, the proponent is required to appoint an

environmental assessment practitioner (EAP) to undertake the EIA 9 as well as the public participation process. In South Africa, EIA became a legal requirement in 1997 with the promulgation of regulations under the Environmental Conservation Act (ECA). Subsequently, NEMA was passed in 1998. Section 24(2) of NEMA empowers the Minister and any MEC, with the concurrence of the Minister, to identify activities which must be considered, investigated, assessed, and reported on to the competent authority responsible for granting the relevant environmental authorization. On 21 April 2006 the Minister of Environmental Affairs and Tourism promulgated regulations in terms of Chapter 5 of the NEMA.

The objective of the Regulations is to establish the procedures that must be followed in the consideration, investigation, assessment, and reporting of the activities that have been identified. The purpose of these procedures is to provide the competent authority with adequate information to make decisions which ensure that activities which may impact negatively on the environment to an unacceptable degree are not authorized, and that activities which are authorized are undertaken in such a manner that the environmental impacts are managed to acceptable levels.

The aim of the EIA process is to identify and assess the potential impacts associated with the proposed project and to develop measures through which potential negative biophysical and socio-economic impacts can be mitigated and positive benefits can be enhanced. The EIA will ensure that all issues are integrated into the lifecycle of the mining operation and its infrastructure. This will occur during the planning, construction, operation and decommissioning and site closure phases.

The EIA Report and the associated EMPR will indicate how the identified impacts will be avoided, mitigated and/or managed by setting environmental objectives and goals. The EMPR will further outline the implementation programme for the environmental objectives and goals. The EMPR is a legal requirement of the MPRDA and all mines, existing or new, are required to possess an approved EMPR prior to initiating any mining operations. The EMPR is legally binding, and the proponent is required to meet the requirements specified in the document.

The written decision called an Environmental Authorization, is a legal document setting out the conditions of the Authorization and the actions required to protect human health and the environment. Any affected party may appeal against the decision contained in an Environmental Authorization. Appeals must be lodged with the Minister who considers appeals in terms of the relevant provisions of NEMA and the Environmental Regulations.

An important amendment to the NEMA (December 2014) Regulations is that the Department of Mineral Resources has been the responsible authority for approving and

issuing of Environmental Authorizations under the NEMA for mining related activities. The Department of Environmental Affairs is the appeal authority for mining related Environmental Authorizations.

2.6.3 National Environmental Management: Waste Amendment Act

The Regulations pertaining to the NEMWA activities were published on 3rd of July 2009 in Government Gazette 32368 under GN 718. These were amended in August 2013 in Government Notice Regulation 921. Regulations regarding the planning and management of residue stockpiles and residue deposits were published and commenced on 24 July 2015 in Government Notice Regulation 632 and the List of waste management activities that have or are likely to have a detrimental effect on the environment were amended on the same date by Government Notice Regulation 921. As per this list the following is of important to note:

- Category A: (15) The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining permit or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

  Category B: (11) The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

On the 2nd of June 2014 the National Environmental Management: Waste Amendment Act came into force. Of importance for mining activities is that according to this amendment, waste resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals is classified as Hazardous Waste. Waste is accordingly no longer governed by the MPRDA but is subject to all the provisions of the National Environmental Management: Waste Act, 2008 (NEMWA). Section 16 of the NEMWA must also be considered which states as follows:

"A holder of waste must, within the holder's power, take all reasonable measures to:

- Avoid the generation of waste and where such generation cannot be avoided, to minimize the toxicity and amounts of waste that are generated.
- Reduce, re-use, recycle and recover waste.
- Where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner.
- Manage the waste in such a manner that it does not endanger health or

the environment or cause a nuisance through noise, odours, or visual impacts.

- Prevent any employee or any person under his or her supervision from contravening the Act.
- Prevent the waste from being used for unauthorized purposes.

These general principles of responsible waste management are incorporated into the requirements in the EMPR to be implemented for this project.

Schedule 3: Defined Wastes have been broken down into two categories: Category A being hazardous wastes and category B being general wastes. Under Category A (hazardous wastes) the act makes allowance for "wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals".

In order to understand the implications of this it is important to ensure that the definitions of all the relevant terminologies are defined:

- Hazardous waste: means "any waste that contains organic or inorganic elements or compounds that may, owning to the inherent physical, chemical or toxicological characteristic of that waste, have a detrimental impact on health and the environment and includes hazardous substances, materials or objects within business waste, residue deposits and residue stockpiles.
- Residue deposits: means "any residue stockpile remaining at the termination, cancellation or expiry of a prospecting right, mining right, mining permit, exploration right or production right.
- Residue stockpile: means "any debris, discard, tailings, slimes, screening, slurry, waste rock, foundry sand, mineral processing plant waste, ash or any other product derived from or incidental to a mining operation and which is stockpiled, stored or accumulated within the mining area for potential re-use, or which is disposed of, by the holder of a mining right, mining permit or, production right or an old order right, including historic mines and dumps created before the implementation of this Act.

Various regulations have been drafted in support of the NEMWA, as discussed below:

- Proposed Regulations regarding the planning and management of waste from a prospecting, mining, exploration or production operations (2014):
- Chapter 2, Section 3 states the identification and assessment of any environmental impacts, including those on groundwater, arising from waste must be done as part of the Environmental Impact Assessment (EIA)

conducted in terms of the National Environmental Management Act, 1998 (Act No.107 of 1998) (hereafter referred to as the NEMA). The pollution control barrier system shall be defined by the (a) Waste Classification and Management Regulations (2013); (b) National Norms and Standards for the Assessment of Wastes for Landfill Disposal (2013); and (c) National Norms and Standards for Disposal of Waste to Landfill (2013).

- Waste Characterization must be done in terms of physical and chemical composition as well as content. The classification must be done in terms of the health and safety classification and the environmental classification.

Proposed Regulations to exclude a waste stream or a portion of a waste stream from the definition of a waste (2014):

This regulation will give the holder of the right the opportunity to exclude a waste stream, or a portion of a waste stream from the definition of a waste. Chapter 2, Section 4 of this Regulation, Sub-section (1) states that any portion of a waste generated from a source listed in Category A of Schedule 2 of the NEMWA, may be excluded from being defined as hazardous on demonstration that such portion of waste in non-hazardous in accordance with the Waste Management and Classification Regulations of 2013. The application process will be in the form of a prescribed process and application must be made to the Minister. This Regulation is however not yet in force. National Norms and Standards for the assessment of waste for landfill disposal (23 August 2013): These norms and standards prescribe the requirements for the assessment of waste prior to disposal to landfill. The aim of the waste classification tests is to characterize the material to be deposited or stored in terms of the above-mentioned waste classification guidelines set by the Department of Environmental Affairs (DEA).

The outcomes of the tests provide the necessary information in terms of:

- Identification of chemical substances present in the waste.
- Determination of the total concentrations (TC) and leachable concentrations (LC) of the elements and chemical substances that have been identified in the waste and that are specified in Section 6 of the above-mentioned Regulations. The obtained TC and LC values of the waste material will be compared to the threshold limits for total concentrations (TCT limits) and leachable concentrations (LCT limits) specified in Section 6 of the above-mentioned Regulations. Based on the TC and LC values of the elements and chemical substances in the waste exceeding the corresponding TCT and LCT limits respectively, the specific type of waste for disposal to landfill will be determined

in terms of Section 7 of the Regulations.

2.6.4 The National Environmental Management: Biodiversity Act

The National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004, NEMBA), "provides for: the management and conservation of South Africa's biodiversity within the framework of the NEMA; 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-prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute (SANBI); and for matters conducted therewith".

In terms of the Biodiversity Act, the applicant has a responsibility for: The conservation of endangered ecosystems and restriction of activities according to categorization of the area (not just by listed activity as specified in the EIA regulations):Promote the application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all developments within the area are in line with ecological sustainable development and protection of biodiversity.

Limit further loss of biodiversity and conserve endangered ecosystems

Regulations published under the NEMBA also provide a list of protected species, according to the Act (GNR 151 dated 23 February 2007, as amended in GNR 1187 dated 14 December 2007). Section 57 of NEMBA identifies restricted activities involving threatened or protected species. Restricted activities include the gathering, collecting, cutting, uprooting, damaging or destroy a listed species.

2.6.5 The National Environmental Management: Protected Areas Act

The National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003) (NEMPAA) serves to: "provide for the protection and conservation of ecologically viable areas representative of South Africa's biological biodiversity and its natural landscapes and seascape; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas; for the continued existence, governance and functions of South African National Parks; and for matters in connection therewith.

The objectives of this Act are –

- To provide, within the framework of the national legislation, including the National Environmental Management Act, for the declaration and management of

protected areas.

- To provide for co-operation governance in the declaration and management of protected areas.
- To affect a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity.
- To provide for a diverse and representative network of protected areas on state land, private land, communal land and marine water.
- To promote sustainable utilization of protected areas for the benefit of people, in a manner that would preserve the ecological character of such areas.
- To promote participation of local communities in the management of protected areas, when appropriate
- To provide for the continued existence of South African National Parks.

2.6.6 National Water Act

The National Water Act, 1998 (Act 36 of 1998) (NWA) makes provision for two types of application for water use licenses, namely individual applications, and compulsory applications. The NWA also provides that the responsible authority may require an assessment by the Applicant of the likely effect of the proposed license on the resource quality, and that such assessment be subject to the EIA regulations. A person may use water if the use is-

- Permissible as a continuation of an existing lawful water use (ELWU).
- Permissible in terms of a general Authorization (GA).
- Permissible under Schedule 1.
- Authorized by a licensed.

The NWA defines 11 water uses. A water use may only be undertaken if authorized. Water users are required to register certain water uses that took place on the date of registration, irrespective of whether the use was lawful or not.

Section 21 of the National Water Act 1998 lists the following 11 water uses which can only be legally undertaken through the water use Authorization issued by the Department of Water and Sanitation (DWS):

(a) Taking water from a water resource.

(b) Storing water.

(c) Impeding or diverting the flow of water in a watercourse.

(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 conduits.

(g) Disposing of waste in a manner which may detrimentally impact on a water resource.

(h) Disposing in any manner of water 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 water found underground if it is necessary for the efficient continuation of an activity or for the safety of people.

(k) Using water for recreational purposes.

In terms of the National Water Act, no Water Use License has been applied for this project. DWS was engaged about this project so they can direct us whether it is viable or not to apply for water use license.

2.6.7 National Heritage Resources Act

The National Heritage Resources Act, 1999 (NHRA) stipulates that cultural heritage resources may not be disturbed without authorization from the relevant heritage authority. Section 34(1) of the NHRA states that, "no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority" The NHRA is utilized as the basis for the identification, evaluation, and management of heritage resources and in the case of CRM those resources specifically impacted on by development as stipulated in Section 38 of NHRA, and those developments administered through NEMA, MPRDA and the DFA legislation. In the latter cases the feedback from the relevant heritage resources authority is required by the State and Provincial Departments managing these Acts before any authorizations are granted for development. The last few years have seen a significant change towards the inclusion of heritage assessments as a major component of Environmental Impacts processes required by NEMA and MPRDA. This change requires us to evaluate the Section of these Acts relevant to heritage (Fourie, 2008b).

The NEMA 23(2)(b) states that an integrated environmental management plan should, "…identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage". A study of subsections (23)(2)(d), (29)(1)(d), (32)(2)(d) and (34)(b) and their requirements reveals the compulsory inclusion of the identification of cultural resources, the evaluation of the impacts of the proposed

activity on these resources, the identification of alternatives and the management procedures for such cultural resources for each of the documents noted in the Environmental Regulations. A further important aspect to be taken account of in the Regulations under NEMA is the Specialist Report requirements laid down in Section 33 (Fourie, 2008b).

MPRDA defines 'environment' as it is in the NEMA and therefore acknowledges cultural resources as part of the environment. Section 39(3)(b) of this Act specifically refers to the evaluation, assessment, and identification of impacts on all heritage resources as identified in Section 3(2) of the National Heritage Resources Act that are to be impacted on by activities governed by the MPRDA. Section 40 of the same Act requires the consultation with any State Department administering any law that has relevance on such an application through Section 39 of the MPRDA. This implies the evaluation of Heritage Assessment Reports in Environmental Management Plans or Programmes by the relevant heritage authorities (Fourie, 2008b).

The NHRA identifies 5 activities that require a Heritage Impact Assessment (HIA). An HIA is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources.

An HIA must be done under the following circumstances:

1. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300 m in length.
2. The construction of a bridge or similar structure exceeding 50 m in length.
3. Any development or other activity that will change the character of a site and exceed 5 000 m^2 or involve three or more existing erven or subdivisions thereof.
4. Re-zoning of a site exceeding 10 000 m^2.
5. Any other category provided for in the regulations of SAHRA or a provincial heritage authority.

South African Heritage Resource Agency has been consulted for this project so they can have an input to the proposed application.

2.7 Need and desirability of the proposed activities

Describe methodology/technology to be employed, including the type of commodity to the prospected/mined and for a linear activity, a description of the route of the activity.

In South Africa, the production of economic output has historically been dominated by the mining industry. It alleviates poverty and offers work. The mining firms have a responsibility to develop the infrastructure, the educational system, and the workforce in order to better the state of the areas where they operate. The various businesses that are brought about by mining activity are very beneficial to local economies. Additionally, the mine-created jobs often pay higher wages than the national average. The export market in South Africa is significantly influenced by the mining sector. It generates significant gains from the foreign exchange rate differences. Mining contributions to the total government revenue are directed to the national and sub-national levels. The profits of mining companies and taxes generated by companies, in addition, contribute to the Gross Domestic Product (GDP) of the country.

South Africa contributes about 3.5% of the world's coal resources. The country's production is around 3.3% of the world's annual total and exports approximately 6% of global exports. Coal is the major primary energy source for South Africa. More than 90% of the country's electricity and approximately 30% of the liquid fuel are produced from coal (DoE, 2016). Coal also plays a significant role in supply to the South African chemicals industry and is an essential component of its steelmaking industry. With the country's attempts of diversifying energy, coal is expected to play a major role in the foreseeable future and it is the leading mining commodity revenue generator in South Africa. The majority of coal comes from the Witbank and Highveld coalfields, which together account for about 75% of South Africa's production. However, these sources will be exhausted in the next century (DMR, 2016).

South Africa is the fifth-largest coal producer in the world, generating 224 million tonnes of marketable coal on average yearly. South Africa is the third-largest exporter of coal, with a total of 25% of our production going elsewhere. The remaining coal produced in South Africa is utilized to fuel a variety of regional businesses, with 53 percent going toward the production of power. The fact that Eskom ranks as the seventh-largest electricity generator in the world and Sasol as the top manufacturer of coal-to-chemicals highlights the crucial role that our coal reserves play in the economy. Due to the abundance of coal resources in the Mpumalanga province, there are several career prospects there. The Witbank Coalfield in South Africa is where the majority of the coal is extracted, and where the seams which have diverse characteristics are located, resulting in a range of potential markets/utilisation in power generation, export, domestic, metallurgical, liquefaction and chemical sectors.

Coal is the major primary energy source for South Africa. More than 90% of the country's electricity, approximately 30% of the liquid fuel, and about 70% of its total energy needs are produced from coal (DoE, 2016). Coal also plays a significant role in supply to the South African chemicals industry and is an essential component in the steelmaking industry, i.e., metallurgical coal.

Hlubi Properties (Pty) Ltd have an obligation to improve and develop the state of Rietkol AH through maintenance of roads, infrastructure, education, and skills development. Besides providing employment, the mining activities bring different kinds of business. E.g., catering to the contractors, which has significant benefits to the micro economy of the community. In most cases, the jobs created by the mines pay more than the average salary from the farms.

2.7.1 Advantages

- Delmas has abundant coal reserves (Delmas coal and Delmas Stuart coal are evidence)
- There is demand for coal in the market.
- Coal-fired power stations are reliable
- Mpumalanga's coal resources are at shallow depth, hence the low mining cost
- Despite its recent electricity struggles, South Africa's infrastructure to generate electricity from coal is well-established
- Burning coal is the most cost-effective and energy-efficient way of generating electricity

2.7.2 Disadvantages

- Delmas is known for farming, mainly production of maize, wheat, potatoes, and chickens. Coal mining will affect agricultural productivity within the area.
- Coal has the most waste problems of all energy sources. Waste includes sulphur and nitrogen oxides, organic compounds, greenhouse gases and a lot of ash
- South Africa's coal fields are concentrated in Mpumalanga, which limits the location options for power stations and results in rezoning of other land uses within the province to coal mining.

2.8 Motivation for the overall preferred site, activities and technology alternative

The proposed site earmarked for the mining of the coal will include the opencast. The proposed site was identified as the preferred alternative due to the following reasons:

- The site offers the sought-after resource.
- The mining impacts can be contained to one area.
- The mining area can be reached by an existing access road from the regional road R 555 from Delmas joined by a road named main road leading to the Katboschfontein road and a gravel road to the project area or alternatively by the

offramp from the N12 into the main road then Katboschfontein road to the project area. No new road infrastructure needs to be constructed.

- The open cast mining of the coal has been identified as the most effective method to produce the desired coal. The potential impacts on the surrounding environment, associated with open cast mining, is deemed to be of low significance.
- The general waste produced on-site will be contained in sealed refuse bins to be transported to the local municipal landfill site.
- As equipment maintenance and servicing will be done at an off-site workshop, the amount of hazardous waste to be produced at the site will be minimal and mainly as a result of accidental oil or diesel spillages.
- Contaminated soil will be removed to the depth of the spillage and contained in sealed bins until removed from site by a hazardous waste-handling contractor to be disposed of at a registered hazardous waste handling site.

2.9 Full description of process followed to reach proposed preferred alternatives within the site

This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties (I&APs), and the consideration of alternatives to the initially proposed site layout.

Figure 9: Proposed mine layout (Singo Consulting (Pty) Ltd, 2022)

2.10 Details of the development footprint alternatives considered

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

(a) the property on which or location where it is proposed to undertake the activity
(b) the type of activity to be undertaken
(c) the design or layout of the activity
(d) the technology to be used in the activity
(e) the operational aspects of the activity
(f) the option of not implementing the activity

a) The property on which or location where it is proposed to undertake the activity

The proposed project is located within the portion of Portion 35 of the farm Modderfontein 236 IR, which is located within the local municipality of Victor Khanye under Magisterial District of Delmas. The Mining Permit is situated approximately 15 km west of Delmas, which is a quaint farming town located in Mpumalanga, just north-east of Springs and south-east of Pretoria. The area is also located approximately 0.5 Km west of the Gauteng border,

approximately 2.4 Km southwest of Daybreak poultry and approximately 2.2 Km southeast of EnviroServe Holfontein Landfill.

Geology is the primary driver for determining the location of the mining operation. A fraction of the application area, which is 5 hectares, will be expected to develop. Due to an increase in coal usage and demand in the industry, the company recognized the need for the commodity applied in the region. The applicant therefore described the proposed area as the preferred and only viable site alternative.

b) The type of activity to be undertaken

The main activity to be undertaken is the extraction of in-situ coal resources on portion of Portion 35 of the farm Modderfontein 236 IR using open cast mining technique. The mining method proposed, open cast, allows easy access of machinery to the site and does not require extensive machinery as other methods, making it economical feasible for small-scale miners. It reduces the overall costs associated with the mining process, thus allowing financial viability in small scale mining of coal deposits.

c) The design or layout of the activity

The proposed mining method is opencast. The open cast proposed mine will be mined using conventional truck and shovel mechanism using roll over techniques in a single direction. Sustainable development principle to be applied during mining and rehabilitation phase to ensure that the mined-out area is restored to pre-mining condition. The primary procedure that will be implemented during the mining process includes:

- Digging and trenching around mining area
- Building a Pollution Control Dam
- Connect Trenches to the pollution control dam
- Build a flat ramp for water bowser
- Topsoil to be stripped and stacked along the boundary/ edge of the permit area
- Ripping of hard overburden and stockpiling
- Excavation of the initial box cut
- Extraction of coal and run of mine (RoM)
- Load and haul
- Backfilling rehabilitation concurrently as mine progress forward

d) The technology to be used in the activity

The opencast mining method will be considered to maximize the coal extraction and use of

the coal resource from the area. Truck and shovel operations will be used. Haul trucks will be used for the hauling of the coal through haul roads that will be constructed in the area. These mining methods are standard practice for opencast mining operations as stipulated above. The ripper method of mining is the technology that is preferred for the proposed mining permit. This method is preferred due to its minimal impacts on environment as compared to the drilling and blasting method considering the remote location of the mine area.

e) Operation aspect of the activity

The timing of implementing mining programme will commence as soon as the permit is granted by the DMRE, the landowner, interested and affected parties will be notified about the mining programme to ensure a satisfactory working and adhering relationship.

f) Option of not implementing the activity

Should the proposed mining operation not be authorised, it is anticipated that there will be no production of coal, that can lead to a shortage in the supply of coal to the power stations for power generation purposes and this will have a negative impact on the power stations, as they rely on coal to produce the electricity.

The company identified the need for coal in the area due to an increase in coal usage. In this light the applicant identified the proposed areas as the preferred and only viable site alternative. From extensive work conducted previously in this area, it is known that this area contains the resource being sought. This land may contain levels of contamination on the property is believed to have a higher significance without the need or motivation to justify it.

Various project alternatives were considered during the planning phase of the project. These included the following:

2.10.1 Open cast mining (preferred alternative) vs. underground mining

- The open cast mining method is used when deposits of commercially useful minerals or rock are found near the surface, where the overburden is relatively thin, or the material is structurally unsuitable for tunnelling.
- Underground mining is used where the mineral occurs deep below the surface and the overburden is thick.
- Open cast mining of the coal has been identified as the most cost-effective method to produce the desired coal as it is found near the surface, with only a narrow layer of overburden that needs to be removed.
- The geology of the area and depth of coal to be mined is structurally unsuitable for tunnelling.
- The open cast mining method will not produce any residual waste to be disposed of.

Due to the location of the proposed coal proposed mines, the potential impacts on the surrounding environment are expected to be insignificant. It is proposed that all mining-related infrastructure be contained in the boundary of the mining area.

2.10.2 Temporary infrastructure (preferred alternative) vs. permanent infrastructure

- Temporary infrastructure use will entail the use of track-based or easily removable infrastructure. This includes a mobile in-proposed mine crusher plant, temporary weigh bridge and chemical toilet, with off-site vehicle and equipment servicing (at the applicant's existing workshop). The off-site office will be used for project administration purposes.
- Positive aspects: The infrastructure can be moved around in the mining area boundaries as mining progresses, decreasing the distance material has to be transported from the crusher plant to the stockpile area. In addition, the crusher plant and other equipment can move out of the mining area (and onto the existing road) during a blast to prevent potential fly rock damage. During the decommissioning phase, infrastructure will be removed from the mining area, making site rehabilitation easy and effective.
- Permanent infrastructure will entail the construction of an office building with ablution facilities, installation of a septic tank to be connected to the ablution facilities, installation of a permanent weigh bridge and permanent crusher plant.
- The use of permanent infrastructure will increase the impact of the proposed project on the environment as it will entail the establishment of more structures, necessitate the use of concrete products on site in order to establish this infrastructure, lengthen the period required for rehabilitation as well as increase the rehabilitation cost as the permanent infrastructure will either have to be decommissioned or be maintained after the closure of the site.
- Due to the small size of the mining area the infrastructure may be exposed to fly rock damage during blasting events.
- The construction of permanent infrastructure on site will increase the visual impact of the proposed project on the surrounding environment and additional mitigation measures will have to be implemented to address the impact.
- In the light of the above, the use of temporary infrastructure is deemed to be the most viable preferred alternative.

2.10.3 Access onto provincial road vs. national road (preferred alternative)

- Provincial roads (R 555): The use of R555 by trucks transporting material from the

mining area to clients is not considered here, since the R555 is approximately 7 km away from the proposed mining permit area. To minimise the impact the activity may have on traffic, it is proposed that this option is not implemented, and the alternative national road (as mentioned above) be used as access road to and from the proposed mining permit area.

- National road (N12): The existing access road of the farm connects to the National Road passing the property to the northern side-northeast (N12) via Katboschfontein Road and the north east (N12) via the Pansy Avenue. It is proposed that the road connecting via Katboschfontein be used by trucks transporting material from the proposed mine to the clients as it will prevent trucks having to turn from the farm onto the local roads for long distances, thereby minimising the potential impact on traffic.

2.10.4 No-go alternative

The no-go alternative entails no change to the status quo and should therefore not be considered. From the baseline environmental sensitivity conducted, it was found that the proposed area is characterised as having vulnerable ecosystem in respect to the terrestrial biodiversity.

2.11 Details of the Public Participation Process followed

2.11.1 Public Participation Methodology

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

South Africa, being one of the countries with the most progressive constitutions, enshrined the public's right to be involved in decisions. Section 57(1) of the new Constitution that provides: "The National Assembly may (b) make rules and orders concerning its business, with due regard to representative and participatory democracy, accountability, transparency and public involvement". This provision, along with several others gave rise to many new trends in South African legislation. In environmental legislation, the idea of public participation (or stakeholder engagement) features strongly and especially the National Environmental Management Act, 1998 (Act 107 of 1998, NEMA – as amended) and the recent regulations passed under the auspices of this Act make very strict provisions for public participation in environmental decision-making.

Public participation can be defined as "a process leading to a joint effort by stakeholders, technical specialists, the authorities and the proponent who work together to produce better decisions than if they had acted independently" (Greyling, 1999). From this definition, it can be noted that the input of the public is regarded as very important indeed.

The Public Participation Process (PPP) is designed to provide sufficient and accessible information to Interested and Affected Parties (I&APs) in an objective manner to assist them to:

- Raise issues of concern and suggestions for enhanced benefits.
- Verify that their issues have been recorded.
- Assist in identifying reasonable alternatives.
- Contribute relevant local information and knowledge to the environmental assessment.
- Comment on the findings of the environmental assessments.
- Obtain information on the outcome, i.e., the competent authority's decision, and how and by when the decision can be appealed.

2.11.2 Public Participation Plan

The public participation process is deemed essential as it enhances partnerships between the government and citizens during the decision-making process. This study perused the meaning and merits of public participation, and how democracy could be enhanced through the public participation process. The Democratic Decision-Making Theory and the Technological Acceptance Model underpinned the study. These theories highlighted the need to include the citizens in the decision-making process and the relevance of the South African government to support and educate the public on the usefulness of adopting information science to achieve effective governance.

A qualitative study was applied in this study and data were collected from secondary sources such as articles, government legislation, textbooks, and the Internet. Major findings depict that public participation involves a process by which the parliament and provincial legislatures refer to the citizens, individuals, government entities, and concerned organization in the decision-making process to achieve good governance.

2.11.3 Public Participation Plan: Discussion of approach and methodology to meet the requirements of the Regulations.

Regulation	Approach & Methodology to meet requirements
Regulation 40(1), Regulation 40(3) & Regulation 43 – provide all potential or registered interested and affected parties, including the competent authority, access to project related information, access to the BA report which will be made available for a period of at least 30 days to submit comments on draft reports prior to submission of final reports for decision-making.	Notification of Basic Assessment (BA) process to be undertaken for application for Environmental Authorisation (EA) to be distributed using the following means: • E-mail • Dedicated project page on the Singo Consulting online stakeholder engagement platform • Post • Process notices placed at locations that are accessible to I&APs • Advertisement in the printed media. Notification of availability of report and period for review using the following means: • Newspaper advert, including details of where the report can be accessed and details of the Singo Consulting website. • Notification letter (to be sent via email, fax or post) to registered I&APs. • Notifications to communities via Ward Councillor, ward committee members, identified and confirmed community representatives, and local community forum members. • SMS and/ or WhatsApp notifications where no other means are available.

	<u>Availability of report for review:</u> • Report available on the Singo Consulting website for download. • Electronic copies can be made available to parties via a secure Dropbox link that will be emailed upon request. • CDs to be posted, if requested. • Hard copy report to be available at designated places. • Report will be submitted to the DEA using the DEA online portal. • Report will be submitted to Organs of State and commenting authorities via an agreed electronic platform (such as on CD, or via a secure Dropbox link). <u>Submission of comments to EAP:</u> • Comments will be able to be submitted directly to the EAP using the Singo Consulting online stakeholder engagement platform. A customised reply form is available on this webpage. • The online platform allows for instant feedback and comments to be submitted, in so doing saving time for the stakeholder and also giving the assurance that their comments have been submitted for inclusion in the project reporting. • Written comments can also be submitted via email, post or fax. • Any comments provided telephonically or via instant message will be transcribed and recorded as formal comments.

Regulation 40(2) - Provide access to all project information that has the potential to influence any decision regarding the application, unless protected by law, and must include consultation with Competent Authority, Organs of State & registered I&APs.	Provision of project information and consultation via various means including: • Telephonic consultation. • Email correspondence. • Correspondence sent via post. • SMS and/or WhatsApp. • The Singo Consulting online stakeholder engagement platform will ensure that I&APs are afforded sufficient opportunity to participate in the project and raise comments on the project to any person with interest in the BA process for the project. This online stakeholder engagement platform which will include the following: • A means to register on the project database and provide details of their interest in the project o Background information on the project
Regulation 41(6) – Relevant information available and accessible	• Project maps (including locality map, layout map, sensitivity map, etc) • Photos of the project site and surrounds • Presentation with narration providing a summary of the project details and the findings of the BA • Posters providing a summary of the project description • A means of submitting written comment or queries. • Public meetings in a venue convenient to all parties. The meeting will be recorded, and the attendees' details captured in an attendance register.

	• Communities will be consulted via the relevant Ward Councillor, ward committee members, community representative or local community forum members, as determined and confirmed during the consultation process.
Regulation 41(2)(a) – Site notice	• Site notices will be placed at affected properties by the EAP, • Size and content will be in accordance with Regulation 41(3) & 41(4).
Regulation 41(2)(c) – (e) – Advertisements	• Advert to be placed in a local newspaper. • Live reads on a local radio station will be used as alternative means based on the nature, extent of the projects and the demographics within the vicinity of the project location. • Process notices (A4 size) with site notice details will be placed at public places that are frequented by and accessible to community members.
Regulation 42 – Project database	• I&APs to be identified through a process of networking and referral, obtaining information from the Singo Consulting existing stakeholder database, liaison with potentially affected parties in the greater surrounding area and a registration process involving the completion of a reply form. • Organs of State, key stakeholders and affected and surrounding landowners will be identified and registered on the project database. • Other stakeholders will be required to formally register their interest in the project through either directly contacting the Singo Consulting Public Participation team via email or fax or use of the Singo Consulting website.

	• In order to access the Singo Consulting online stakeholder engagement platform for a specific project, I&APs will be required to provide their details such that they are automatically registered on the project database. <u>The register of I&APs will contain the names of</u>: • All persons who requested to be registered on the database through the use of the Singo Consulting website, or in writing and disclosed their interest in the project; • All Organs of State which hold jurisdiction in respect of the activity to which the application relates; and • All persons who submitted written comments • The information captured on the project database will contain the names, organisation and contact details, as required. • Comments will be able to be submitted directly to the EAP using the Singo Consulting online stakeholder engagement platform. A customised reply form is available on this webpage. <u>The Singo Consulting online stakeholder engagement platform includes:</u> • A means to register on the project database and provide details of their interest in the project • A means of submitting written comment or queries. • The online platform allows for instant feedback and comments to be submitted, in so doing saving time for the stakeholder and also giving

	the assurance that their comments have been submitted for inclusion in the project reporting. • Written comments can also be submitted via email, post or fax. • Any comments provided telephonically or via instant message will be transcribed and recorded as formal comments. • I&APs without the applicable electronic facilities to access the Singo Consulting website will be provided with the opportunity to submit their comments and communicate with the public participation team via SMS, WhatsApp or by sending a Please-call-me notification. These comments will be transcribed and recorded as formal comments. • All comments received throughout the BASIC ASSESSMENT process will be acknowledged and captured in the comments and responses report (C&RR) with a relevant response. • The C&RR will be included in the final report submitted to the CA.

2.12 Notification of I&APs

Public Participation remains a cornerstone of the Environmental Impact Assessment process. It ensures provision of relevant and enough information with openness and transparency. Public Participation process presents to I&APs, an opportunity to understand what the project is about, and affords them an opportunity to make valuable contributions towards the basic assessment process.

I&AP can be any person, group of persons or organization interested in or affected by the proposed activity, and any organ of state that may have jurisdiction over any aspect of the activity. The key objective of PPP during the basic assessment Process is to afford the I&APs with an opportunity to comment and provide valuable inputs during the planning phase of the project.

The project timelines have been developed on the section below.

- **Announcement of the project**: 24 June 2022
- **Review of Draft BAR & EMPr**: 24 July 2022 – 23 August 2022

Stakeholders will be given 30 days to review the DBAR & BAR, from the first day they received it. Engagement of I&APs was done through the following: publishing of advertisement in Streeknuus newspaper (refer to Figure 10), emails, one-on-one consultation, and phone calls. On-site notices were placed at the entrance of the farm and around the Rietkol AH community. The notices were extended to the Local Public Library (Delmas Public Library) and Victor Khanye Local Municipality, refer to photo 1.

The landowner was identified through windeed search as Namutoni Boerdery (Pty) Ltd as illustrated in Figure 11 below. On site, Daybreak was identified to be lawful occupiers of the area and they were consulted via email.

24 JUNE 2022 | Streeknuushoes

SPORT 7

STREEK NUUS/NEWS

CLASSIFIEDS

Booking deadline:
Monday 10:00

TARSISTEP

Vacancies Available

Gold and Platinum Mining Experience required:

Miners
Shift Bosses
Electricians
Engineering Planner
Electrical Foreman
Mining Safety Officer
Winding Engine Drivers
Riderminers

Cv to:
mpc.cv@emines.co.za
vacancies.mining@gmail.com

We need baby clothes

Pregnancy Crisis Centre
Tel: 073 843 1307
www.born2care.co.za

Die Three Troublemakers is Yvonne van der Merwe, Marcelle Potgieter en Elizabeth Kendall. Foto: Elizabeth Kendall

Johan Swart, Danie de Klerk en Toon van Rensburg tydens braaityd. Foto: Elizabeth Kendall

Rolbalklub hou daknatmaak-dag

Die twee staatmakers, Christi le Roux en Lenn Simpson,

Die Two Roosters and a Hen, raamlik John O'Connell saam met Elsabé en Danie de Klerk in die wenspan. Foto: Elizabeth Kendall

NOTICE OF A JOINT PUBLIC PARTICIPATION PROCESS FOR A MINING PERMIT AND ENVIRONMENTAL AUTHORISATION APPLICATION

NOTICE OF PUBLIC PARTICIPATION FOR PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORISATION APPLICATION

Singo Consulting (Pty) Ltd

Umiso Civils and Plant Hire

S: 26° 14.8465’

E: 28° 67.4098’

S: 26° 15.4231’

E: 28° 53.1379’

S: 26° 15.4338’

E: 28° 53.1172’

S: 26° 15.2105’

E: 28° 54.4727’

S: 26° 15.0388’

E: 28° 68.3275’

Photo 1: Placement of site notices and one on one consultations (Singo Consulting (Pty) Ltd, 2022)

Deeds Office Property
IR, MODDERFONTEIN, 236, 35, MPUMALANGA

Lexis® WinDeed

This report is compiled exclusively from the very latest data directly supplied to WinDeed by the Deeds Office.

Any personal information obtained from this search will only be used as per the Terms and Conditions agreed to and in accordance with applicable data protection laws including the Protection of Personal Information Act, 2013 (POPI), and shall not be used for marketing purposes.

** ASTERISKS INDICATE THE INFORMATION IS ENRICHED FROM THE WINDEED DATABASE.

SEARCH CRITERIA			
Search Date	2022/06/20 10:43	Farm Number	236
Reference	-	Registration Division	IR
Report Print Date	2022/06/20 10:44	Portion Number	-
Farm Name	-	Remaining Extent	NO
Deeds Office	Mpumalanga	Search Source	Deeds Office

PROPERTY INFORMATION			
Property Type	FARM	Diagram Deed Number	T019832/953
Farm Name	MODDERFONTEIN	Local Authority	DELMAS/BOTLENG TLC
Farm Number	236	Province	MPUMALANGA
Registration Division	IR	Remaining Extent	YES
Portion Number	35 (REMAINING EXTENT)	Extent	117.4015H
Previous Description	PTN9-LG590/65	LPI Code	T0IR00000000023600035
Suburb / Town**	2KM NORTH OF RIETKOL	Co-ordinates (Lat/Long)**	-26.157561 / 28.527173

OWNER INFORMATION (1)			
NAMUTONI BOERDERY PTY LTD			Owner 1 of 1
Company Type**	COMPANY	Document	T7106/2005
Registration Number	200002361807	Microfilm / Scanned Date	-
Name	NAMUTONI BOERDERY PTY LTD	Purchase Price (R)	2 200 000
Multiple Owners**	NO	Purchase Date	2004/08/10
Multiple Properties**	NO	Registration Date	2005/01/19
Share (%)	-		

LexisNexis

0861 946 333
windeed.support@lexisnexis.co.za
search.windeed.co.za | www.windeed.co.za

Figure 11: Windeed results

2.13 List Authorities Identified and Notified

The following authorities have been identified and notified of the proposed Mining Permit project:

- Victor Khanye Local Municipality
- Nkangala District Municipality
- Department of Water Affairs
- Department of Agriculture, Forestry and Fisheries
- Department of Environmental Affairs
- Mpumalanga Tourism and Parks Agency
- Department of Land Restitution Commission
- Department of Rural Development and Land Reform
- South African National Roads Agency Ltd (SANRAL).
- South African Heritage Resources Agency.
- Eskom SOC Limited.

2.13.1 Summary of Issues Raised by I&APs

The stakeholders were informed about the project through publication of a newspaper, plugging of site notices and also consulted through emails attached with BID and Reg 2.2 map. The landowner was consulted via email attached with landowner notification letter, BID and Reg 2.2 map. The Land Restitution department was consulted to check if there are any land claims on the land of interest.

Table 2: Issues raised by I&APs

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

I&APs List the names of persons consulted in this column. Mark with an X where those who must be consulted were in fact consulted.		**Date comments received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference** In this report where issues and/or responses were incorporated
Affected parties					
Landowner/s					
Namutoni Boerdery (Pty) Ltd				• Newspaper published • Site notices plugged	
Land occupiers					
Daybreak	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	
Adjacent land occupiers					
AFGRI Poultry	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	

I&APs List the names of persons consulted in this column. Mark with an X where those who must be consulted were in fact consulted.		**Date comments received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference** In this report where issues and/or responses were incorporated
VICTOR KHANYE	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	
Organs of state (Responsible for infrastructure that may be affected: Roads Department, Eskom, Telkom, DWA)					
TRANSNET	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	

I&APs List the names of persons consulted in this column. Mark with an X where those who must be consulted were in fact consulted.		**Date comments received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference** In this report where issues and/or responses were incorporated
Eskom	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	
SANRAL	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	
Communities					

I&APs List the names of persons consulted in this column. Mark with an X where those who must be consulted were in fact consulted.		**Date comments received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference** In this report where issues and/or responses were incorporated
Sundra **Tikie line** **Rietkol AH**	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	
Department of Land Affairs					
COMMISSION ON RESTITUTION OF LAND RIGHTS	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	
Mpumalanga Provincial Government					

I&APs List the names of persons consulted in this column. Mark with an X where those who must be consulted were in fact consulted.		**Date comments received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference** In this report where issues and/or responses were incorporated
environmental affairs Department: Environmental Affairs REPUBLIC OF SOUTH AFRICA	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	
Other competent authorities affected					
water & sanitation Department: Water and Sanitation REPUBLIC OF SOUTH AFRICA	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	
agriculture, forestry & fisheries Department: Agriculture, Forestry and Fisheries REPUBLIC OF SOUTH AFRICA	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	

I&APs List the names of persons consulted in this column. Mark with an X where those who must be consulted were in fact consulted.		**Date comments received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference** In this report where issues and/or responses were incorporated
Mpumalanga Tourism Agency	**X**		No issues raised yet	• Newspaper published • Site notices plugged • Email sent	
	X		No issues raised yet	• Newspaper published • Site notices plugged • BID uploaded on the online portal	
Other affected and Interested parties					

NB: Due to POPI Act, no personal information is shared.

3 Baseline environment

The environmental attributes associated with the alternatives.

The environmental attributes described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects.

3.1 Type of environment affected by the proposed activity

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

3.1.1 Regional geology

Karoo Supergroup

The proposed project area follows under the main Karoo supergroup, under Ecca group. The sedimentary part of the Karoo Supergroup is subdivided into four main lithostratigraphic units, which from the base up are the Dwyka, Ecca, Beaufort and Stormberg (Molteno, Elliot and Clarens formations) groups (Johnson et al., 1996; SACS, 1980;). These are capped by some 1.4 8 km of basaltic lavas of the Drakensberg Group (Johnson et al., 1996; Veevers et al., 1994), the extrusion of which is related to the break-up of Gondwana (Cox, 1992). The basement to the Karoo Supergroup fills in both the MKB and in the northern basins is heterogeneous (Bordy et al., 2004; Hancox, 1998; Rutherford, 2009) and this heterogeneity plays a significant control on the nature of the fill, particularly during the early phases of the deposition of the Karoo Supergroup.

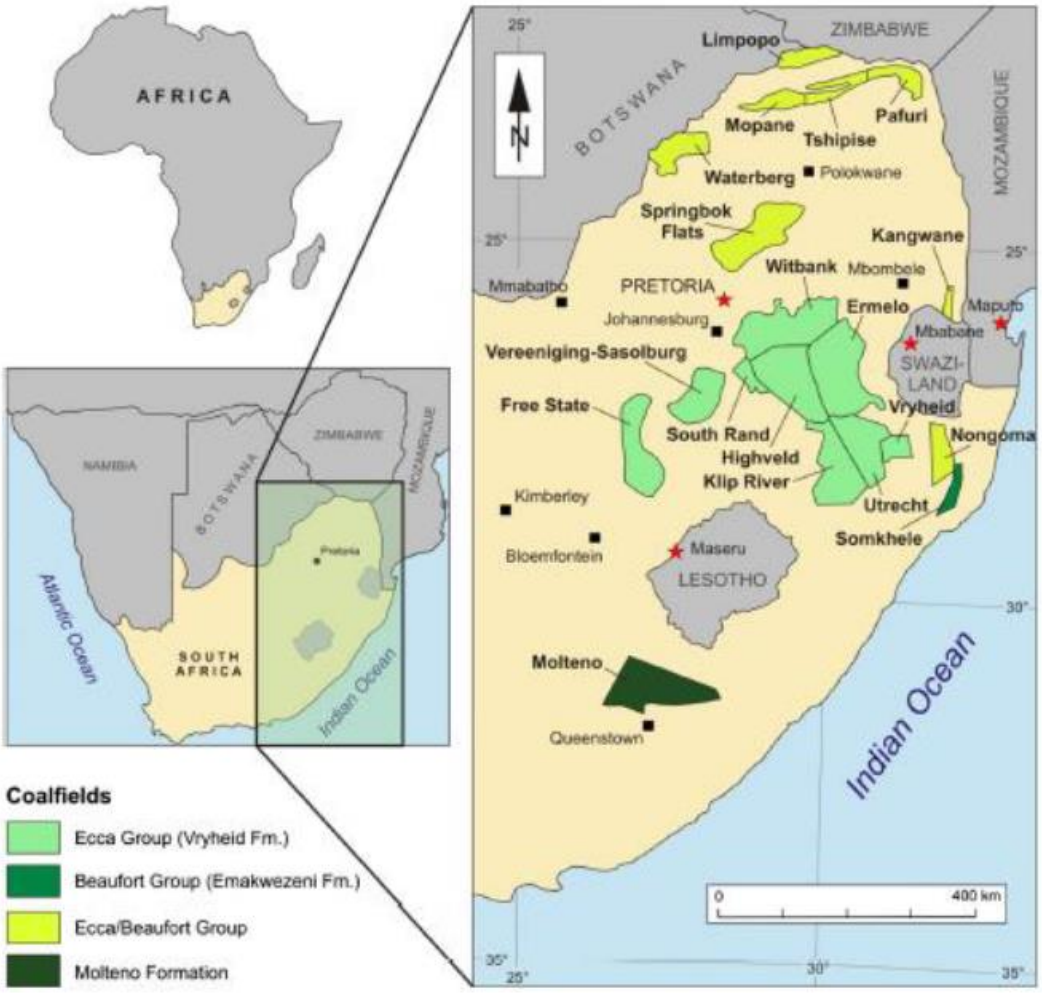


Figure 12: Coal field of South Africa (adopted from Hancox and Gotz, 2014).

Dwyka Group

The rocks of the Dwyka Group in South Africa are amongst the most important glaciogenic deposits from Gondwana. This Group is named for exposures along the Dwyka River east of Laingsburg and forms the basal succession of the Karoo Supergroup. Dwyka Group strata are mostly contained within bedrock valleys incised into Archean to lower Palaeozoic bedrock (Visser, 1990; Visser and Kingsley, 1982; Von Brunn, 1996). The lithologies in the areas underlying the coalfields of South Africa consist of a heterolithic arrangement of massive and stratified polymictic diamictites, conglomerates, sandstones and drop stone-bearing varved mudstones. The easily identifiable lithologies form a good marker below the coal bearing Ecca Group. In the distal sector of the MKB these sedimentary strata accumulated largely as ground moraine associated with continental ice sheets and is generally composed of basal lodgement and supraglacial tills. These deposits are generally massive, but crude horizontal bedding occurs in places towards the top (Tankard et al., 1982).

Ecca Group

In the 1970s a number of studies (Cadle, 1974; Hobday, 1973, 1978; Mathew, 1974; Van Vuuren and Cole, 1979) showed that the Ecca Group could be subdivided into several informal units based on the cyclic nature of the sedimentary fills. In 1980 the South African Committee for Stratigraphy (SACS, 1980) introduced a formal lithostratigraphic nomenclature for the Ecca Group in the northern, distal sector of the MKB, which replaced the previously used informal Lower, Middle and Upper subdivisions with the Pietermaritzburg Shale Formation, the Vryheid Formation and the Volksrust Shale Formation.

Witbank Coalfield

The Witbank Coalfield is elongated over 180 km in a west to east direction, it is not surprising that the basement to the Karoo Supergroup succession is varied. From west to east the basement rocks include metasedimentary, metavolcanic, and dolomitic rocks of the Neoarchaean Transvaal Supergroup, metasedimentary and metavolcanic rocks of the Palaeoproterozoic Waterberg Group and BIC age intrusives (felsites and granites). The changing nature of the basement plays a major role in the nature of the palaeotopography created. For example, in the far east of the Witbank Coalfield, where dolomites of the Transvaal Supergroup form the basement, abnormally thick coals filling karst topography are known. A similar but more extreme case is documented at the Syferfontein Colliery in the West Rand outlier (Stuart-Williams,1986). In some areas close to the north-western basin margin, the stratigraphic column is reduced to only 80 m. It was also the focus of much of the academic research, including the works of Cairncross (1979) in the Van Dykes Drift area, Le Blanc Smith and Eriksson (1979) to the west of Witbank, and Holland et al. (1989) to the east of Witbank. Cadle and Cairncross (1993) described a sandy bedload dominated system with lateral accretion surfaces from the southern part of the central sector. More recently it has been covered in the regional geological model of Grodner (2002) and Grodner and Cairncross (2006) and various Competent Persons' Reports available on various companies' websites (Goldschmidt et al., 2010a).

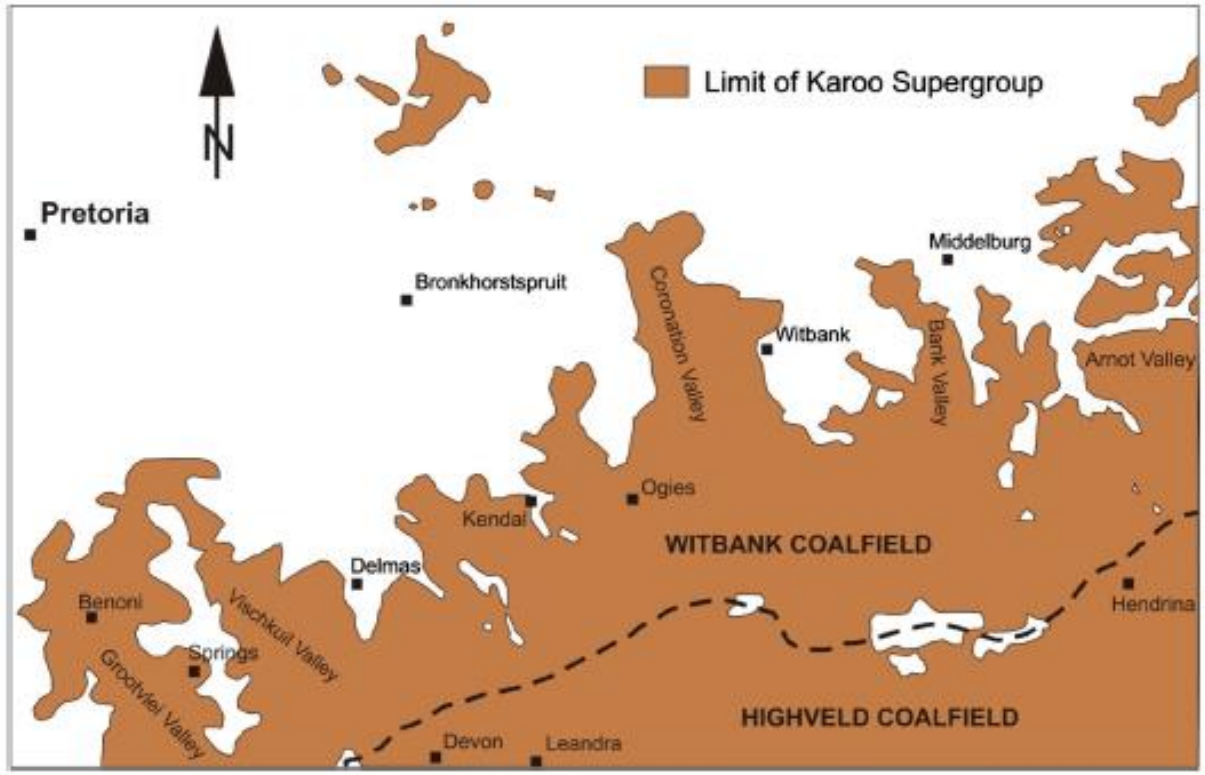


Figure 13: Geographic extent of Witbank Coalfield

Five coal seams occur in the Vryheid Formation and these are associated predominantly with the coarser-grained fluvial facies at the top of each sequence. These coal seams can be traced laterally across the entire area of occurrence of the Vryheid Formation in the MKB; however, some disagreement exists as to the exact correlation in the various coalfields. Regional differences allow for the considerable diversity of coal types (organic content), mineral matter composition, and rank (maturity) that is found within the coalfields of South Africa (Falcon, 1986b). The majority of the economically extracted coal in South Africa occurs in rocks of the Vryheid Formation, which ranges in thickness in the MKB from less than 70.0 m to over 500.0 m. It is thickest to the south of the towns of Newcastle and Vryheid, where maximum subsidence took place (Du Toit, 1918; Cadle, 1975; Whateley, 1980a; Stavrakis, 1989; Cadle et al., 1982) and where the basin was the deepest.

The No. 2 Seam Sequence (Figure 4) includes the succession from the top of the basement to the top of the No. 2 Seam, which may be up to a maximum development of 60 m in places (Le Blanc Smith, 1980a). It incorporates the rocks of the Dwyka Group, as well as the overlying No. 1 and No. 2 coal seams. It should be noted that we accept that the Dwyka has separate Group status, but that it is described as the basal part of the No. 2 Seam Sequence. The thickness of the Dwyka Group in the Witbank Coalfield also varies considerably dependant on the nature of the underlying topography. It ranges from being thin or absent over the most prominent pre-Karoo topographic highs, to over 25 m thick in the central part of the Witbank Coalfield (Le Blanc Smith and Eriksson, 1979) to 30 m thick (Glasspool, 2003) in the deeper palaeo valleys. Le Blanc Smith

and Eriksson (1979) note that the fill consists of poorly sorted matrix rich diamictites, laminated sandstones and siltstones, stratified pebbly mudstones and cross-stratified conglomerates.

In the western Witbank Coalfield, the No. 2 Seam Sequence tends to be much more variable in nature than it is in the central part. This is mainly due to the irregular nature of the Transvaal Supergroup (Malmani Group) dolomite floor. The Dwyka Group outcrops in the area around Delmas and is also well known from borehole core, which show the succession to be between 0 and 10 m in thickness. The base of the No. 2 Seam Sequence is usually formed by poorly sorted matrix rich diamictites, with angular to rounded basement clasts, set in a matrix of fine- to medium-grained sandstone, which may be highly carbonaceous in places. Maximum clasts sizes documented by the authors are in the region of 30 cm. According to Le Blanc Smith (1980a) the Dwyka Group diamictites may in turn be overlain by a succession up to 36 m thick of mudstone and siltstone, which grades upwards to sandstone and conglomerate that form the floor of the No. 1 Seam or its carbonaceous mudstone equivalent.

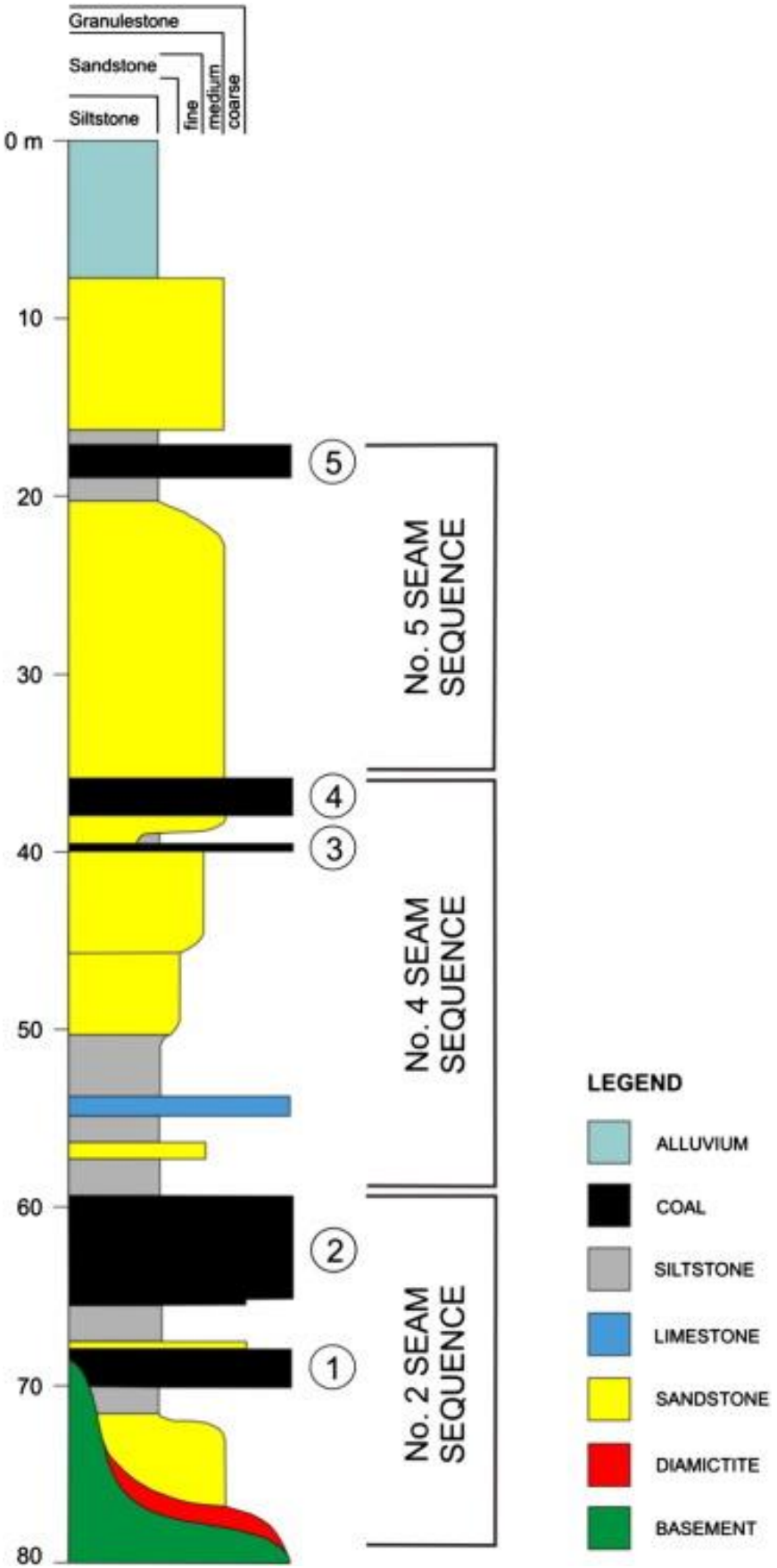


Figure 14: Typical Coal seam of the area.

3.1.1.1 Local geology

Vryheid Formation

The area of interest is situated on the Vryheid Formation (see figure 14). This formation has been subdivided into three different lithofacies arrangements. They are dominated by fine-grained mudstone, carbonaceous shale with alternating layers of bituminous coal seams, and coarse-grained, bioturbated immature sandstones respectively. The rock sediments are predominantly arranged in upward-coarsening cycles, although some fining-upward cycles are found in this formation's easternmost deposits. The alternating rock types observed in the Vryheid Formation indicate seasonal variations of storms and fairer weather in a pro-delta setting. The carbonaceous shales were formed below the water surface in anoxic conditions and the coal formed from compacted plant matter deposited at the bottom of peat swamps. These swamps formed on abandoned alluvial plains where stagnant water accumulated.

The Vryheid Formation consists mainly of sandstone and shale with some subordinate coal seams associated with it (SACS, 1980). The change from stable margin to subsiding foreland basin confirmed the Vryheid Formation and the shales of the succession to "pinch-out" to the north. This "pinching-out" results in a gradation of a fluvial valley-fill sequence into sediments of deltaic origin (Van Vuuren, 1981). According to Cadle et al. (1990) the sandstones become interfingered with the deeper water shales, a so-called "shale-out", approximately 500 km from the present northern basin margin. They state that this is due to rapid basinward facies migration down the southernly dipping paleoslope.

The Vryheid Formation contains 5 major coal seams, with locally developed partings and splits in the coal seams increasing the number to 8, within an 85 m thick stratigraphic horizon (Greenshields, 1986) although this horizon can attain thicknesses up to 160 m in the deeper parts of the basin (Cadle et al., 1990). According to Cadle et al. (1990) all five major seams are still present in the thinnest and most proximal parts of the formation. Greenshields (1986) states that all four cyclothems exhibit a regressive phase where sedimentation occurred in fluvio-deltaic environments, followed by a transgressive phase where sedimentation was typical of both marine and non-marine transgressive shorelines. A seam is therefore associated with clastic successions comprising carbonaceous shale or siltstone, fine to coarse grained sandstone and minor conglomerate (Cadle et al., 1990).

Greenshields (1986) states that the mining potential of the seams varies throughout the area but that the C seam has the biggest potential, although the B and E, and occasionally the D, seams attain mineable thicknesses over limited areas. The general distribution of the upper seams is often restricted by present-day topography, while the development of the lower seams is controlled by the pre-Karoo topography. Structurally the seams are flat lying with a gentle south-westerly dip (Greenshields, 1986).

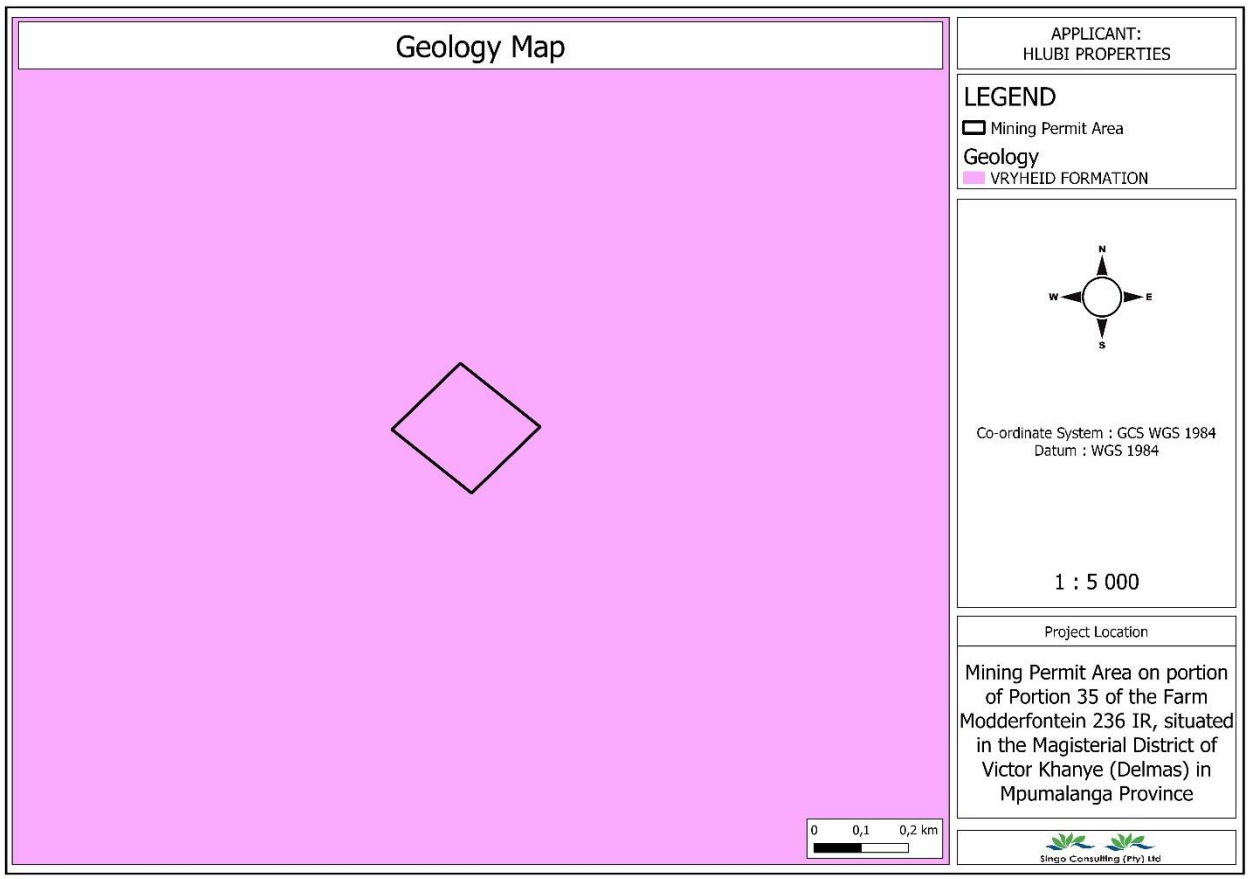


Figure 15: Geology map of the proposed mine area (Singo Consulting (Pty) Ltd, 2022)

3.1.1.2 Natural vegetation

The proposed project area is located within the grassland biome. The grassland biome is one of the nine biomes in Southern Africa and is the largest biome after the Savanna Biome accounting to 28% of the terrestrial surface area of Southern Africa (Mucina and Rutherford 2006). A high proportion of vegetation types in Mesic Highveld Grassland are considered to be threatened and this ecosystem group is generally poorly protected.

(Low & Rebelo 1996) further classifies the project area as characterised by the Moist Cool Highveld Grassland; The vegetation comprises predominantly of highly productive sourveld grasslands characterised by long-lived grasses that favour re-sprouting, and other plants that show a tendency to store carbohydrates in specialised underground storage organs; plants withstand above-ground disturbance by being long-lived with only occasional replacement from seed.

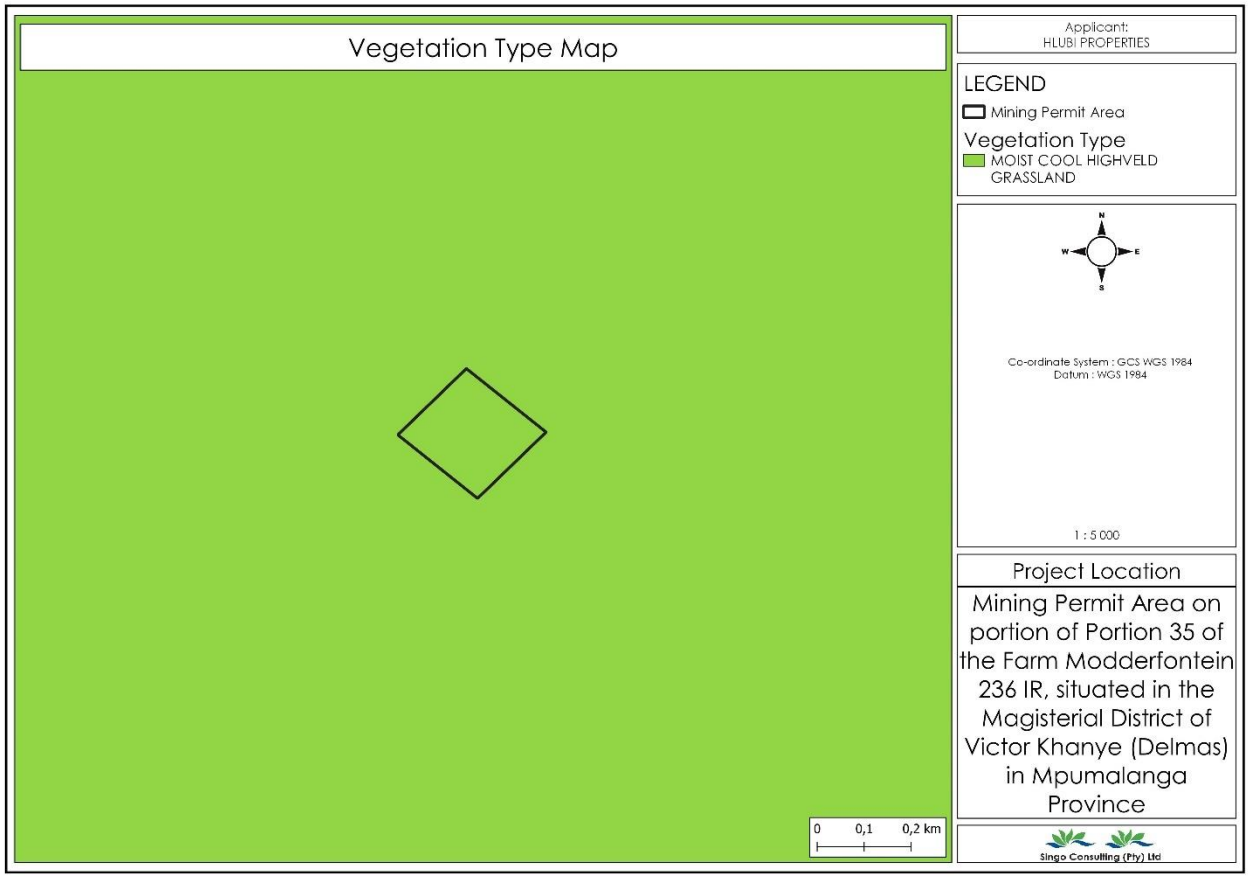


Figure 16: Vegetation map of the project area (Singo Consulting (Pty) Ltd, 2022)

According to the screening report the area is characterised by low sensitivity of plant species.

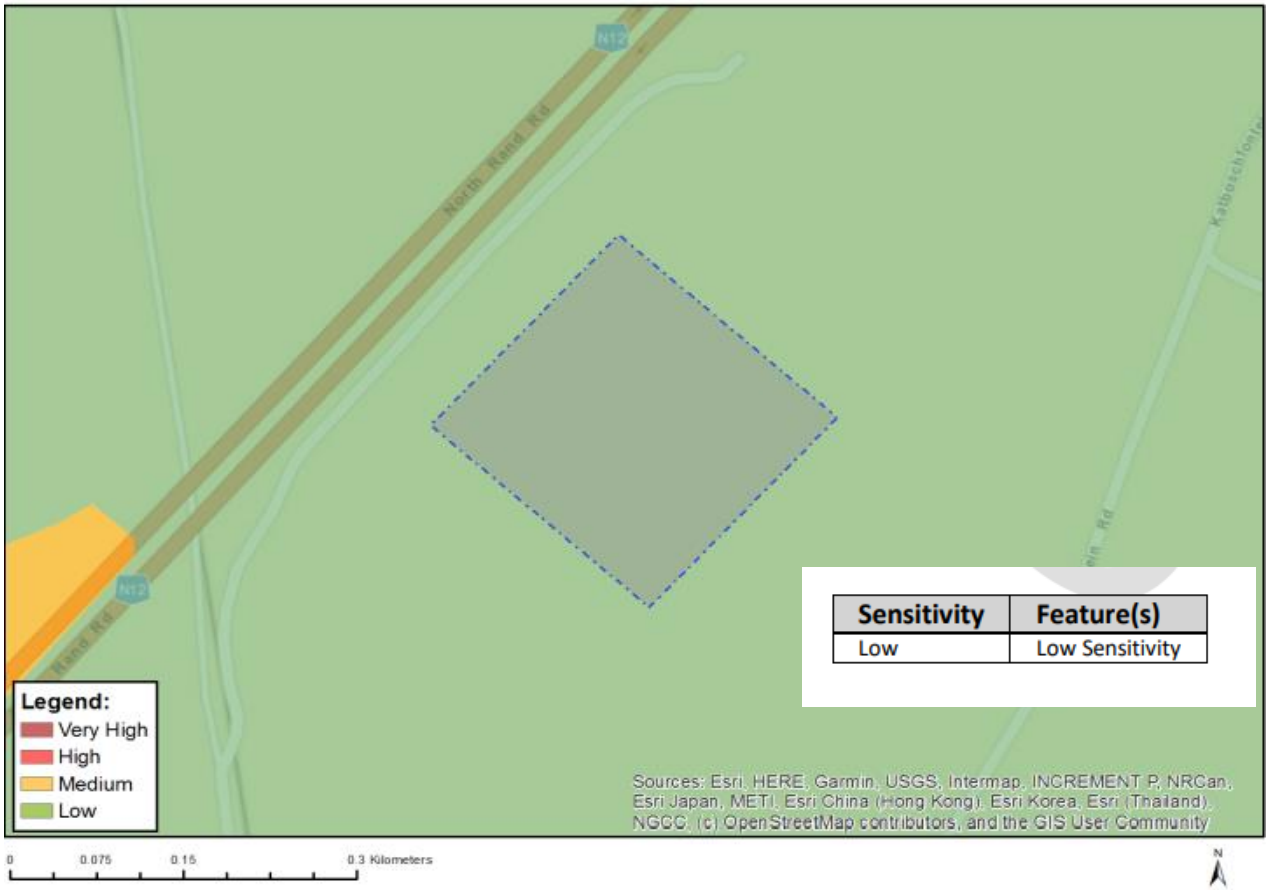


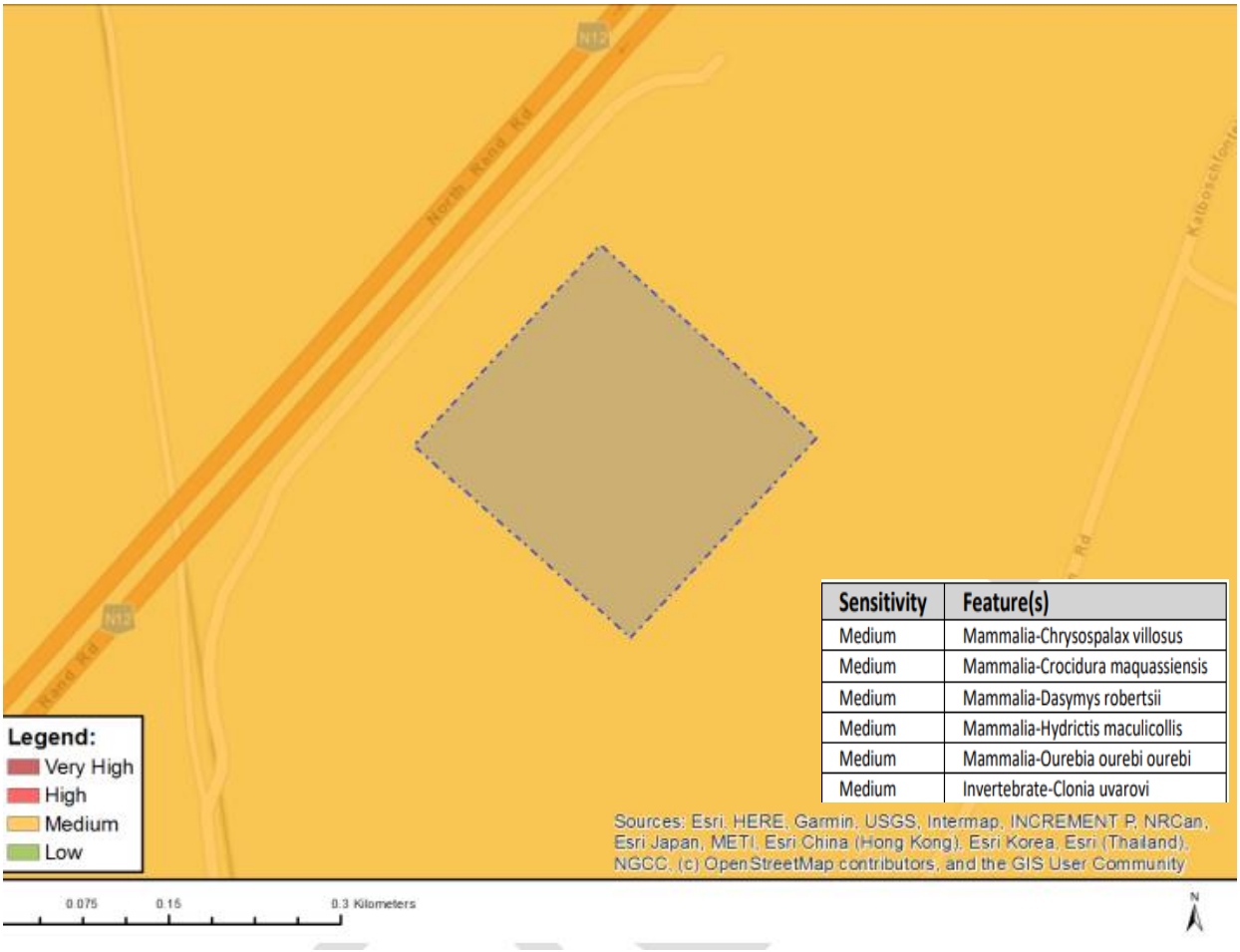
Figure 17: Relative plant species theme sensitivity (adopted from screening report).

During site assessment the area was cultivated with no natural/ indigenous vegetation. The species status report by MTPA has indicated that the farm Modderfontein 236 IR has plant species Kniphofia typhoides commonly known as Bulrush poker.

Photo 2: Kniphofia typhoids (adopted from wildflowernursery.co.za)

3.1.1.3 Fauna

According to the screening report the proposed mining area has medium animal sensitivity. The identified animal species include *Crocidura maquassiensis* and *Dasymys robertsii.*



Sensitivity	Feature(s)
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi
Medium	Invertebrate-Clonia uvarovi

Figure 18: Relative animal species theme sensitivity (adopted from screening report).

The Makwassie musk shrew (Mammalia-Crocidura maquassiensis) is a species of mammal in the family Soricidae. This is a rare species endemic to South Africa, Swaziland, and Zimbabwe, existing in moist grassland habitats in the Savannah and Grassland biomes.

The main threats to shrews are the loss or degradation of moist, productive areas such as wetlands and rank grasslands within suitable habitat. The two main drivers behind this are abstraction of surface water and draining of wetlands through industrial and residential expansion, and overgrazing of moist grasslands, which leads to the loss of ground cover and decreases small mammal diversity and abundance (Bowland & Perrin 1989, 1993). Suppression of natural ecosystem processes, such as fire, can also lead to habitat degradation through bush encroachment or loss of plant diversity through alien invasive infestation, and is suspected to be increasing with human settlement expansion. There are also clear overlaps and synergistic effects between these threats. We infer a continuing population decline based on loss of natural habitat.

The species status report by MTPA has indicated that the farm Modderfontein 236 IR has Bird species Leptoptilos crumeniferus commonly known as Marabou Stork.

Figure19: Typical example of Mammalia-Crocidura maquassiensis (adopted from mindat.org)

Figure 20: Typical example of Marabou Stork (Adopted from ebird.org)

3.1.1.4 Soil

From a basic soil study that was conducted in house the soil classes map in Figure 21 below was produced, showing that the mining permit area is largely covered with Association of Classes 1 to 4: Undifferentiated structureless soils.

Association of Classes 1 to 4: Undifferentiated structureless soils.

The Freely drained, structureless soils can be defined based on their soil depth, Soil Drainage, erodibility, and natural fertility.

Soil depth

Depth of the soil profile is from the top to the parent material or bedrock. This type of soil can be classified as a restricted soil depth. A restricted soil depth is a nearly continuous layer that has one or more physical, chemical, or thermal properties.

Soil Drainage

Soil drainage is a natural process by which water moves across, through, and out of the soil because of the force of gravity. The soils in the proposed area have an excessive drainage due to the soils having very coarse texture. Their typical water table is less than 150.

Erodibility

Erodibility is the inherent yielding or non-resistance of soils and rocks to erosion. The freely drained structureless soils have high erodibility. A high erodibility implies that the same amount of work exerted by the erosion processes lead to a larger removal of material.

Natural Fertility

Soil fertility refers to the ability of soil to sustain agricultural plant growth, i.e., to provide plant habitat and result in sustained and consistent yields of high quality. The soil, as a nature of them, contains some nutrients which is known as 'inherent fertility'. Among the plant nutrients, nitrogen, phosphorus, and potassium is essential for the normal growth and yield of crop.

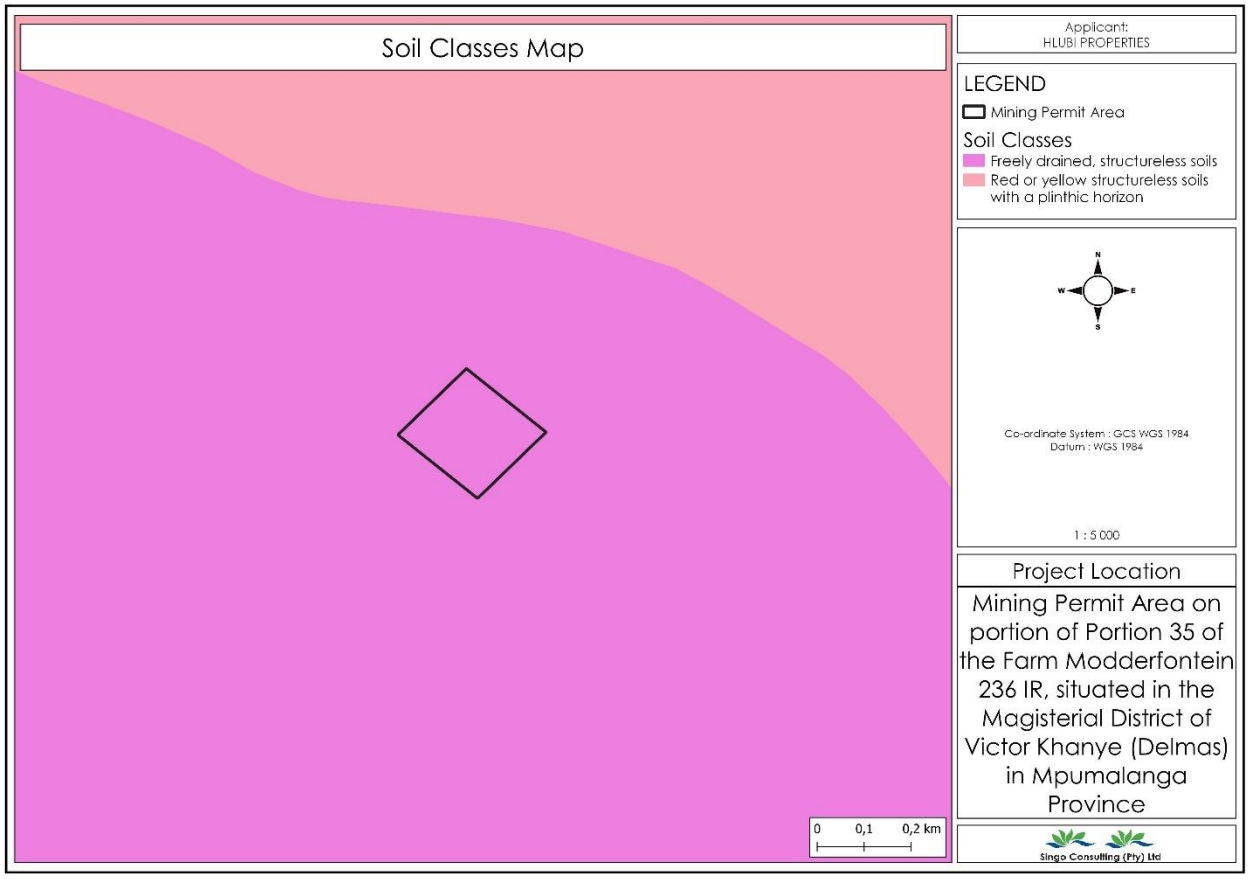


Figure 21: Soil map of the farm (Singo Consulting (Pty) Ltd, 2022)

3.1.1.5 Surface and ground water

According to the hydrological map produced by the in-house GIS technician in figure 22 below, there are depression wetlands and a Seep wetland east and west of the project area. The closest depression wetland is situated approximately 552.32 m northwest side of the project area and the seep wetland approximately 554.88 m west of the project area.

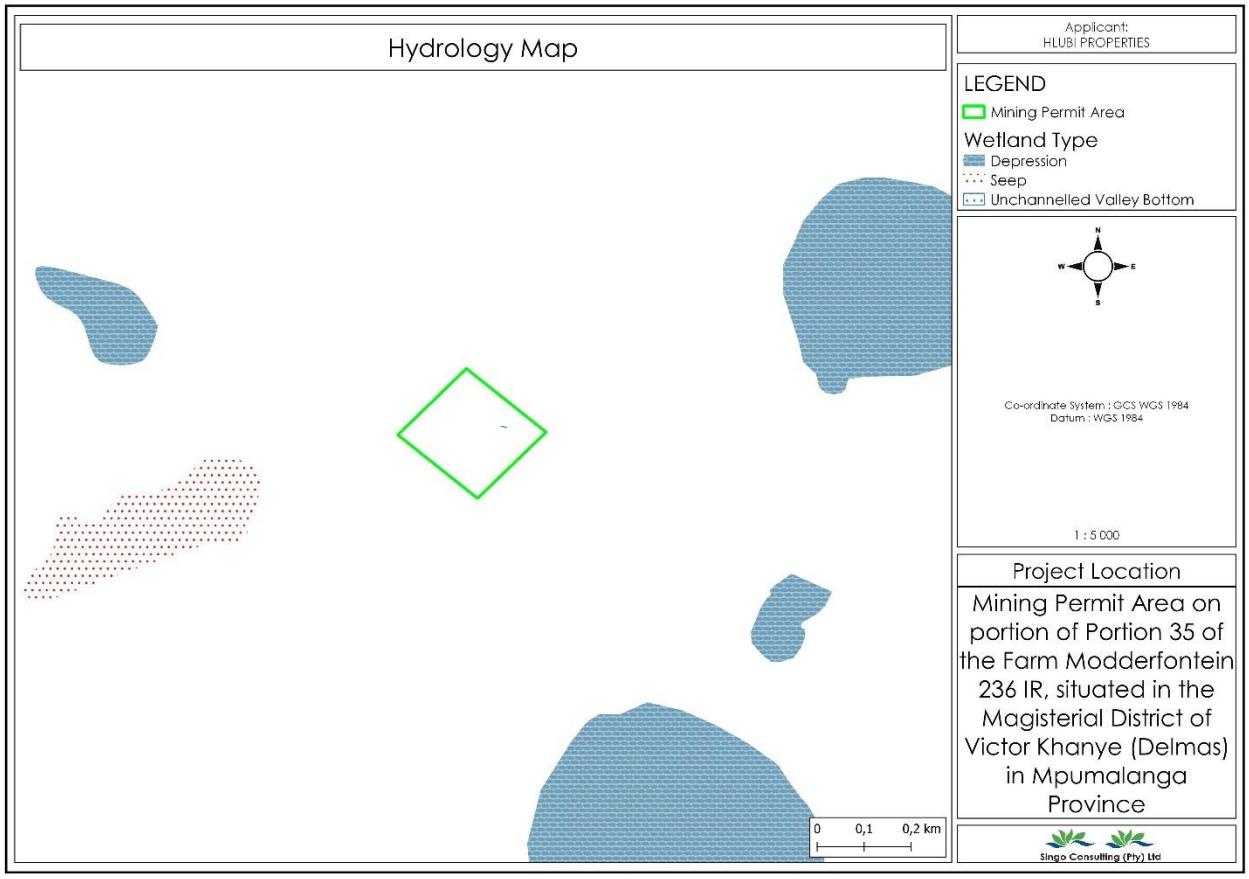


Figure 22: Surface water map (Singo Consulting (Pty) Ltd, 2022)

The regional hydrological setting of the project site is indicated in Figure 22. The mining permit area is in the Vaal Water Management Area (WMA). The main quaternary catchment is C21D.

The WR2012 study, presents hydrological parameters for each quaternary catchment including area, mean annual precipitation (MAP) and mean annual runoff (MAR). Based on the WR2012 study, the project area falls within the quaternary catchment C21D. The total catchment area of C21D is 446 Km^2, with a net MAR of 23.19 million cubic meters (mcm) and a (MAP) of 698 millimetre (mm). C21D has a mean annual rainfall of 697.98 mm.

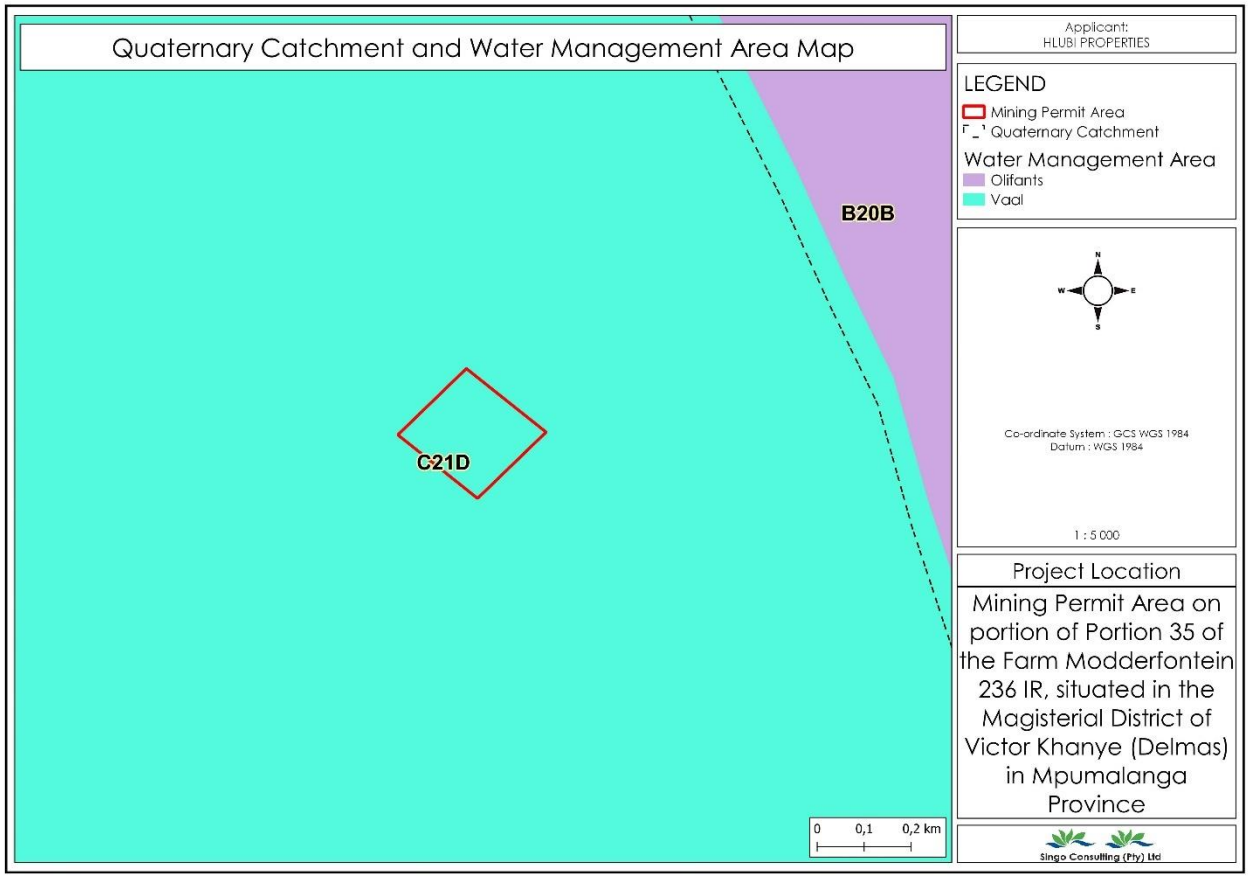


Figure 23: Quaternary catchment and water management (Singo Consulting (Pty) Ltd, 2022)

3.1.1.6 Climate

In Delmas, the summers are long, warm, and partly cloudy and the winters are short, cold, dry, and clear. Köppen and Geiger classify this site as Cfb. The area has an average high temperature of above 24°C, with January been the hottest month of the year with an average high of 26°C and an average low of 15°C. The coldest months in Delmas is June and July with an average low of 2°C and an average high of 18°C.

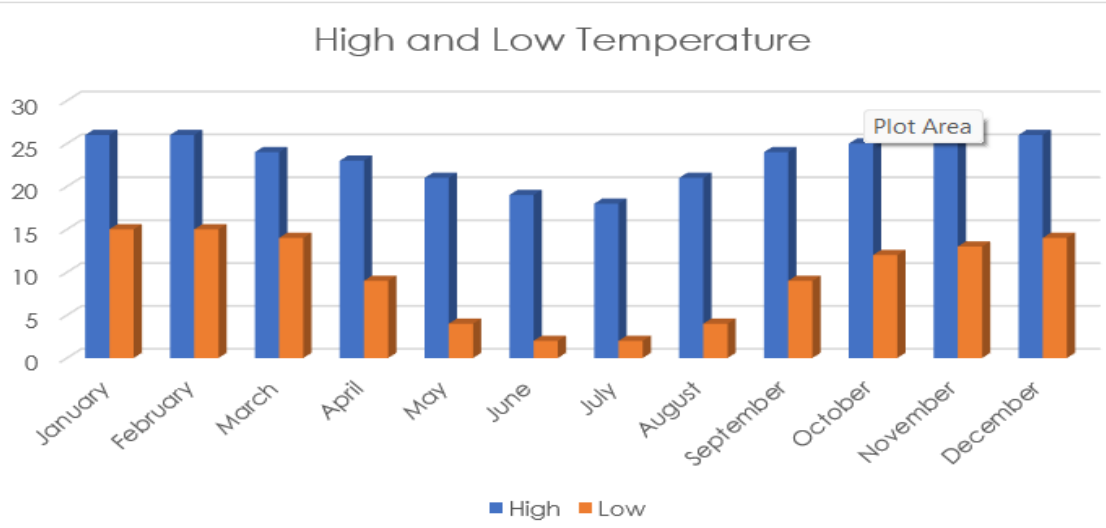


Figure 24: High and low temperature map (adopted from www.worldweatheronline.com)

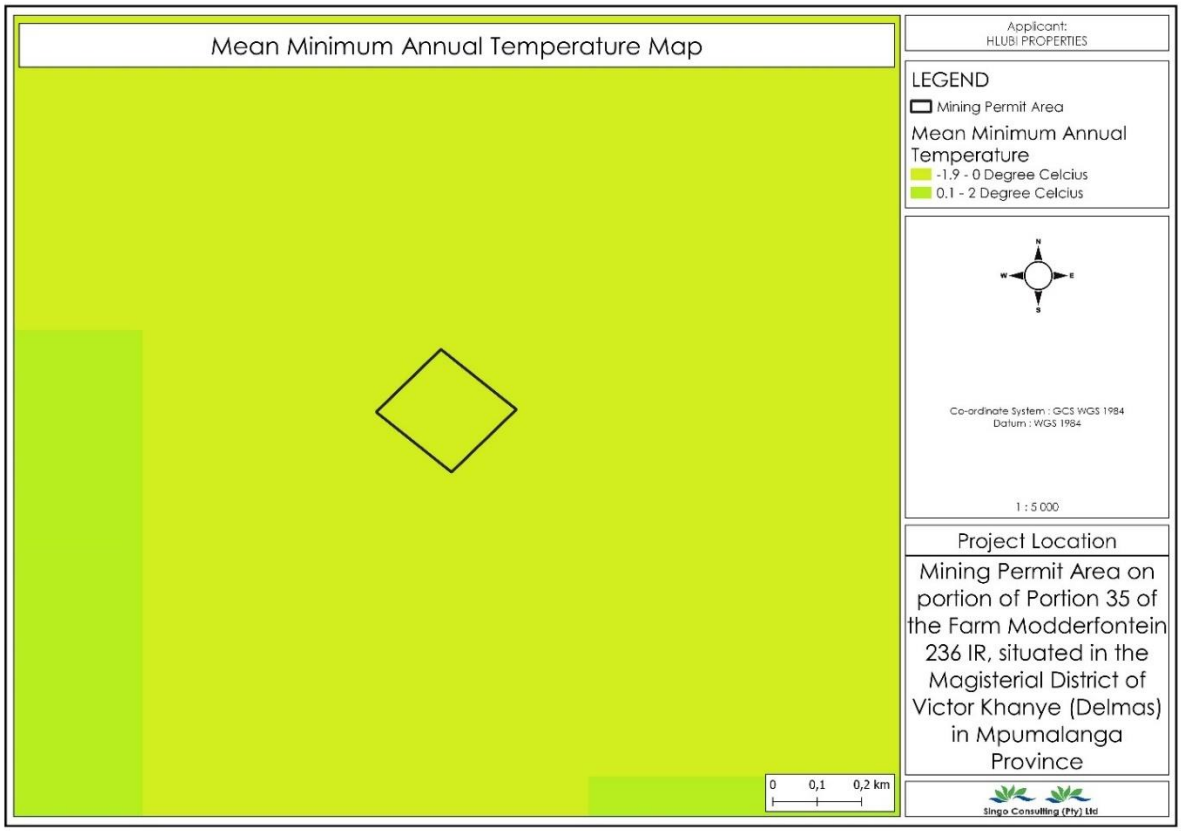


Figure 25: Annual minimum temperatures (Singo Consulting (Pty) Ltd, 2022)

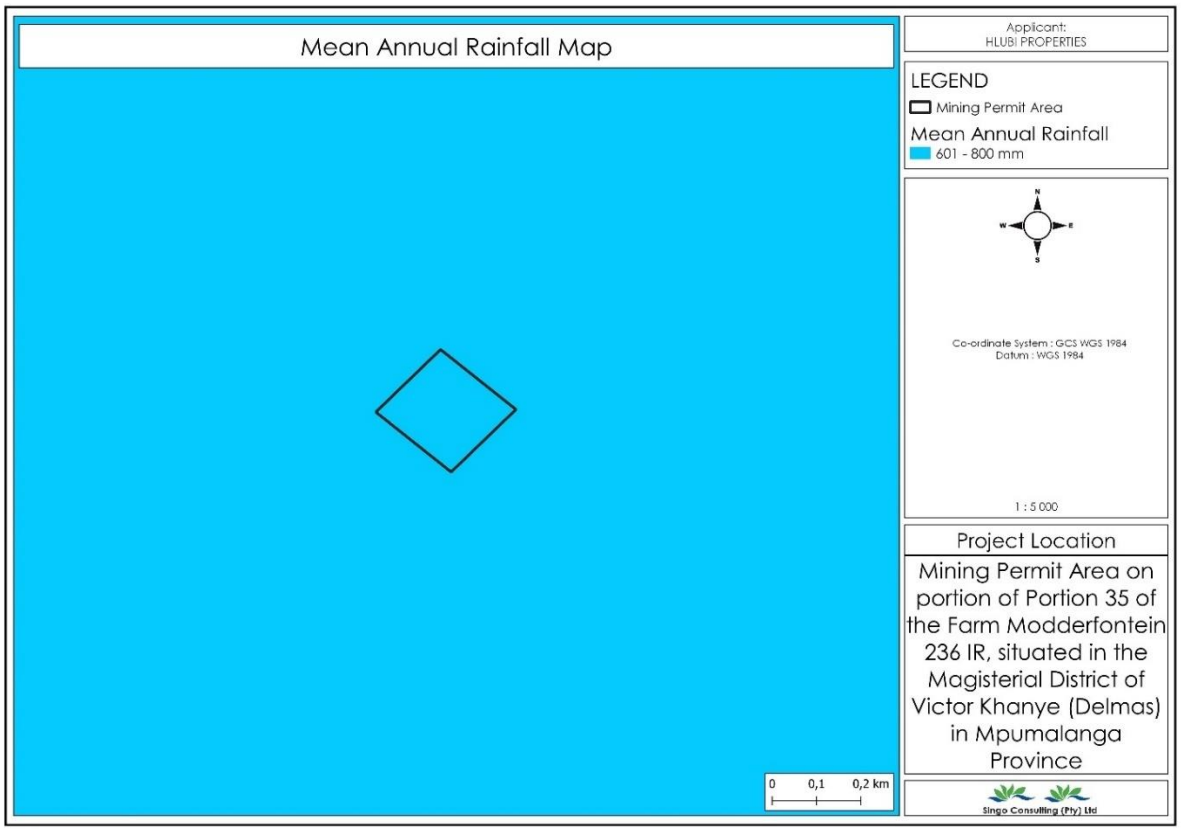


Figure 26: Mean annual rainfall (Singo Consulting (Pty) Ltd, 2022)

3.1.1.7 Topography

The topology of the area is illustrated below by Figure 27. A topographical map shows the physical features of the land. Besides just showing landforms such as mountains and rivers, the map also shows the elevation changes of the land. The topographical map illustrates that the proposed project area is located mid-slope between an elevation of 1630 – 1620 mamsl. As shown below, the elevation descends towards the western direction.

In this environmental project, topography is used to determine how surface water flows during rainy seasons or how it would flow during the existence of the project and to also determine how soil can be conserved. The topography influences groundwater vulnerability, how water will flow over the land, run-off and infiltration. Topographic data can aid in environmental conservation. Scientists can determine how water and wind cause erosion by understanding the contour of the land.

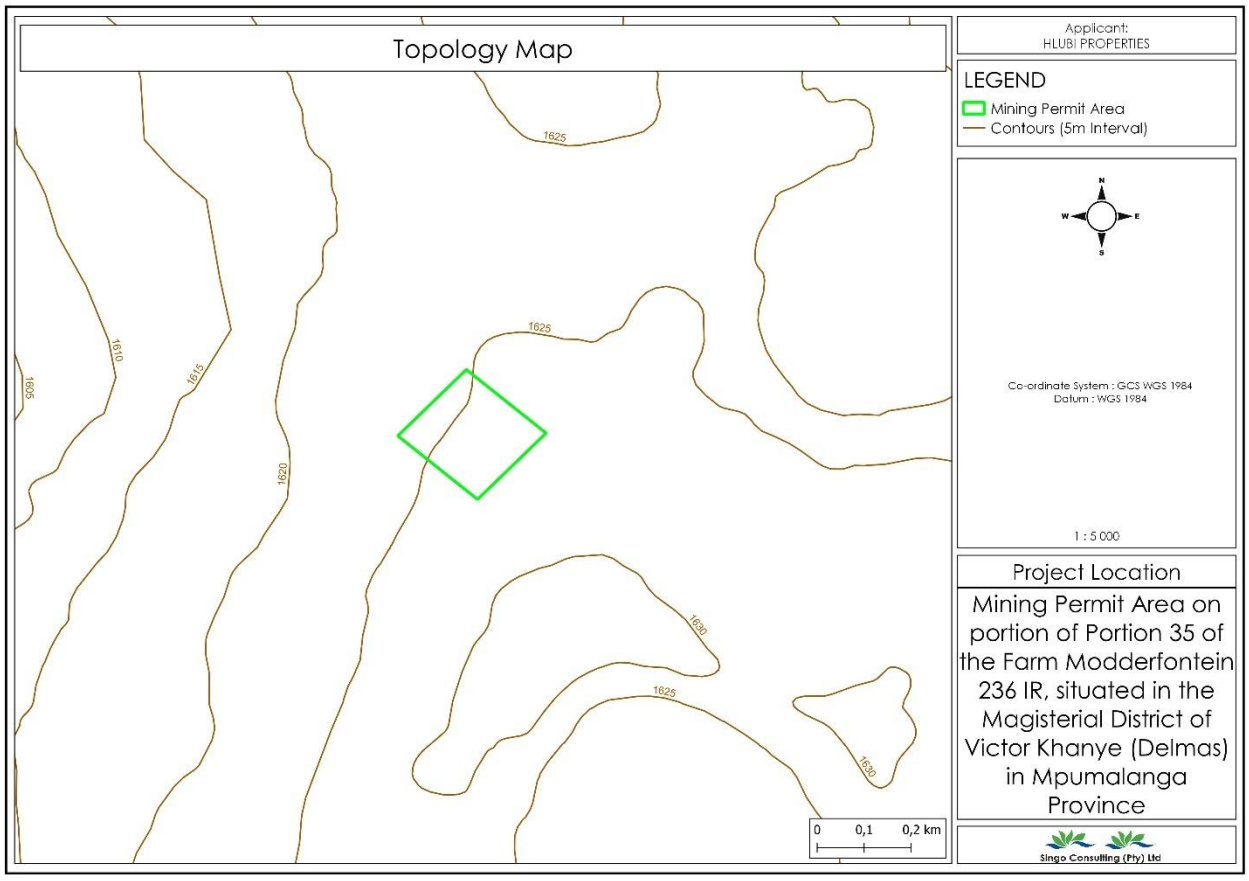


Figure 27: Topography of the study area (Singo Consulting (Pty) Ltd, 2022)

3.1.1.8 Public roads

The national road N12 is operating below its threshold with capacity for additional volumes of traffic. No mining activities will be conducted within 100m (buffered zone) of any structures, including public roads.

3.1.1.9 Graves, heritage, archaeological and cultural resources

No graves or any archaeological structures or resources were observed onsite.

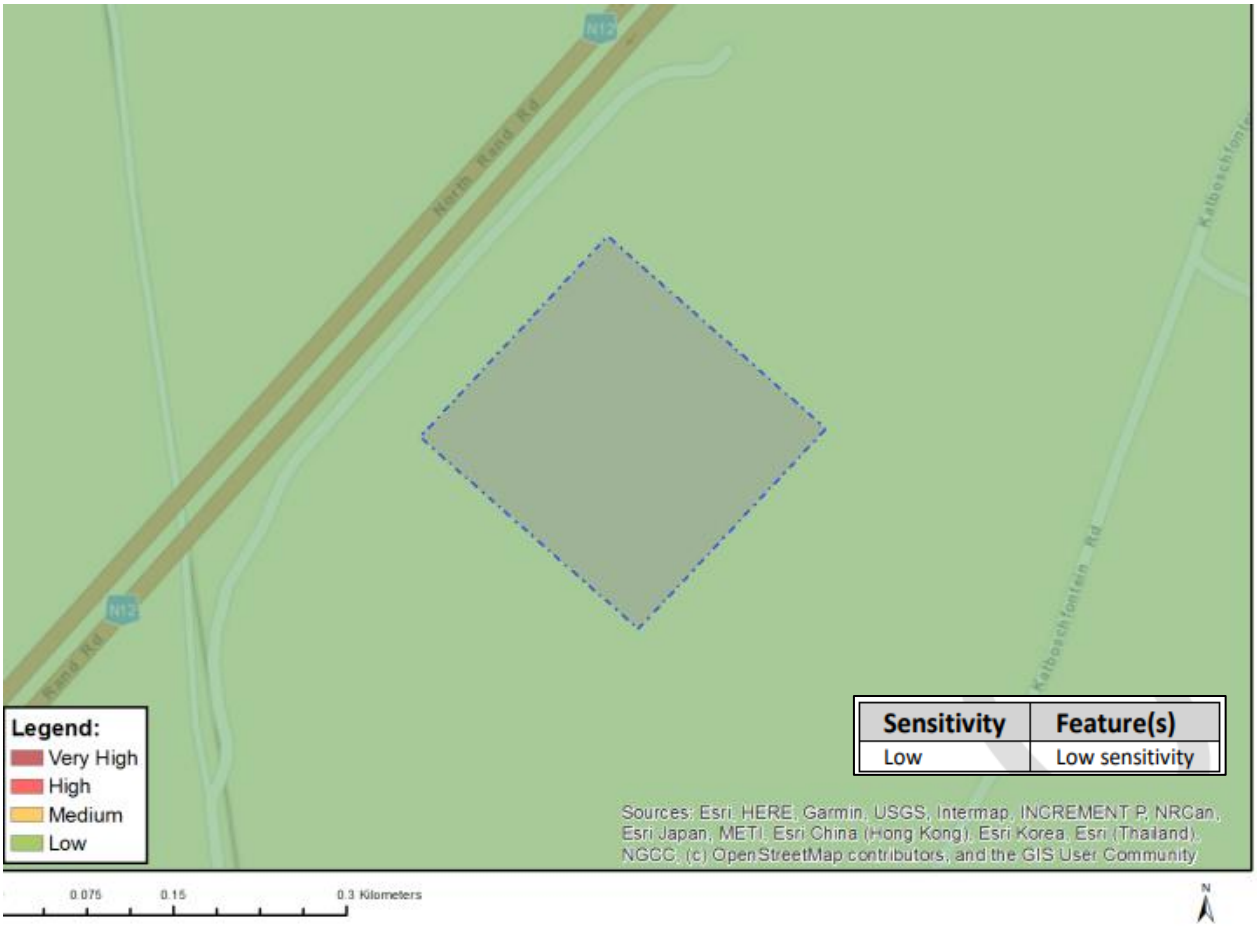


Figure 28: Map of relative archaeological and cultural heritage theme sensitivity.

3.1.1.10 Railway line

There is no railway line that runs from the proposed mining area.

3.1.1.11 Noise

The proposed mine is located within a farming area. The traffic on the public roads surrounding the property contributes to the ambient noise of the area. The noise to be generated at the proposed mine operation is expected to temporarily increase the noise levels of the area. Blasting noise will be instantaneous and of short duration. Crushing and transportation of the material will generate noise daily. The closest residence is approximately 2.6 Km East of the proposed mine area, which makes the significance of noise on the surrounding settlement quite low. Mitigation measures should be implemented to ensure employees conduct themselves in an acceptable manner while on site in order to lessen the noise impact of the proposed activity on the surrounding environment.

3.1.1.12 Visual exposure

The proposed mining area will include the coal opencast on the farm. The mining area will be

visible from the N12 and will be noticeable from surrounding community.

The applicant should ensure that housekeeping is managed to standard, as this will mitigate the visual impact during the operational phase of the mine. Upon closure of the mine and decommissioning of the site, the area should be fully rehabilitated, and all exposed areas should be seeded to enhance vegetation recovery should natural vegetation not establish within six months of rehabilitation completion.

3.1.1.13 Socio-economic

Reference to the following section has been made from (2021/2022) Final Integrated Development Plan of Victor Khanye Local Municipality.

The Victor Khanye Local Municipality comprises of 9 Wards and a total population of approximately 84 151 (CS 2016). The municipality has an area of approximately 1 568 km² and includes the following major un-established urban areas or towns:

Table 3: Main places within the municipal area (2011/2016 Census)

No.	Places	Population size
1.	Delmas	3 496
2.	Botleng	30 793
3.	Sundra	3 252
4.	Eloff	1 391
5.	Remainder of the Municipality	17 275

3.1.1.14 Population demographics

Local municipal area	Population		Average annual population growth	Projected 2030 numbers
	2011 (Census)	2016 (CS)	2011-2016	
Mbombela	588794	622158	1.3%	745 475
Bushbuckridge	541248	548760	0.3%	572 263
Emalahleni	395466	455228	3.2%	707 530
Nkomazi	393030	410907	1.0%	472 327
Govan Mbeki	294538	340091	3.3%	535 796
Thembisile Hani	310458	333331	1.6%	416 282
Steve Tshwete	229831	278749	4.4%	509 355
Dr JS Moroka	249705	246016	-0.3%	235 882
Mkhondo	171982	189036	2.1%	252 874
Chief Albert Luthuli	186010	187630	0.2%	192 952
Msukaligwa	149377	164608	2.2%	223 236
Lekwa	115662	123419	1.5%	152 022
Thaba Chweu	98 387	101895	0.8%	113 920
Dr Pixley Ka Isaka Seme	**83235**	**85395**	**0.6%**	**92 855**
Victor Khanye	75 452	84 151	2.5%	118 903
Umjindi	67 156	71 211	1.3%	85 326
Emakhazeni	47 216	48 149	0.4%	50 917
Dipaleseng	42 390	45 232	1.5%	55 715
Mpumalanga	4 039939	4 335964	1.6%	5 533629

Figure 29: Population demographics of Victor Khanye (marked with a red polygon)

According to the 2011 Census by Stats SA, the Municipality had a population of 75 452 in 2011 as shown in figure 29 (marked with red polygon). This figure sprung to 84 151 at an average growth rate of 2.5% per annum. It is predicted that the by 2030 population growth is estimated to stand at 118 903 given the historic population growth per annum, indicative of the migration of labour attracted to the area as a result of the potential for economic growth and resultant job opportunity. The municipality has the 3rd smallest population in Mpumalanga province and 5.8% of total population of Nkangala District Municipality.

3.1.1.15 Education

Victor Khanye grade 12 pass rate decreased from 26.7% in 2011 to 26.0% in 2016. In addition, the percentage of people aged 20+ within the municipal area decreased from 11.8% in 2011 to 10.7% in 2016. Furthermore, there was yet a decrease of people who received higher education. Higher education was recorded at 7.7% in 2011 and 5.4% in 2016. The overall educational performance of the municipal area has decreased.

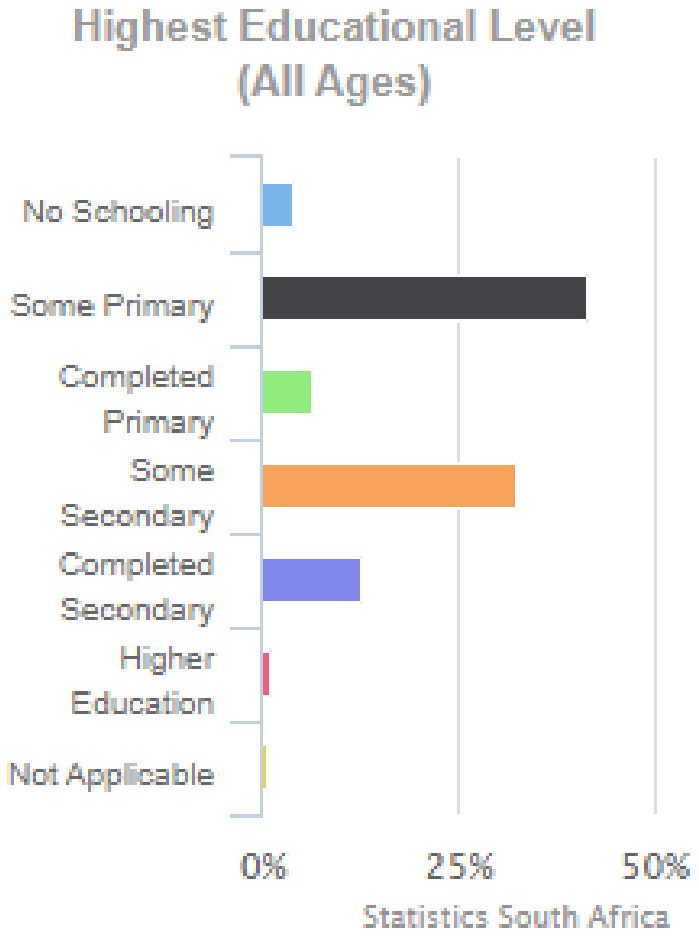


Figure 30: highest educational level for all ages (Source: Stats SA)

Matriculates wrote the year-end exam, which reflects an upward trend and attributed to Victor Khanye Local Municipality being ranked in 5th place in the province. However, this improved pass rate was not reflected in the university admission rate with only 26, 2% of scholars seeking to further their education status. When these statistics are compared with the unemployment statistics the assumption can be made that a high percentage of job seekers do not have the minimum education entry level.

Unfortunately, these job seekers will be restricted to unskilled manual work where the main employer in this sector of employment, namely Agriculture, is receding as a leading employer. This poses a huge problem within the communities as the dependency syndrome increases and criminal activities increase.

3.1.1.16 Employment and income

The leading industry in terms of employment is trade at 21.1%, followed by mining 20.6% and manufacturing 14.2%. Since 2001, there has been an increase in employment in the mining, construction, community services and financial sectors and a decrease in the trade, manufacturing, transport, agriculture, private households and utility sectors.

Looking at the demographic and education information of Delmas, the establishment of mine

in Delmas would improve its local economy as the South African production of economic output has been dominated by the mining industry, in turn alleviating poverty and offering work. The mining firm has a responsibility to develop the infrastructure including roads, the educational system, and the workforce in order to better the state of Delmas. The various businesses that are brought about by mining activity are very beneficial to local economies. Additionally, the mine-created jobs often pay higher wages than the national average.

3.1.1.17 Leading challenges facing the Municipality

According to the 2016 CS (Community Survey) of Stats SA, the 5 leading challenges facing the municipality as perceived by households in the municipal area the following:

- Lack of safe and reliable water supply.
- Lack of/inadequate employment opportunities (correlate with poverty driver information of the CS).
- Inadequate roads.
- Water and sanitation services.
- Inadequate/lack of housing.

3.2 Description of current land uses

The land within which the proposed site is nestled is used as agricultural fields for cultivation of maize. Within 500 m-3 km radius, the land uses are inclusive to residential areas for farm Modderfontein 236 IR workers (Sundra and Tiki-line) and Rietkol AH, poultry farming by Daybreak Farm, water bodies and Landfill (EnviroServe Holfontein).

3.3 Description of site-specific environmental features and infrastructure

The following table provides a description of the land uses and/or prominent features that currently occur within a 500 m radius of the site:

Land use character	Yes	No	Description
Natural area		No	The area is used for cultivation
Low-density residential	Yes		The Sundra residential area is approximately 420 m from the proposed project area.
Medium-density residential		No	
High-density residential		No	
Informal residential	Yes		Tiki line approximately 306 m from the proposed project area.

Land use character	Yes	No	Description
Retail commercial and warehousing		No	
Light industrial		No	
Medium industrial		Yes	
Heavy industrial		No	
Power station		No	
Office/consulting room		No	
Military or police base/ station/compound		No	
Soil heap or slimes dam		No	
Quarry, sand, mine or borrow proposed mine		No	
Dam or reservoir		No	
Hospital/medical centre		No	
School or crèche		No	
School		No	
Tertiary education facility		No	
Church		No	
Old age home		No	
Sewage treatment plant		No	
Train station or shunting yard		No	
Railway line		No	
Major (road 4 lines or more)	Yes		N4 is located approximately 0.15 km away from the project area. The site can be accessed via the N4 or alternatively by the R555 which can also be used to transport coal to clients.
River, stream or wetland	Yes		Depression and seep wetlands located within the 500 m radius
Agriculture	Yes		The proposed project area is used for cultivation of maize
Nature conservation area		No	
Mountain, hill or ridge		No	
Museum		No	
Historical building		No	
Plantation		No	

Land use character	Yes	No	Description
Landfill/waste treatment site		No	
Archaeological sites		No	
Other land uses		No	

3.4 Environmental and current land use map

Show all environmental and current land use features.

According to Figure the area is characterised by cultivated land. During site assessment the area was confirmed to be cultivated.

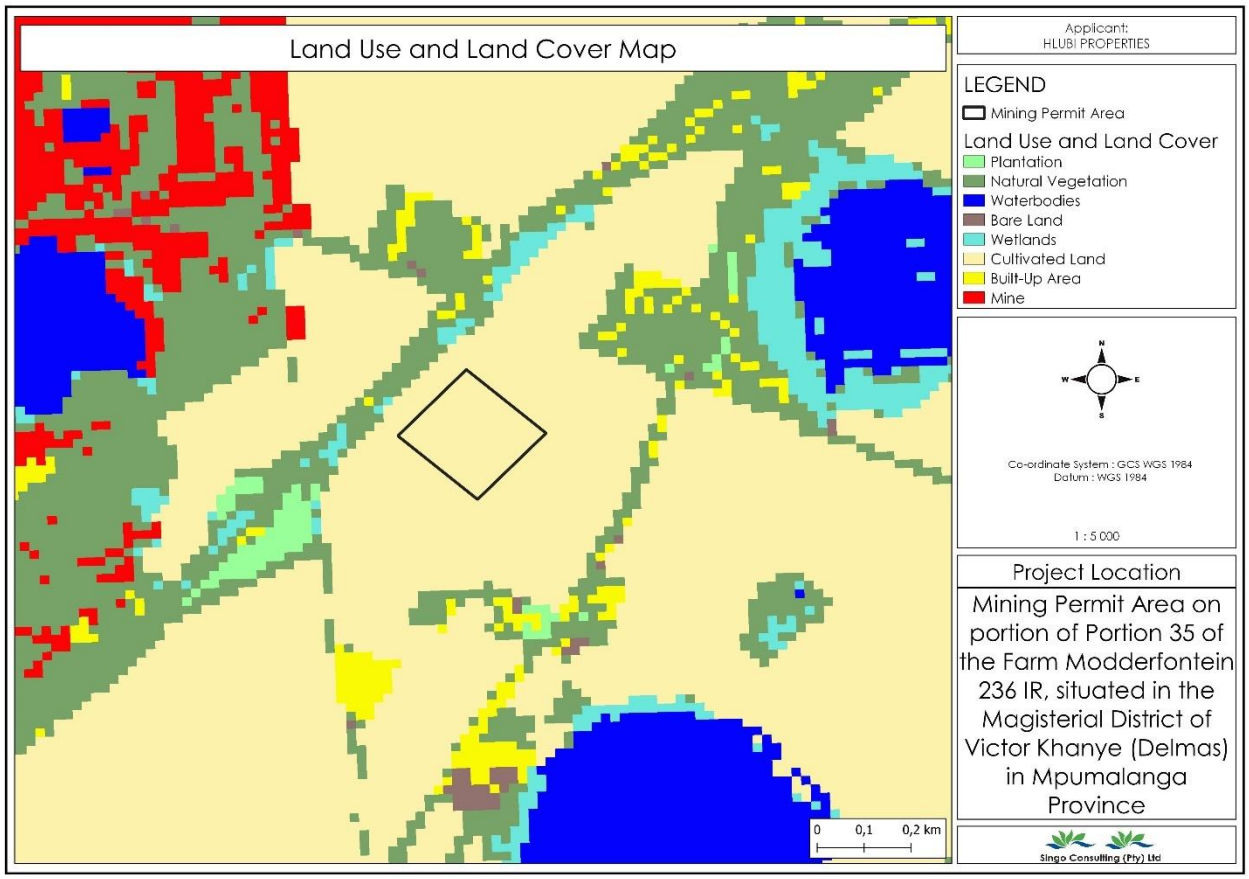


Figure 31: The environmental and current land use map (Singo Consulting (Pty) Ltd, 2022)

3.5 Impacts and risks identified, including the nature, significance, consequence, extent, duration and probability of the impacts

Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated

The following potential impacts were identified of each main activity in each phase. The significance rating was determined using the methodology described in. The impact rating listed below was determined for each impact prior to bringing the proposed mitigation measures into

consideration. The degree of mitigation indicates the possibility of partial, full or no mitigation of the identified impact.

3.5.1 Stripping and stockpiling of topsoil

Significant impacts:

Visual intrusion associated with the establishment of the mining area

Dust nuisance caused by soil disturbance.

Noise nuisance caused by machinery stripping and stockpiling the topsoil.

Infestation of the topsoil heaps by weeds or invader plants.

Loss of topsoil due to incorrect storm water management.

Contamination of area with hydrocarbons or hazardous waste materials.

3.5.2 Blasting

Significant impacts:

Health and safety risk posed by blasting activities.

Dust nuisance caused by blasting activities.

Noise nuisance caused by blasting activities.

3.5.3 Excavation

Significant impacts:

Visual intrusion associated with the excavation activities.

Dust nuisance due to excavation activities.

Noise nuisance generated by excavation equipment.

Unsafe working conditions for employees.

Negative impact of the fauna and flora of the area.

Contamination of area with hydrocarbons or hazardous waste materials.

Weed and invader plant infestation of the area.

3.5.4 In-proposed mine crushing

Significant impacts:

Dust nuisance due to the crushing activities.

Noise nuisance generated by the crushing activities.

Contamination of area with hydrocarbons or hazardous waste materials.

3.5.5 Stockpiling and transporting

Significant impacts:

Visual intrusion associated with the stockpiled material and vehicles transporting 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 stockpiled material and vehicles transporting the material
Degradation of access roads

Noise nuisance caused by vehicles

Contamination of area with hydrocarbons or hazardous waste materials

3.5.6 Sloping and landscaping during rehabilitation

Significant impacts:

Soil erosion

Health and safety risk posed by un-sloped areas

Dust nuisance caused during sloping and landscaping activities

Noise nuisance caused by machinery

Contamination of area with hydrocarbons or hazardous waste materials

3.5.7 Replacing of topsoil and rehabilitation of disturbed area

Significant impacts:

Loss of reinstated topsoil due to the absence of vegetation

Infestation of the area by weed and invader plants

3.6 Methodology for the assessment of the potential environmental, social and cultural impacts

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

The impact assessment process may be summarized as follows:

- Identification of proposed mining activities including their nature and duration.
- Screening of activities likely to result in impacts or risks.
- Utilization of the above-mentioned methodology to assess and score preliminary impacts and risks identified.
- Inclusion of I&AP comments regarding impact identification and assessment.

- ❖ Finalization of impact identification and scoring.

The impact significance rating methodology is guided by the requirements of the NEMA 2014 EIA Regulations (as amended). Please refer to Section 9.1 for a full description of the impact assessment methodology. Please refer to Table 20 for a description of the activities and associated impacts.

3.7 The Impact Assessment Methodology

The subsections below present the approach to assessing the identified potential environmental impact with the aim of determining the relevant environmental significance.

3.7.1 Method of Assessing Impacts

The requirements of the NEMA 2014 EIA Regulations guide the impact assessment process (as amended). The Environmental Risk (ER) is calculated by comparing the Consequence (C) of each effect (which includes Nature, Extent, Duration, Magnitude, and Reversibility) to the Probability/Likelihood (P) of the impact occurring. The Environmental Risk is determined by this. Other criteria, including as cumulative impacts, public concern, and the risk of irreversible resource loss, are also considered when determining a Prioritization Factor (PF), which is then applied to the ER to establish the overall Significance (S).

3.7.2 Determination of Environmental Risk

The significance (S) of an impact is determined by applying a Prioritization Factor (PF) to the Environmental Risk (ER).

The Environmental Risk is dependent on the Consequence (C) of the particular impact and the Probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M) and Reversibility (R) applicable to the specific impact.

For the purpose of this methodology the Consequence of the impact is represented by:

Table 4: Criteria for determination of impact Consequence.

Aspect	Score	Definition
Nature	- 1	**Likely to result in a negative/ detrimental impact**
	+1	**Likely to result in a positive/ beneficial impact**
Extent	1	**Activity (i.e., limited to the area applicable to the specific activity)**
	2	**Site (i.e., within the development property boundary),**
	3	**Local (i.e., the area within 5 km of the site),**

	4	**Regional (i.e. extends between 5 and 50 km from the site**
	5	**Provincial / National (i.e. extends beyond 50 km from the site)**
Duration	1	**Immediate (<1 year)**
	2	**Short term (1-5 years)**
	3	**Medium term (6-15 years)**
	4	**Long term (the impact will cease after the operational life span of the project),**
	5	**Permanent (no mitigation measure of natural process will reduce the impact after construction).**
Magnitude/ Intensity	1	**Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected)**
	2	**Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected)**
	3	**Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way)**
	4	**High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease) or**
	5	**Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease)**
Reversibility	1	**Impact is reversible without any time and cost**
	2	**Impact is reversible without incurring significant time and cost**
	3	**Impact is reversible only by incurring significant time and cost**
	4	**Impact is reversible only by incurring prohibitively high time and cost**
	5	**Irreversible Impact**

$$C = \underline{(E+D+M+R) \times N}$$

Each individual aspect in the determination of the Consequence is represented by a rating scale as defined in table 4.

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/scored as per

Table **5**.

Table 5: Probability scoring.

Probability	1	Improbable (the possibility of the impact materializing is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows (Table 6):

ER= C x P

Table 6: Determination of Environmental Risk.

Consequence	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
	Probability					

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 7.

Table 7: Significance classes.

Environmental Risk Score	
Value	Description
< 10	Low (i.e. where this impact is unlikely to be a significant environmental risk),
≥ 10; < 20	Medium (i.e. where the impact could have a significant environmental risk),
≥ 20	High (i.e. where the impact will have a significant environmental risk).

The impact ER will be determined for each impact without relevant management and mitigation measures (pre- mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/ mitigated.

3.7.3 Impact Prioritization

In accordance with Appendix 3(1)(j) of the NEMA 2014 EIA Regulations (as amended) (GNR 326 of 2017), and in addition to the assessment criteria presented in the Section above, each potentially significant impact must be evaluated in terms of cumulative impacts and the degree to which the impact may cause irreplaceable resource loss.

Furthermore, public opinion and attitude about a potential development, as well as its potential consequences, must be considered during the decision-making process.

An impact Prioritization Factor (PF) will be assigned to each impact ER in order to ensure that these considerations are considered (post-mitigation). This element is used to direct the attention of the decision-making authority on the higher priority/significant issues and impacts, rather than to distract from the risk assessments. The PF will be applied to the ER score assuming that all recommended management/mitigation measures are executed.

Table 8: Criteria for the determination of prioritization.

Public response (PR)	Low (1)	Issue not raised in public response.
	Medium (2)	Issue has received a meaningful and justifiable public response.
	High (3)	Issue has received an intense meaningful and justifiable public response.
Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change.

Irreplaceable loss of resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources.
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criterion. The impact priority is therefore determined as follows:

Priority = PR + CI + LR

The result is a priority score which ranges from 3 to 9 and a consequent PF ranging from 1 to 2 (Table 9).

Table 9: Determination of prioritization factor.

Priority	Ranking	Prioritization Factor
3	Low	1
4	Medium	1.17
5	Medium	1.33
6	Medium	1.5
7	Medium	1.67
8	Medium	1.83
9	High	2

In order to determine the final impact significance the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is to be able to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are high (i.e. if an impact comes out with a medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential, significant public response, and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance (Table *10*).

Table 10: Environmental significance rating.

Environmental Significance Rating

Value	Description
≤ 1	Very low (impact is negligible. No mitigation required)
>1≤2	Low negative (i.e. where this impact would not have a direct influence on the decision to develop in the area).
>2≤3	Moderate negative (i.e. where the impact could influence the decision to develop in the area).
>3≤4	High negative (i.e. where the impact must have an influence on the decision process to develop in the area).
>4≤5	Very high negative (impact is of highest order possible. Mitigation is required to lower impacts to acceptable levels. Potential fatal flaw
0	No impact
>1≤2	Low positive (i.e. where this impact would not have a direct influence on the decision to develop in the area).
>2≤3	Moderate positive (i.e. where the impact could influence the decision to develop in the area).
>3≤4	
>4≤5	High positive (i.e. where the impact must have an influence on the decision process to develop in the area)

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

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

The proposed coal mine will be established on a cultivated area with minimal natural vegetation cover. The adjacent land is also cultivated, and some parts are being utilised for agricultural purposes. Upon closure of the mining area, the land will, once again, be used for agricultural purposes depending on whether the soil in the area can support agriculture.

Due to the remote location of the mine, little to no significantly negative impacts on the community could be identified. The dust and noise impacts that may emanate from the mining

area during the operational phase could have a negative impact on the surrounding community if the mitigation measures proposed in this document are not implemented and managed on-site. The operation of the mine will, however, also have a number of positive impacts, such as permanent job creation for skilled, semi-skilled and un-skilled workers. The proposed mine will, therefore, contribute to upgrading/ maintaining infrastructure in and around Delmas area, which will indirectly contribute to the economy of the area.

3.9 The possible mitigation measures that could be applied and the level of risk

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

3.9.1 Visual mitigation

The risk of the proposed mining activities having a negative impact on the aesthetic quality of the surrounding environment can be reduced to medium risk through the implementation of the following mitigation measures:

- The site must be kept neat and in good condition at all times.
- Upon closure, the site must be rehabilitated and sloped to ensure that the visual impact on the aesthetic value of the area is minimal.

3.9.2 Dust handling

The risk of dust generated from the proposed mining activities having a negative impact on the surrounding environment can be reduced to low medium through the implementation of the following mitigation measures:

- Dust liberation into the surrounding environment must be effectively controlled by the use of, *inter alia*, water spraying and/or other dust-allaying agents.
- The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.
- Access road speeds must be limited to 40km/h to prevent excessive dust generation.
- Roads must be sprayed with water or an environmentally friendly dust allaying agent, that contains no PCBs (e.g. DAS products), if dust is generated above acceptable limits.
- The in-proposed mine crusher plant must have operational water sprayers to alleviate dust generation from the conveyor belts.

3.9.3 Noise handling

The risk of noise, generated from the proposed mining activities, having a negative impact on

the surrounding environment can be reduced to low medium through the implementation of the following mitigation measures:

- The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours.
- No loud music may be permitted at the mining area.
- All mining vehicles must be equipped with silencers and kept roadworthy in terms of the Road Transport Act.
- The type, duration and timing of the blasting procedures must be planned with due cognisance of other land users and structures in the vicinity.
- Surrounding landowners must be notified, in writing, prior to blasting occasions.

3.9.4 Management of weed or invader plants

The risk of weeds or invader plants invading the disturbed area can be reduced to low through the implementation of the following mitigation measures:

- A weed and invader plant control management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of Conservation of Agricultural Act (Act No 43 1983).
- 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 destroyed completely.
    - The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide.
- The temporary topsoil stockpiles must be kept free of weeds.

3.9.5 Storm water handling

The risk of contamination through dirty storm water escaping from work areas, or erosion or loss of material caused by uncontrolled storm water flowing through the mining area, can be reduced to low by implementing the following mitigation measures:

- Storm water must be diverted around the topsoil heaps, stockpile areas and access roads to prevent erosion and loss of material.
- Runoff water must also be diverted around the stockpile areas with trenches and contour structures to prevent erosion of the work areas.
- Mining must be conducted 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 and Sanitation (DWS), and

any other conditions the DWS may impose:

- Clean water (e.g., rainwater) must be kept clean and routed to a natural watercourse by a system separate from the dirty water system. Clean water must be prevented from running or spilling into dirty water systems.
- Dirty water must be collected and contained in a system separate from the clean water system.
- Dirty water must be prevented from spilling/seeping into clean water systems.
- 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.

3.9.6 Management of health and safety risks

The health and safety risk posed by the proposed mining activities can be reduced to low through the implementation of the following mitigation measures:

- The type, duration and timing of the blasting procedures must be planned with due cognisance of other land users and structures in the vicinity,
- The surrounding landowners and communities must be informed, in writing, ahead of any blasting event.
- Measures to limit fly rock must be taken.
- Audible warning of a pending blast must be given at least 3 minutes before the blast.
- All fly rock (with diameters of 150 mm and larger) which falls beyond the working area, together with the rock spill, must be collected and removed,
- Workers must have access to the correct PPE, as required by law.
- All operations must comply with the Occupational Health and Safety Act (OHSA).

3.9.7 Waste management

The risk of waste generation having a negative impact on the surrounding environment can be reduced to low through by implementing the following mitigation measures:

- No processing area or waste pile may be established within 100 m of the edge of any river channel or other water bodies.
- Regular vehicle maintenance may only take place within the service bay area of the off-site workshop. If emergency repairs are needed on equipment unable to move to the

workshop, drip trays must be present. All waste products must be disposed of in a 200 l closed container/bin to be removed from the emergency service area to the workshop in order to ensure proper disposal.

- 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 recognised facility.
- Spills must be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage and the polluted soil and disposing of it at a recognised facility. Proof hereof should be filed.
- Suitable covered receptacles should be available at all times and conveniently placed for waste disposal.
- 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, collected on a regular basis and disposed of at a recognised 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.

3.9.8 Management of access roads

The risk on the condition of the roads, as a result of the proposed mining activities, can be reduced to low-medium by implementing the following mitigation measures:

- Storm water must be diverted around the access roads to prevent erosion.
- Erosion of access road: Vehicular movement must be restricted to existing access routes to prevent criss-crossing of tracks through undisturbed areas. Rutting and erosion of the access road as a result of the mining activities should be repaired by the applicant.

3.9.9 Topsoil handling

The risk of topsoil loss can be reduced to low by implementing the following mitigation measures:

- Where applicable, the first 300 mm of topsoil should be removed in strips and stored along the boundary of the mining area. Stockpiling of topsoil must be done to protect it from erosion, which includes mixing it 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 must be kept weed free.
- Topsoil stockpiles must be placed on a levelled area and measures should be implemented to safeguard the piles from being washed away in the event of heavy rain/storm water.

- Topsoil heaps should not exceed 1.5 m, in order to preserve micro-organisms in the topsoil, which can be lost due to compaction and lack of oxygen.
- Should natural vegetation not establish on the heaps within 6 months of stockpiling, it must be planted with an indigenous grass species.
- Storm and runoff water should be diverted around the stockpile area and access roads to prevent erosion.

3.9.10 Protection of fauna and flora

The risk on the fauna and flora of the footprint area, as well as the surrounding environment, as a result of the proposed mining activities, can be reduced to low by implementing the following mitigation measures:

- The site manager must ensure that no fauna is caught, killed, harmed, sold or played with.
- Workers must 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.

3.10 Motivation where no alternative sites were considered

Hlubi Properties (Pty) Ltd identified the growing need for coal resources due to an increase in power demand. In this light, the applicant identified the proposed area as the preferred and only viable site alternative because of its availability backed by data reviewed in the PWP, which has proven that coal resources are available in the area. The establishment of a coal proposed mine in this area was found to be most viable.

Various project alternatives were considered during the planning phase of the project and the preferred alternatives proved to be:

- The open cast mining of the coal has been identified as the most effective method to produce the desired coal product.
- The use of temporary infrastructure will reduce the impact on the environment and decrease closure objectives with regard to infrastructure decommissioning.
- It is recommended that the existing farm road connected to the N12 north-east of the property be used as an access road instead of trucks turning from the farm entrance onto the provincial road (R55) to the south-west of the property.

3.11 Statement motivating the alternative development location within overall site

Provide a statement motivating the final site layout that is proposed.

The open cast mining of the coal has been identified as the most cost-effective method to produce the desired coal product. The proposed method will produce any residual (overburden) waste to be disposed of. Due to the remote location of the coal proposed mine, the potential impacts on the surrounding environment, associated with open cast mining, is considered of low significance. It is proposed that all mining-related infrastructure will be contained within the boundaries of the mining area. As no permanent infrastructure will be established on site, the layout/position of the temporary infrastructure will be determined by the mining progress and available space in the mining area.

3.12 Process undertaken to identify, assess and rank impacts and risk of site activities

Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity, including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.

During the impact assessment process, several potential impacts were identified of each main activity in each phase. An initial significance rating was determined for each potential impact, should the mitigation measures proposed in this document not be implemented on-site. The impact assessment process continued to identify mitigation measures to address the impact that the proposed mining activity may have on the surrounding environment. A significance rating was again determined for each impact using a relevant methodology. The impact ratings listed in the following section was determined for each impact after bringing the proposed mitigation measures into consideration and therefore represents the final layout/activity proposal.

3.13 Assessment of each identified potentially significant impact and risk

This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons and not only those that were raised by registered I&APs).

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
1,0	Employment of workers and procurement of materials	Social	Creation of employment	3	3	5	1	1,0	3,7	2,3	2,3	Moderate	• Emphasis to employ local individuals must be maximised, reducing the need for migrant labour; • The mine should prioritise employment of the local community members and contracts must include employment targets as part of their contractual agreements; • Employment requirements should be broadly publicised to ensure that job-seekers do not have unrealistic job expectations; • Liaison structures with the local police and community policing forums must be established and development of informal settlements within the proposed mining areas to be communicated to the forums for potential monitoring and addressing

2,0	Site clearance and topsoil removal as a result of the proposed Project.	Air Quality	Dust generation emanating from the activities associated with the Mining Project areas	4	4	4	2	1,0	4,0	3,0	3,0	Moderate	• The area of disturbance must be restricted to the required footprint size; • Ensure that only vegetation within the designated areas is removed; • The drop heights used during the loading of the cleared soils into trucks should be minimised as far as possible; and • Dirt roads to be wetted by a water browser and/or any applicable dust suppressant so as to reduce dust plumes.

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
		Topography and Visual Environment	Topography change and the disruption of surface water flow. Soil erosion and topsoil loss. Visual impact caused by vegetation and topsoil removal.	3	3	4	1	0,8	3,3	2,2	1,7	Low	• Ensure vegetation and topsoil is only cleared when necessary and within the demarcated areas; • Ensure topsoil stockpiles are vegetated as soon as possible; and • Ensure topsoil stockpiles are contoured and have a steepness of less than 18° to prevent slope failure and erosion and aid in vegetation establishment. • Topsoil stockpiles that will be kept for more than a year are to be vegetated to sustain ecological components and further prevent dust emissions and growth of alien vegetation.
		Soil	Soil contamination and degradation during soil	3	4	4	1	0,8	3,7	2,3	1,9	Low	• Excavation and long-term stockpiling of soil should be limited within the demarcated areas as far as practically possible;

			stripping and management Soil erosion and generation of dust.										• Ensure all stockpiles (especially topsoil) are clearly and permanently demarcated and located in defined no-go areas; • Restrict the amount of mechanical handling, as each handling event increases that compaction level and the changes to the soil structure; • Soil stripping should be done in line with a topsoil stripping plan; • Where possible, separate stockpiling of different soil to obtain the highest post-mining land capability; • Stockpiles should be revegetated to establish a vegetation cover as an erosion control measure. These stockpiles should also be kept alien vegetation free at all times to prevent loss of soil quality; and Temporary berms can be constructed, around stockpile areas whilst vegetation cover has not established to avoid soil loss through erosion.

			Soil compaction.	4	5	4	1	1,0	4,3	2,7	2,7	Moderate	• If possible, vegetation clearance and commencement of mining related activities (construction of haul road), can be scheduled to coincide with low rainfall conditions when soil moisture is anticipated to be relatively low such that the soils are less prone to compaction; • The movement of heavy vehicle should be limited to existing roads and be limited to areas where construction of haul road is to take place.

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
			Loss of land capability and land use potential	2	1	4	1	0,8	2,3	1,7	1,3	Low	• Any compacted soils must be ripped to alleviate compaction; • Stored topsoil should be replaced (if any) and the footprint graded to a smooth surface; • The landscape should be backfilled and reprofiled to mimic the natural topography for potential agricultural activities and grazing opportunities post mining. If possible, ensure a continuation of the pre mining surface drainage pattern; • Slopes of the backfilled surface should change gradually since abrupt changes in slope gradient increase the susceptibility for erosion initiation; • The soil fertility status to be determined by soil chemical analysis after levelling (before seeding/re-vegetation).

													• Soil amelioration should be completed, if necessary, according to recommendations by a soil specialist, to correct the pH and nutrition status before revegetation; and • The footprint should be re-vegetated with a grass seed mixture as soon as possible, preferably in spring and early summer to stabilise the soil and prevent soil loss during the rainy season.
			Loss of vegetation communities.	4	1	5	1	0,8	3,3	2,2	1,7	Low	• Ensure site clearing is restricted to the footprint of the designated areas to limit the degradation and destruction of natural habitats; • Vegetate open and exposed areas to prevent soil erosion and the establishment of alien invasive vegetation; • Restrict access and avoid areas of identified faunal and floral SSC, that are adjacent to the mining activities; • Rescue and relocate important plant species • Restrict access and avoid sensitive landscapes, such as wetlands and

													ridges, that are adjacent to the mining operations; and • Topsoil that will be used for rehabilitation must be stockpiled according to the Rehabilitation Plan. Compaction of stockpiled topsoil must be avoided to ensure the seed bank is viable.
			Influx and establishment of alien invasive vegetation.	3	3	4	2	0,8	3,3	2,7	2,1	Moderate	• Alien invasive vegetation to be identified and removed throughout the LoM.
		Wetlands and Aquatic Ecology	Sedimentation of wetland areas downstream of the stockpiles.	3	3	4	1	0,8	3,3	2,2	1,7	Low	• Ensure soil management programme is implemented and maintained to minimise erosion and sedimentation; • Active rehabilitation, re-sloping, and re-vegetation of disturbed areas immediately after construction; • Implement and maintain alien vegetation management programme; • Appropriate sanitary facilities must be provided for the duration of the construction activities and all waste

													must be removed to an appropriate waste facility.
			Contamination of soils as a result of the ingress of hydrocarbons	3	5	4	1	1,0	4,0	2,5	2,5	Moderate	• Ensure soil management programme is implemented and maintained to minimise erosion and sedimentation; • Active rehabilitation, re-sloping, and re-vegetation of disturbed areas immediately after construction; • Implement and maintain alien vegetation management programme; • Limit the footprint area of the construction activities to what is absolutely essential in order to minimise impacts as a result of vegetation clearing and compaction of soils; • All erosion noted within the construction footprint should be remedied immediately and included as part of an ongoing rehabilitation plan; • All delineated watercourses and their associated 100 m zones of regulation in terms of GN704 should be designated

													as "No-Go" areas and be off limits to all unauthorised vehicles and personnel, with the exception of approved construction and operational areas unless authorised as part of the IWUL; • No unnecessary crossing of the watercourses should take place and wherever possible, existing infrastructure should be utilised; • Suitably designed culverts should be installed under road crossings where any watercourses are anticipated to be crossed; • The number of culverts installed should be suitable for the gradient, width and flow profiles of the watercourses being crossed so as to avoid upstream inundation, erosion and incision, and alterations to the natural channel; • Crossings should make use of existing roads wherever possible and should either utilise or be constructed downgradient of barriers associated with impoundments on the affected

													systems; • No material may be dumped or stockpiled within delineated watercourses; • No vehicles or heavy machinery may be allowed to drive indiscriminately within any delineated watercourses. All vehicles must remain on demarcated roads and within the construction footprint; • All vehicles must be regularly inspected for leaks; • Re-fuelling must take place on a sealed surface area away from wetlands to prevent ingress of hydrocarbons into topsoil; • All spills should be immediately cleaned up and treated accordingly; and.
			Loss of catchment yields and surface water recharge, potential loss of	3	5	4	3	0,6	4,0	3,5	2,1	Moderate	• Ensure that as far as possible all infrastructures are placed outside of delineated watercourse areas and their associated zones of regulation;

			biodiversity, impaired water quality, potential loss of instream integrity, potential impacts to freshwater resources further downstream of this point.										• Ensure that sound environmental management is in place during the planning phase; • Design of infrastructure should be environmentally and structurally sound and all possible precautions taken to prevent spillage and/or seepage to the surface and groundwater resources present; • It must be ensured that the design and construction of all infrastructures prevents failure.

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
			Destruction of natural habitat and animal life within the development area and to maintain ecological connectivity to neighbouring sites and, where possible, to regional ecological corridors.	4	5	4	1	1,0	4,3	2,7	2,7	Moderate	• Environmental awareness training must include the prohibition of any harm or hindrance to any indigenous fauna species and the consequences of such actions. • Allow unhindered movement of fauna to allow them the opportunity to freely leave activity areas. • Ensure safe speed limits in the development area and no open fires. • Do not feed wild life and ensure that all food and food waste, including domestic waste, is placed in sealed containers and not exposed on site. • Ensure that the outside areas are kept clean and tidy and provide adequate waste removal services to prevent the attraction of rats and other alien scavenging species to the site. • Regularly (daily) inspect the haul

													road and clear coal spills and clear coal fines to reduce coal dust contamination to the neighbouring wetland areas.
		Flora	Loss of vegetation and/or declining species, alteration, and loss of microhabitats, altered vegetation cover, increased erosion and contamination of soil and groundwater due to localised destruction / removal of vegetation	4	5	4	1	1,0	4,3	2,7	2,7	Moderate	• Keep the clearing of vegetation / impacts to vegetation for any activity to a minimum and locate such activities in already modified areas or secondary grassland. • No building of temporary infrastructure should be allowed in moist grasslands without a WUL. • Prevent spillage of hazardous material and other pollutants, contain, and treat any spillages immediately, strictly prohibit any pollution/littering according to the relevant EMPr • After any above ground activities within the site, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to the activity.

			and vegetated topsoil.										• No off-road driving beyond designated areas may be permitted, especially not in natural vegetation. • Strict speed control measures must be implemented for any vehicles driving within the mining rights area to reduce dust. Refer to existing mine control measures. • There is zero tolerance of the destruction or collecting of any indigenous biodiversity or part thereof by anybody working for or on behalf of the mine. • Monitor the establishment of invasive species and remove as soon as detected, whenever possible before regenerative material can be formed • Monitor all sites disturbed by localised activities for colonisation by exotics or invasive plants and control these as they emerge. Monitoring should continue for at least two years after such activities cease.

			The destruction or degradation of watercourse vegetation.	1	1	4	2	0,6	2,0	2,0	1,2	Low	• Ensure the flow of water through the moist grassland areas remain unchanged. • Monitor the presence of hydrophytes and species with an affinity for moist soils within the moist grasslands. Should such species decrease or be replaced by terrestrial species, then it is likely that the hydrological regime on the site has changed. • If moist grasslands are found to become drier, the Crinum species must be relocated to suitable habitat. • Input of sediment due to any related mining activities should be prevented at all cost. • In the case of pollution of any surface or groundwater, the Regional Representative of the Department of Water Affairs must be informed immediately; • Store all litter carefully so it cannot be washed or blown into the water course; • Storage of potentially hazardous materials should be above any 100-

													year flood line or the functional wetland boundary (and its associated buffer zone). These materials include fuel, oil, cement, bitumen etc.; • Surface water draining off contaminated areas containing oil and petrol would need to be channelled towards a sump which will separate these chemicals and oils; • No uncontrolled discharges of water from the mine to any surface water resources shall be permitted. Any discharge points need to be approved by the relevant authority.

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
			Destruction of vegetation.	4	5	4	1	1,0	4,3	2,7	2,7	Moderate	• An independent Environmental Control Officer (ECO) should be appointed to oversee construction activities and ensure the following: • Keep the development footprint in Medium categories and as small as possible. • A temporary fence or demarcation must be erected around the construction area (include the actual footprint, as well as areas where material is stored). • Maintain site demarcations in position until the cessation of construction work. • Only remove vegetation where necessary and retain vegetation in place for as long as possible prior to removal. • Prohibit vehicular or pedestrian access into natural areas beyond the

													demarcated boundary of the construction area. • Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. • Implement a vegetation rehabilitation plan to ensure areas that can be rehabilitated post construction are adequately vegetated with indigenous grass species. • After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.
			Erosion and subsequent sedimentation or pollution of proximate moist grassland (watercourse).	4	5	4	1	0,8	4,3	2,7	2,1	Moderate	• Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas. • Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).

													• Runoff from access roads must be managed to avoid erosion and pollution problems. • Ensure that runoff from compacted or sealed surfaces is slowed down and dispersed sufficiently to prevent accelerated erosion from being initiated (erosion management plan required) • Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed. • Colonisation of the disturbed areas by plants species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.

													• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas. • Prevent spillage of construction material, oils or other chemicals, strictly prohibit other pollution. Ensure there is a method statement in place to remedy any accidental spillages immediately. • After construction clear any temporarily impacted areas of all foreign materials, re-apply and/or loosen topsoil and landscape to surrounding level.
			Alien invasive plant species.	3	5	5	1	1,0	4,3	2,7	2,7	Moderate	• Areas cleared of invasive to be monitored in the growing season (summer). • If re-sprouting or reseeding is noted, follow-up control to be initialised. • Cleared and denuded areas to be rehabilitated as soon as possible with indigenous grass species. • Monitor the establishment of invasive species and remove as soon as

													detected, whenever possible before regenerative material can be formed. • Monitor all sites disturbed by localised activities for colonisation by exotics or invasive plants and control these as they emerge. • Monitoring should continue for at least two years after such activities cease.

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
		water courses	Siltation of surface water resources.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure site clearing is limited to the designated areas, and • Implement Stormwater Management designs to prevent erosion and divert dirty water to the appropriate storage dams (PCDs).
			Contamination of groundwater resources	4	5	5	3	1,0	4,7	3,8	3,8	High	• Ensure that a stormwater management plan is in place to separate clean and dirty water; and • Groundwater monitoring of the water quality and levels must take place quarterly, especially for the water supply boreholes to ensure a sustainable resource and identify impacts on local users.
		Noise	Noise emanating from the construction machinery and vehicles	4	5	4	2	1,0	4,3	3,2	3,2	High	• Ensure site clearing activities are only undertaken during daylight hours; • Mining related machines and vehicles should be serviced on a regular basis to ensure noise

			impacting on surrounding sensitive receptors.										suppression mechanisms are effective (e.g. installed exhaust mufflers); and • Ensure equipment and machinery is switched off when not in use.
3,0	Stripping and stockpiling of topsoil	Air Quality	Dust generation emanating from the disturbance of soil.	4	1	1	1	1,0	2,0	1,5	1,5	Low	• Ensure that dust suppressants are applied regularly • Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; • Vehicles should obey speed limits
		Topography and Visual Environment.	Topographical changeNegative visual impact caused by vehicular activity.	4	4	4	1	0,8	4,0	2,5	2,0	Low	• Ensure liaison with the local authorities for the maintenance and upkeep of roads; • Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; and • Vehicles will obey speed limits.
		Noise pollution	Noise nuisance caused by machinery	3	5	4	1	1,0	4,0	2,5	2,5	Moderate	• Avoid through preventative measures (e.g. communication with landowners and timing of activities). • Control through implementation of EMPR mitigation measures (e.g. noise abatement measures).

		Traffic	The degradation of the road structures	5	5	4	1	1,0	4,7	2,8	2,8	Moderate	• Adhere to the Mine's Traffic Management Plan; and • Gravel roads used must be graded and compacted regularly, should the roads remain unpaved.
4,0	development and operation of the mine	Soil	Soil contamination and degradation.	4	5	5	2	0,8	4,7	3,3	2,7	Moderate	• In case whereby contractors bring on site mobile bowsers and lubricants, these are to be stored in a bunded area when parked at the construction areas; • 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; • Storage of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); and

													• Vehicles with leaks must have drip trays in place.
		Surface Water	Impacts on surface water resources as a result of hydrocarbon spills.	3	3	4	2	0,8	3,3	2,7	2,1	Moderate	• In case whereby contractors bring on site mobile bowsers and lubricants, these are to be stored in a bunded area when parked at the construction areas; • 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; • Storage of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); and

													• Vehicles with leaks must have drip trays in place.
		Groundwater	Groundwater contamination	4	4	4	3	1,0	4,0	3,5	3,5	High	• In case whereby contractors bring on site mobile bowsers and lubricants, these are to be stored in a bunded area when parked at the construction areas; • 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; • Storage of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); and • Vehicles with leaks must have drip trays in place.

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
5,0	Mining operations	Social	safety and security risks to landowners and lawful occupiers	3	5	4	1	0,8	4,0	2,5	2,0	Low	• The area of disturbance must be restricted to the required footprint size; • Ensure that only vegetation within the designated areas is removed; • The drop heights used during the loading of the cleared soils into trucks should be minimised as far as possible; and • Dirt roads to be wetted by a water browser and/or any applicable dust suppressant so as to reduce dust plumes.
			interference with existing land uses Crime and violence	3	4	4	1	0,6	3,7	2,3	1,4	Low	• Ensure vegetation and topsoil is only be cleared when necessary and within the demarcated areas;Ensure topsoil stockpiles are vegetated as soon as possible; and • Ensure topsoil stockpiles are contoured and have a steepness of less than 18° to prevent slope failure

													and erosion and aid in vegetation establishment. • Topsoil stockpiles that will be kept for more than a year are to be vegetated to sustain ecological components and further prevent dust emissions and growth of alien vegetation.
6,0	Drilling and Blasting	Air Quality	Fugitive dust generation emanating.	4	2	1	1	0,8	2,3	1,7	1,3	Low	• Ensure that the areas of disturbance are minimised and restricted to the required footprint areas; and • Ensure that dust suppressants are applied to exposed surfaces.
		Topography and Visual Environment	Topography change and disruption of surface water flow.	4	2	5	3	0,8	3,7	3,3	2,7	Moderate	• Limit the footprint areas of the of the surface infrastructure, where possible, especially the width of the link road to be within the servitude; • Ensure that access and haul roads are contoured to limit erosion from surface runoff, preventing further alteration to the topography; • Establish vegetation, where possible, to aid in screening infrastructure; • Surface infrastructure should be painted natural hues so as to blend into the surrounding landscape; and

													• Limit construction activities at night and down lighting must be used to minimise light pollution.
		Soils	Soil contamination and degradation.	2	5	4	1	0,8	3,7	2,3	1,9	Low	• Ensure soils are stripped and stockpiled prior to the excavation of infrastructure areas; and • Implement Stormwater Management designs to prevent erosion.
		Fauna and Flora	Loss of vegetation communities.	2	5	5	2	0,8	4,0	3,0	2,4	Moderate	• Vegetate open and exposed areas to prevent soil erosion and the establishment of alien invasive vegetation; • Ensure a Storm Water Management Plan is implemented; and Alien invasive vegetation to be identified and removed throughout the LoM.
			Influx and establishment of alien invasive vegetation.	2	5	5	2	0,6	4,0	3,0	1,8	Low	
		Fauna	Destruction of natural habitat and animal life within the development area and to maintain	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Environmental awareness training must include the prohibition of any harm or hindrance to any indigenous fauna species and the consequences of such actions.

			ecological connectivity to neighbouring sites and, where possible, to regional ecological corridors.										• Allow unhindered movement of fauna to allow them the opportunity to freely leave activity areas. • Ensure safe speed limits in the development area and no open fires. • Do not feed wildlife and ensure that all food and food waste, including domestic waste, is placed in sealed containers and not exposed on site. • Ensure that the outside areas are kept clean and tidy and provide adequate waste removal services to prevent the attraction of rats and other alien scavenging species to the site. • Regularly (daily) inspect the haul road and clear coal spills and clear coal fines to reduce coal dust contamination to the neighbouring wetland areas.
		Flora	Alien invasive plant species.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Areas cleared of invasive to be monitored in the growing season (summer). • If re-sprouting or reseeding is noted, follow-up control to be initialised. • Cleared and denuded areas to be

													rehabilitated as soon as possible with indigenous grass species. • Monitor the establishment of invasive species and remove as soon as detected, whenever possible before regenerative material can be formed. • Monitor all sites disturbed by localised activities for colonisation by exotics or invasive plants and control these as they emerge. • Monitoring should continue for at least two years after such activities cease.
		Wetlands and Aquatic Ecology	Contamination and sedimentation of the wetland systems and aquatic ecosystems.	2	5	4	1	0,8	3,7	2,3	1,9	Low	• Ensure soil management programme is implemented and maintained to minimise erosion and sedimentation; • Active rehabilitation, re-sloping, and re-vegetation of disturbed areas immediately after construction; • Implement and maintain alien vegetation management programme; • Appropriate sanitary facilities must be provided for the duration of the construction activities and all waste

													must be removed to an appropriate waste facility.
		Surface Water	Siltation of surface water resources.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure soil management programme is implemented and maintained to minimise erosion and sedimentation; • Active rehabilitation, re-sloping, and re-vegetation of disturbed areas immediately after construction; • Implement and maintain alien vegetation management programme; • Limit the footprint area of the construction activities to what is absolutely essential in order to minimise impacts as a result of vegetation clearing and compaction of soils; • All erosion noted within the construction footprint to be remedied immediately and included as part of an ongoing rehabilitation plan; • All delineated watercourses and their associated 100 m zones of regulation in terms of GN704 must be designated as "No-Go" areas and be off limits to all

													unauthorised vehicles and personnel, with the exception of approved construction and operational areas; • No unnecessary crossing of the watercourses to take place and wherever possible, existing infrastructure should be utilised; • Suitably designed culverts to be installed under road crossings where any watercourses are anticipated to be crossed; • The number of culverts installed must be suitable for the gradient, width and flow profiles of the watercourses being crossed so as to avoid upstream inundation, erosion and incision, and alterations to the natural channel; • Crossings to make use of existing roads wherever possible and should either utilise or be constructed downgradient of barriers associated with impoundments on the affected systems; • No material may be dumped or

													stockpiled within delineated watercourses;
Unite Number	**Activity**	**Aspect**	**Impact**	**Significance Rating Before Mitigation Measures**									**Mitigation Measures**
				I	**F**	**D**	**E**	**P**	**S**	**C**	**IS**	**SIGNIFICANCE**	
		Noise	Increased noise levels.	4	2	3	1	0,8	3,0	2,0	1,6	Low	• Ensuring that all construction equipment operators receive proper training in the use of the equipment and that the equipment is serviced regularly. • All blasting and piling driving, if required, should only occur during the day. • An environmental noise monitoring survey should be conducted during the construction phase to assess the impact and recommend further actions if required. • A public complaints and actions registry should be established to capture public perceptions and complaints regarding noise impacts,

													track investigation actions, and introduce corrective measures for continuous improvement. • Noise complaints should be reported through the community liaison officer and include an effective follow-up process. • Noise reduction techniques should be considered as additional mitigation measures to the project design Selecting equipment with lower sound power levels. Installing silencers on fans. • Ensure construction activities are only undertaken during daylight hours; • All the diesel-powered equipment should be of high quality and well maintained. Equipment should be switched off when not in use. • It is recommended that noise measurement monitoring continues during construction and operation phases. This will assist in formulating mitigation measures should noise

													complaints be received from surrounding residents or communities. Additional monitoring points should be included in the vicinity if required/requested. • Regular maintenance schedules should include a check for noise emissions, e.g., the functional state of all intake and exhaust noise attenuators and effectiveness of enclosures in accordance with standard operating procedures; and • Construction related machines and vehicles should be serviced on a regular basis to ensure noise suppression mechanisms are effective (e.g., installed exhaust mufflers).
		Poultry farming	Vibrations caused by blasting	4	2	3	1	0,8	2,0	2,0	1.5	Low	• Do blast design that considers the actual blasting and the ground vibration levels to be adhered too. • Change the initiating system to facilitate less blast holes detonating simultaneously, making use of electronic initiation that allow for single hole firing. • Do design for smaller diameter blast holes that will use fewer explosives per blasthole.

7,0	Construction of RoM Stockpile and associated Water Management Infrastructure.	Air Quality	Fugitive dust generation emanating the RoM Stockpile construction activities.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure that the areas of disturbance are minimised and restricted to the required footprint areas; • Public complaints and actions registry should be established to capture public perceptions and complaints regarding increased air quality impacts; • Dust fallout monitoring must be conducted throughout the life of operation of proposed mine to confirm model predictions. • Reduce, control and manage the height of material drops (e.g., Transfer chute to RoM Stockpile); and • Increase moisture content of material by using water sprays prior to or during conveying, crushing, and screening material.
		Topography and Visual Enviranment	Topography change and disruption of surface water flow.	2	5	5	2	0,6	4,0	3,0	1,8	Low	• Ensure that the stockpile is constructed with the planned disturbed areas; • Operate, manage and maintain the stockpile in line with the design plans,

			Soil erosion and topsoil loss. visual impact caused by stockpiling of coal.										as-built plans and operating and maintenance manual.
		Soils	Soil degradation.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Minimise topsoil stockpile heights as far as possible; • Ensure soils are stripped and stockpiled prior to the excavation of infrastructure foundations; • Ensure stockpiles are maintained in a fertile and erosion free state by sampling and analysing for macro nutrients and pH on an annual basis; • Traffic and access to the stockpiles will be restricted; • Ensure that the topsoil stockpiles are vegetated to prevent soil erosion and to reinstitute the ecological processes within the soil; and • Implement Stormwater Management designs to prevent erosion.

		Fauna and Flora	Loss of vegetation communities	2	5	5	2	0,6	4,0	3,0	1,8	Low	• Vegetate open and exposed areas to prevent soil erosion and the establishment of alien invasive vegetation; • Ensure a Storm Water Management Plan is implemented; and Alien invasive vegetation to be identified and removed throughout the LoM.
		Wetlands and Aquatic Ecology	Contamination and sedimentation of the wetland systems and aquatic ecosystems.	2	5	4	1	0,8	3,7	2,3	1,9	Low	• Ensure the statutory buffers are implemented from the wetlands systems and watercourses, unless otherwise stated in the IWUL; Ensure a Storm Water Management Plan is implemented; and • Implement a biannual Aquatic Monitoring Programme to monitor potential impacts and implement corrective actions, should it be required.
		Surface Water	Siltation of surface water resources.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure that the topsoil stockpiles are vegetated to prevent soil erosion; Implement Stormwater Management designs to prevent erosion and divert

													dirty water to the appropriate storage dams (PCDs); andThe design, construction, operation and maintenance of water management facilities must be in accordance with GN R 704 capacity requirements.
		Noise	Increase Noise Levels	2	2	2	2	0,8	2,0	2,0	1,6	Low	• Noise levels in the area are already well within 70dBA for the agricultural areas during the day and 60 dBA at night as may be associated with farming. Therefore, it is expected that additional noise levels contributed by the proposed Mine will be insignificant. • Trucks, machinery, and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Silencers will be utilised where possible.
		Groundwater	Contamination of groundwater resources Seepage through and	4	4	5	2	1,0	4,3	3,2	3,2	High	• A groundwater monitoring system must be implemented and test the water on a quarterly basis for changes in water quality and water levels. Should impacts be identified, management measures must be implemented based on the

			runoff from the coal stockpile.										contaminant or water level change; • Implement a Surface Water Management Plan to minimise the volume of dirty water produced, as well as the effectiveness of the containment of dirty water, thereby reducing the probability of contamination of groundwater from infiltration of dirty surface water; • Refine and update the conceptual and numerical models annually for the first four years and thereafter every five years based on groundwater monitoring results. This will help to better quantify impacts to water quantity and quality; and • All contaminant, waste and hazardous waste storage facilities and other contaminated water storage areas (PCD) must be lined to pro-actively prevent infiltration of contaminated seepage water.

10,0	Storage, use and control of fuel and lubricants to be used for the mining activities.	Soil	Soil contamination and degradation	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• 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; • Storage of hydrocarbons and explosives must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); • Hydrocarbons and explosives storage facilities must be in a hard park bunded facility; and • Vehicles with leaks must have drip trays in place.
		Groundwater	Groundwater contamination	5	5	5	3	1,0	5,0	4,0	4,0	High	• All potential hydrocarbon leaks must be repaired immediately and spillages 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; • Storage of hydrocarbons and explosives must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); • Hydrocarbons and explosives storage facilities must be in a hard park bunded facility; and • Vehicles with leaks must have drip trays in place; and • Groundwater monitoring of the water quality and levels must take place quarterly especially for the water supply boreholes to ensure a sustainable resource and identify impacts on local users.

11,0	Operation of the RoM Stockpile and associated Water Management Infrastructure.	Air Quality	Fugitive dust generation emanating the RoM Stockpile operational activities.	2	3	4	1	0,8	3,0	2,0	1,6	Low	• Ensure that the areas of disturbance are minimised and restricted to the required footprint areas; • Public complaints and actions registry should be established to capture public perceptions and complaints regarding increased air quality impacts; • Dust fallout monitoring must be conducted throughout the life of operation of proposed mine to confirm model predictions; • control and manage the height of material drops (e.g., Transfer chute to RoM Stockpile); and • Increase moisture content of material by using water sprays prior to or during conveying, crushing, and screening material.
		Topography and Visual Environment	Topography change and disruption of surface water flow;To minimise soil	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure that the stockpile is constructed within the proposed planned disturbed areas; • Operate, manage and maintain the stockpile in line with the design plans,

			erosion and topsoil loss;										as-built plans and operating and maintenance manual.

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
			Soil degradation.	3	3	3	1	1,0	3,0	2,0	2,0	Moderate	• Minimise topsoil stockpile heights as far as possible; • Ensure soils are stripped and stockpiled prior to the excavation of infrastructure foundations; • Ensure stockpiles are maintained in a fertile and erosion free state by sampling and analysing for macro nutrients and pH on an annual basis; • Traffic and access to the stockpiles will be restricted; • Ensure that the topsoil stockpiles are vegetated to prevent soil erosion and to reinstitute the ecological processes within the soil; and • Implement Stormwater Management designs to prevent erosion.
		Fauna and Flora	Loss of vegetation communities.	2	3	3	2	0,6	2,7	2,3	1,4	Low	• Vegetate open and exposed areas to prevent soil erosion and the establishment of alien invasive

			Influx and establishment of alien invasive vegetation.										vegetation; • Ensure a Storm Water Management Plan is implemented; and Alien invasive vegetation to be identified and removed throughout the LoM.
		Wetlands and Aquatic Ecology	Contamination and sedimentation of the downstream wetland systems and aquatic ecosystems.	3	3	4	1	1,0	3,3	2,2	2,2	Moderate	• Ensure the statutory buffers are implemented from the wetlands systems and watercourses, unless otherwise stated in the IWUL; • Ensure a Storm Water Management Plan is implemented; and • Implement a biannual Aquatic Monitoring Programme to monitor potential impacts and implement corrective actions, should it be required.
		Surface Water	Siltation of downstream surface water resources.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure that the topsoil stockpiles are vegetated to prevent soil erosion; • Implement Stormwater Management designs to prevent erosion and divert dirty water to the appropriate storage dams (PCDs); and • The design, construction, operation and maintenance of water

													management facilities must be in accordance with GN R 704 capacity requirements.
		Groundwater	Contamination of groundwater resources	3	3	3	3	0,8	3,0	3,0	2,4	Moderate	• A groundwater monitoring system must be implemented and test the water on a quarterly basis for changes in water quality and water levels. Should impacts be identified, management measures must be implemented based on the contaminant or water level change; • Implement a Surface Water Management Plan to minimise the volume of dirty water produced, as well as the effectiveness of the containment of dirty water, thereby reducing the probability of contamination of groundwater from infiltration of dirty surface water; • Refine and update the conceptual and numerical models annually for the first four years and thereafter every five years based on groundwater monitoring results. This will help to

													better quantify impacts to water quantity and quality; and • All contaminant, waste and hazardous waste storage facilities and other contaminated water storage areas (PCD) must be lined to pro-actively prevent infiltration of contaminated seepage water.
12,0	Transportation of coal via N12 road	Soil	Soil contamination and degradation due to potential hydrocarbon spillages.	3	5	4	1	0,8	4,0	2,5	2,0	Moderate	• 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; • Storage of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); and • Vehicles with leaks must have drip trays in place.

		Wetland and aquatic environment	Increased movement of heavy vehicles	2	5	4	1	0,8	3,7	2,3	1,9	Low	• Clean and dirty water separation systems to be implemented prior to the commencement of activities and to be maintained throughout the life of the proposed project; • Ensure that as far as possible all operational infrastructures are placed outside of wetland/riparian areas and their associated 32 or 100m zones of regulation respectively; • Limit the footprint area of the operational activities to what is absolutely essential in order to minimise impacts as a result of subsidence; • Ensure that no incision and canalisation of the wetland features present takes place as a result of the proposed operational activities; • All erosion noted within the operational footprint as a result of either subsidence or any potential surface activities should be remedied immediately and included as part of the ongoing rehabilitation plan; • Erosion berms should be installed on

													roadways and downstream of stockpiles to prevent gully formation and siltation of the freshwater resources. • A suitable AIP control programme must be put in place so as to prevent further encroachment as a result of disturbance to the surrounding terrestrial zones; • All delineated watercourses should be designated as "No-Go" areas and be off limits to all unauthorised vehicles and personnel, with the exception of approved operational areas; • No material may be dumped or stockpiled within any watercourses in the vicinity of the proposed operational footprint; • No vehicles or heavy machinery may be allowed to drive indiscriminately within any delineated watercourses. All vehicles must remain on demarcated roads and within the operational area footprint; • All vehicles must be regularly

													inspected for leaks; • Re-fueling must take place on a sealed surface area away from wetlands to prevent ingress of hydrocarbons into topsoil; • All spills should be immediately cleaned up and treated accordingly; • Appropriate sanitary facilities must be provided for the duration of the operational activities and all waste must be removed to an appropriate waste facility; • Monitor all systems for erosion and incision; • Areas across watercourses where cross-sectional subsidence is observed should be rehabilitated in such a way as to maintain stream connectivity in a downstream direction.
		Surface water and groundwater	Contamination of surface water due to potential hydrocarbon spillages.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• 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; • Storage of hydrocarbons must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); and • Vehicles with leaks must have drip trays in place.
13,0	Vehicular activity.	Air Quality	Fugitive dust generation emanating.	4	5	4	3	1,0	4,3	3,7	3,7	High	• Ensure the area of disturbance during the mining activities is restricted to the to the identified mining strips; • Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; • Cover the road going trucks from the tip to KPS with a tarpaulin to prevent coal dust generation; and • Vehicles will obey speed limits. • Maintenance equipment and heavy vehicle speeds should be reduced, where possible, to prevent dust emissions.

	Topography and Visual Enviranment	Topography change and disruption of surface water flow	2	5	5	2	0,6	4,0	3,0	1,8	Low	• Ensure that access and haul roads are contoured to limit erosion from surface runoff, preventing further alteration to the topography; • Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; and • Vehicles will obey speed limits.
	Soil	Soil contamination and degradation.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• 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; • Storage of hydrocarbons and explosives must be managed according to the Hazardous Substances Act, 1973 (Act No. 15 of 1973); • Hydrocarbons and explosives storage facilities must be in a hard park bunded

												facility; and • Vehicles with leaks must have drip trays in place.
	Fauna and Flora	Loss of biodiversity and minimise impacts on floral species	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure that dust suppressants are applied to gravel or unpaved roads that are in use; • Cover the road going trucks from the tip to KPS with a tarpaulin to prevent coal dust generation; and• Vehicles will obey speed limits.
	Wetlands and Aquatic Ecology	Contamination and sedimentation of the wetland systems and aquatic ecosystems	2	2	4	3	1,0	2,7	2,8	2,8	Moderate	• Ensure a Storm Water Management Plan is implemented; • Ensure that dust suppressants are applied to gravel or unpaved roads that are in use and exposed surfaces; • Cover the road going trucks from the tip to KPS with a tarpaulin to prevent coal dust generation; • Vehicles will obey speed limits; and • Implement a biannual Aquatic Monitoring Programme to monitor potential impacts and implement corrective actions, should it be required.

	Surface Water	Contamination and sedimentation of clean water resources.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure that dust suppressants are applied to gravel or unpaved roads that are in use and exposed surfaces; • Cover the road going trucks from the tip to KPS with a tarpaulin to prevent coal dust generation; • Vehicles will obey speed limits; and • Monitor surface water resources up and downstream of the Project area to identify potential contamination.

Unite Number	Activity	Aspect	Impact	Significance Rating Before Mitigation Measures									Mitigation Measures
				I	F	D	E	P	S	C	IS	SIGNIFICANCE	
		Noise	noise emanating from mining and vehicular activities impacting on surrounding sensitive receptors.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Mining related machines and vehicles should be serviced on a regular basis to ensure noise suppression mechanisms are effective (e.g., installed exhaust mufflers); and • Ensure equipment and machinery is switched off when not in use.
		Traffic	Degradation of the road structures resulting in potential health and safety risks and soil erosion.	3	4	5	2	0,8	4,0	3,0	2,4	Moderate	• The gravel roads must be graded and compacted on a regular basis and as when required, should the roads remain unpaved; and • Adhere to the set speed limit in accordance to the Traffic Management Plan.
14,0	Dirty water management.	Wetlands and Aquatic	Contamination of the wetland systems and	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure a Stormwater Management Plan is implemented;

			aquatic ecosystems										• Ensure that there is no incision and canalisation of the watercourses; • Dirty water from the infrastructure areas must be diverted by channels and berms and separated from clean water. The dirty water must be stored in the existing PCDs; • No waste and/or contaminated material may be dumped or stockpiled within any watercourses; • The operation and maintenance of the PCD must be in accordance with the NWA Regulations set out in GN R704 and must have a minimum freeboard of 0.8 m and be able to contain a 1:50 year, 24-hour storm event; and • Implement a biannual Aquatic Monitoring Programme to monitor potential impacts and implement corrective actions, should it be required.
			Contamination of clean water resources.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Continue with water quality monitoring at the existing sample at the current monitoring locations and frequency. Increase monitoring

													frequency for those monitoring points that show constant non-compliances; • The water levels in the Surface Main PCD and the Main Underground dams must be constantly monitoring and recorded for evaluation of additional future capacity and/or treatment requirements; • Pipelines used for dewatering activities need to be sized based on the dewatering rates and volumes; • The operation and maintenance of the existing PCD must be in accordance with the NWA Regulations set out in GN R704 and must have a minimum freeboard of 0.8 m and be able to contain a 1:50 year, 24-hour storm event; • Monitor the dirty water management facilities on a monthly basis to identify potential leaks and implement management measures to rectify potential issues; and • Monitor surface water resources up

													and downstream of the Project area to identify potential contamination.
		Groundwater	Groundwater contamination.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Ensure that pipelines and diversion channels and berms are monitored for potential leaks and structure failures; • Potential leaks and spills must be contained and cleaned up immediately, as well as the leakage location repaired; • The mine should supply the users with an alternative source of water in case the boreholes are dewatered; • Monitor and control the potential decant of dirty water from the workings; • Ongoing monitoring to measure the water level in the proposed 5 Seam Mining area. The water level should be managed to stay well below the decant level of 1594 mamsl; • Monitor the borehole water quality and if the quality deteriorates, it is recommended to start pumping to

													contain the plume; • Ensure that a stormwater management plan is in place to separate clean and dirty water; and • Groundwater monitoring of the water quality and levels must take place quarterly especially for the water supply boreholes to ensure a sustainable resource and identify impacts on local users.
15,0	Waste and sewage generation and disposal.	Topography and Visual Enviranment	Topography change	2	3	3	2	0,8	2,7	2,3	1,9	Low	• Waste must be stored away from surface water and drainage lines; and • General and hazardous waste must be removed and disposed of frequently at a registered disposal site.
		soil	Degradation and contamination of soil	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• Burying of any waste including rubble, domestic waste, empty containers on the site must be strictly prohibited; • Proper waste storage facilities should be available and used for the correct separation and storage of waste prior to collection and disposal; and • Generated waste must be removed to an approved disposal facility.

		Surface Water	Contamination of clean water resources.	4	4	5	2	0,8	4,3	3,2	2,5	Moderate	• The sewer waster collected from the workings must be disposed of at a licensed sewage treatment facility; • Monitor surface water resources up and downstream of the Project area to identify potential contamination; • Ensure that a stormwater management plan is in place to separate clean and dirty water; and • Waste must be separated at source and stored in appropriately designated areas for disposal at a licensed facility or by a reputable contractor.

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3.14 Summary of specialist reports

This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form.

List of studies undertaken	**Recommendations of specialist reports**	**Specialist recommendations included in the BASIC ASSESSMENT report** Mark with an X where applicable	**Reference to applicable report section** Where specialist recommendations have been included
• Hydrological Study	• Monitoring of the surface water quality shall be carried out regularly during the project's construction and operating phases. • An independent ECO is to be appointed during construction. The mine's internal Environmental officers will be conversant with best practices in accordance with rehabilitation during decommissioning and an audit is to be performed before and after rehabilitation. • A GN 704 audit is to be conducted bi-annually to assist with compliance to the separation of clean and dirty water infrastructure. • Where mining infrastructure, such as haul roads, are required across natural watercourses, new storm water infrastructure, such as pipes and culverts could replace the hydraulic function currently offered by the natural water courses. This infrastructure should be designed for both hydraulic performance and environmental functionality.	**X**	Section 3.9

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the BASIC ASSESSMENT report Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
	• Around operating areas, temporary erosion control measures (e.g., sediment nets, berms, etc.) must be used. • At all times, sufficient freeboard in PCDs and other dirty water dams must be guaranteed. Dams must be managed in strict compliance with GN704 standards. • No dirty water should be released into the ecosystem. Excess water in the mine water circuit must be dealt with properly in accordance with the DWS		
• Soil study	• The proposed mining land should be returned to its origin as before mining activities and the rehabilitation performance assessment in the proposed land must be done progressively (annually) during the operational phase by a soil specialist. • Final surface rehabilitation of all disturbed areas during mining activities. Rehabilitation of unnecessary water management facilities once appropriate to do so.	**X**	Section 3.9

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the BASIC ASSESSMENT report Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
	• Specialists should be used to evaluate the erosion and other possible impacts during the entire mining process. • Limit impacts to the footprints to keep physical impacts as small as possible. Areas for road, site lay-out should be minimized, dust generation.		
• Hydrogeological study	• Proper stormwater management is recommended to prevent the risk of water resources contamination. • The study area falls on a fractured aquifer system, the mine planning will take into consideration the fracture zones in the Vryheid formation, drilling activities will not contact the fractures as that is where most groundwater in the area is found and to prevent possible groundwater pollution from residual explosive material used. • The numerical model will be recalibrated as soon as more hydrogeological data such as monitoring holes are made available. This would enhance model predictions and certainty. • There will be regular testing or monitoring of surrounding soil, water resources to detect any change in chemistry so that remedial measures are implemented in time. • The monitoring process throughout the existence of the project, the	**X**	Section 3.9

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the BASIC ASSESSMENT report Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
	chemical and physical parameters of the water samples will be tested and compared with the SANS241: 2015 • There will be soil, water resources and land pollution mitigation measures on site. • Wastewater source will be identified, and mitigation measures put in place to prevent groundwater contamination. • The stockpile, there will be regular monitoring of any heavy metal which could be exposed, as such could result in leaching during rainfall. • Proper and competent structure of the tailings dam will be built, to contain liquid, or solid waste and to prevent such waste from entering the outside environment. • It is recommended that to protect the wetlands onsite, it will be made easy to identify them, and further development is required before the operations commence such as planting of various plants. • It is recommended that compliance of relevant legislations be ensured, NEMA Act 107 of 1998, NWA Act 36 of 1998, NEM: waste Management Act 58 of 2008. • It is recommended that the mining project outsource water, the area does not have large quantity of surface water and the aquifer is minor, as such the abstraction of groundwater is likely to severely affect the water distribution in the area.		

List of studies undertaken	Recommendations of specialist reports	Specialist recommendations included in the **BASIC ASSESSMENT report** Mark with an X where applicable	Reference to applicable report section Where specialist recommendations have been included
	• Regular dust monitoring will take place weekly, to detect any change in dust being produced, so that mitigation measures are implemented early. • It is recommended that during the existence of the project there will also be regular maintenance of the mobile ablutions, to avoid leakage of waste into the ground. • There will be boreholes in and around the permit area, to monitor the groundwater quality and quantity. • Prior to the mining operations, Hlubi Properties will conduct tests on the soil and groundwater, to trace the residues of any chemicals used during the cultivation process, and to implement measures to lower those effects.		

Copies of specialist reports are attached as appendices.

3.15 Environmental impact statement

3.15.1 Summary of the key findings of the basic assessment

The key findings of the basic assessment are as follows:

- The project entails the establishment of a coal mine on a cultivated area. Therefore, no natural vegetation will be disturbed by mining activities.
- The existing roads to the proposed coal mine proposed mine will be used to gain access to the site. No new roads are needed.
- The applicant's off-site workshop will be used for servicing vehicles, thereby reducing the risk of hazardous spills and contamination at the mining site.
- Due to the remote setting of the coal proposed mine, the majority of potential impacts can be contained within the boundaries, provided that mitigation measures proposed in this document is implemented on-site.
- The mining operation will have a temporary visual impact on the surrounding environment. Upon closure of the proposed mining area the visual impact on the proposed mining area will be mitigated and addressed.
- There are no watercourses within the 500 m radius from the permit boundary.

3.15.2 Final site map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structure and infrastructure on the environmental sensitivities of the preferred site indicating areas that must be avoided, including buffers. Attach as an Appendix.

The map indicating site activities is attached as an appendix.

3.15.3 Positive and negative impacts of the proposed activity and alternatives

The positive impacts associated with the project include:

- Job creation, although a fixed number of jobs to be created cannot be stated at this stage, will include multiple job opportunities for skilled, semi-skilled and unskilled personnel will be created by this project. This will contribute to the socio-economic status of the Delmas area.
- The coal to be mined will be supplied to Eskom, hence it will enhance Eskom's coal resources security to generate electricity without re-occurrence of load shedding.

The negative impacts associated with the project and that was considered to be of Low-Medium or Medium significance includes:

Visual intrusion associated with the establishment of the mining area	Medium
Visual intrusion associated with the excavation activities	Medium
Visual intrusion associated with the stockpiled material and vehicles transporting the material	Low-medium
Dust nuisance caused by blasting activities	Low-medium
Dust nuisance due to the crushing activities	Low-medium
Noise nuisance generated by excavation equipment	Low-medium
Noise nuisance generated by the crushing activities	Low-medium
Degradation of access roads	Low-medium

3.16 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr

Based on the assessment and, where applicable, recommendations from specialist reports, recording of proposed impact management objectives, and impact management outcomes for development for inclusion in the EMPr and as authorisation condition.

Management objectives	Role	Management outcomes
Dust handling	Site Manager to ensure compliance with EMP guidelines. Compliance to be monitored by the Environmental Control Officer.	• Control dust liberation into the surrounding environment by using water spraying and/or other dust allaying agents. • Limit speed on the access roads to 40km/h to prevent the generation of excess dust. • Spray roads with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits. • Assess effectiveness of dust suppression equipment. • Ensure the crusher plant has operational water sprayer to alleviate dust generation from the conveyor belts.
Noise handling	Site Manager to ensure compliance with EMP guidelines. Compliance to be monitored by the Environmental Control Officer.	• Ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the mining area. • Ensure that all mining vehicles are equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. • Plan the type, duration and timing of the blasting procedures with due cognizance of other land users

Management objectives	Role	Management outcomes
		and structures in the vicinity. • Notify surrounding landowners in writing prior to blasting.
Management of weed/ invader plants	Site Manager to ensure compliance with EMP guidelines. Compliance to be monitored by the Environmental Control Officer.	• 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.
Surface and storm water handling	Site Manager to ensure compliance with EMP guidelines. Compliance to be monitored by the Environmental Control Officer.	• Divert storm water around topsoil heaps, stockpile areas and access roads to prevent erosion and material loss. • Divert runoff water around stockpile areas with trenches and contour structures to prevent erosion of work areas. • 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 and Sanitation (DWS), and any other conditions which that Department may impose.
Management of health and safety risks	Site Manager to ensure compliance with EMP guidelines. Compliance to be monitored by the Environmental Control Officer. Blasting contractor to comply with national blasting requirements.	• Plan the type, duration and timing of the blasting procedures with due cognizance of other land users and structures in the vicinity. • Inform the surrounding landowners and communities of any blasting event. • Use noise mufflers and/or soft explosives during blasting, limit fly rock. • Give audible warning of a pending blast at least 3 minutes in advance of the blast. • Remove all fly rock (of diameter 150 mm and larger) which falls beyond the working area, with the rock spill. • Ensure that workers have access to the correct PPE

Management objectives	Role	Management outcomes
		as required by law. • Ensure all operations comply with the Occupational Health and Safety Act.
Waste management	Site Manager to ensure compliance with EMP guidelines. Compliance to be monitored by the Environmental Control Officer.	• Ensure no waste pile is established within 100 m of the edge of any river channel or other water bodies. • Ensure regular vehicle maintenance take place within the service bay area of the off-site workshop. If emergency repairs are needed on site, ensure drip trays is present. Ensure all waste products are disposed of in a 200 l closed container/bin inside the emergency service area. • Collect effluents containing oil, grease or other industrial substances in a suitable receptacle and remove from site, for resale or appropriate disposal at a recognised facility. • Clean spills immediately to the satisfaction of the Regional Manager by removing the spillage and polluted soil and disposing thereof at a recognised facility. File proof. • Ensure availability of suitable covered, conveniently placed receptacles at all times for waste disposal. • 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 recognised landfill site at Witbank. 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	Site Manager to ensure compliance with EMP guidelines. Compliance to be monitored by the Environmental	• Divert storm water around access roads to prevent erosion. • Erosion of access road: Restrict vehicular movement to existing access routes to prevent crisscrossing of tracks through undisturbed areas.

Management objectives	Role	Management outcomes
	Control Officer.	
Topsoil handling	Site Manager to ensure compliance with EMP guidelines. Compliance to be monitored by the Environmental Control Officer.	• Remove the first 300mm of topsoil in strips and store at stockpile area. • Keep the temporary topsoil stockpiles free of weeds. • Place topsoil stockpiles on a levelled 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 1.5 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. • Seed the stockpiled topsoil heaps if vegetation does not re-establish within 6 months of stockpiling. • Divert storm- and runoff water around the stockpile area and access roads to prevent erosion.
Fauna and flora	Site Manager to ensure compliance with EMP guidelines. Compliance to be monitored by the Environmental Control Officer.	• Ensure no fauna is caught, killed, harmed, sold or played with. • Instruct workers to report any animals that may be trapped in the working area. Ensure no snares are set or nests raided for eggs or young. • Do not remove plants/trees without ECO approval.

3.17 Aspects for inclusion as conditions of authorisation

Any aspects which must be made conditions of the Environmental Authorisation.

The management objectives listed in this report (4.4) should be considered for inclusion in the environmental authorisation.

3.18 Description of any assumptions, uncertainties and gaps in knowledge

Which relate to the assessment and mitigation measures proposed.

The assumptions made in this document, which relate to the assessment and mitigation measures proposed, stem from site-specific information gathered from a site inspection and background information gathering.

3.19 Reasoned opinion as to whether the proposed activity should be authorised

No fatal flaws could be identified that were deemed severe enough to prevent the activity from continuing, should the mitigation measures and monitoring programmes proposed in this document be implemented on site. The management objectives listed in this report should be considered for inclusion in the Environmental Authorisation.

3.20 Period for which the Environmental Authorisation is required

The applicant requests the Environmental Authorisation to be valid for a two-year period.

3.21 Undertaking

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to the Basic Assessment Report and the Environmental Management Programme report.

The undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to the Basic Assessment Report and the Environmental Management Programme report.

3.22 Financial provision

State the amount required to manage and rehabilitate the environment.

Table 11: Financial provision

CALCULATION OF THE QUANTUM

Applicant: **Hlubi Properties (Pty) Ltd** — **Ref no.: 13157 MP**
Evaluator: **Boitumelo Mohololа** — **Date: 6 Jul 2022**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	0.05	49	1	1	2.45
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha		284292	1	1	0
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0.32	189528	1	1	60648.96
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0.06	685612	1	1	41136.72
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	5	150138	1	1	750690
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0.09	57087	1	1	5137.83
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0		1	1	0
15 (B)	Specialist study	Sum	0		1	1	0
					Sub Total 1		857615.96

1	Preliminary and General	102913.9152	weighting factor 2 1		102913.9152
2	Contingencies	85761.596			85761.596
			Subtotal 2		1046291.47
			VAT (15%)		156943.72
			Grand Total		**1203235**

Signature
Date — Boitumelo Mohololа, 6-Jul-22

3.22.1 Explain how the aforesaid amount was derived

The financial provision amount was derived from the financial calculator/ quantum. The annual amount required to manage and rehabilitate the environment was estimated to be R1 354,706.00.

3.22.2 Confirm that this amount can be provided from operating expenditure

Confirm that the amount is anticipated to be an operating cost and is provided for as such in the Mining Work Programme, Financial and Technical Competence Report or PWP.

The mining operation will be self-funded through income generated by sales of the coal mined. Bridging finance, will be supplied where needed by potential investors.

3.23 Specific information required by the Competent Authority

Compliance with the provisions of sections 24(4) (a) and (b) read with section 24 (3)(a) and (7) of the NEMA (107 of 1998). The BASIC ASSESSMENT report must include the:

No specific information was required.

3.23.1 Impact on the socio-economic conditions of any directly affected person

Provide the results of investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an Appendix.

The proposed coal mine will be established on a cultivated land. Upon closure, the land will be rehabilitated to natural vegetation cover, then to agricultural use.

The dust and noise impacts that may emanate from the mining area during the operational phase could have a negative impact on the surrounding community if the mitigation measures proposed in this document are not implemented and managed on-site. However, due to the distance of the community from the mining area (approximately 2.65 Km) these impacts are considered to be of medium-high significance.

The operation of the mine will have a number of positive impacts, such as job creation for skilled, semi-skilled and unskilled permanent workers. The proposed coal mine will therefore contribute locally by aiding in the development of the area and boosting the local economy through increased municipal revenue. On a national scale, this will aid by boosting the slowly growing SA economy.

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

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

No area of archaeological or cultural importance was identified.

3.24 Other matters required in terms of section 24(4)(a) and (b) of the Act

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

The site and project alternatives investigated during the impact assessment process were done at the hand of information obtained during the site investigation, public participation process and desktop studies conducted of the study area. As discussed earlier, the following alternatives were considered:

- Establishment of a coal mine 284 m away from the residential area or any form of development vs. establishment of a coal mine in an un-utilised area (preferred alternative)
- Open cast mining (preferred alternative) vs. underground mining
- Temporary Infrastructure (preferred alternative) vs. permanent Infrastructure
- Access onto provincial road vs. access onto national road (preferred alternative)

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

4 Environmental management programme

4.1 Details of the EAP

Confirm that the requirements for the provision of the details and expertise of the EAP are already included in Part A, section 1(a) herein as required).

Refer to section 1 of Part A and Appendix 1.

4.2 Description of the aspects of the activity

Confirm that the requirements to describe the aspects of the activity that are covered by the draft environmental management programme is already included in Part A, 2.2, herein, as required.

The aspects of the activity that are covered by the environmental management programme has been described and included in Part A, 2.2.

4.3 Composite map

Provide a map (attached as an Appendix) at an appropriate scale which superimposes the proposed activity, its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, such as buffers.

As mentioned in Part A, section 2.2 (Figure 3) this map has been compiled and is attached as an appendix.

4.4 Description of impact management objectives, including management statements

4.4.1 Determination of closure objectives

Ensure that the closure objectives are informed by the type of environment described.

The closure objectives are aimed at re-instating the landform, land use and vegetation units to the same as before mining operations take place unless a specific, reasonable alternative land use is requested by the landowner. As such, the intended end use for the disturbed Mining Permit area and the closure objectives will be defined in consultation with the relevant landowner. Proof of such consultation will be submitted together with the Application for Closure Certificate. The overall aim of the rehabilitation plan is to rehabilitate the environment to a condition as close as possible to that which existed prior to mining. This shall be achieved with a number of specific objectives

1. Making the area safe, i.e. decommission mining activities to ensure that the environment is safe for people and animals. This entails refilling the excavations.

2. Recreating a free draining landform. This entails earthworks infilling, reshaping, levelling, etc. to recreate as close as possible the original topography and to ensure a free draining landscape.

3. Re-vegetation. This involves either reseeding or allowing natural succession depending on the area, climate etc.

4. Storm water management and erosion control. Management of storm-water and prevention of erosion during rehabilitation (e.g. cut off drains, berms etc. and erosion control where required)

4.5 Volume and rate of water use required for the operation

It is estimated that the mining activities will require approximately 18000L of water per day for dust suppression purposes.

4.6 Has a water use licence has been applied for?

No, water to be used in a mine will be trucked in, there are no activities triggering section 21 of the National Water use Act.

4.7 Impacts to be mitigated in their respective phases

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

Activities	**Phase**	**Size and scale of disturbance**	**Mitigation measures**	**Compliance with standards**	**Time period for implementation**
E.g. for prospecting – drill site, site camp, ablution, facilities, accommodation, equipment storage, sample storage, site office, access route, etc. E.g. for mining – excavations, blasting, stockpiles, discard dumps/dams, loading, hauling and transport. Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water	Of operation in which activity will take place. State: Planning and design, pre-construction, construction operational, rehabilitation, closure, post-closure	Volumes, tonnages and hectares or m²	Describe how recommendations herein will remedy the cause of pollution or degradation	Description of how each recommendation herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to rehabilitation specifically this must take place at the earliest opportunity. With regard to rehabilitation, therefore state either: Upon cessation of the individual activity or,

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
control, berms, roads, pipelines, power lines, conveyors, etc.					upon cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Stripping and stockpiling of topsoil	Site establishment/ construction phase	4.84ha	**Visual mitigation** • The site must be neat and kept in good condition at all times. • Upon closure, the site must be rehabilitated and sloped to ensure that visual impact on the aesthetic value of the area is minimal. **Dust handling** • Dust liberation into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness.	• Dust and Noise: NEMAQA, 2004 • Regulation 6(1) • Weeds: CARA, 1983 • Storm Water: NWA, 1998 • Waste: NEM: WA, 2008	Throughout the site establishment phase.

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			• Speed on the access roads must be limited to 40km/h to prevent excess dust generation. • Roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCBs (e.g. DAS products) if dust is generated above acceptable limits. **Noise handling** • The applicant must ensure that staff conduct themselves in an acceptable manner while on site, both during work hours and after hours. • No loud music permitted at the mining area. • All mining vehicles must be equipped with silencers and kept roadworthy in terms of the Road Transport Act. **Weed and invader plant**		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			management • A weed and invader plant control management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of CORA (Act No 43 1983). • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: o The plants can be uprooted, felled or cut off and can be destroyed completely. o The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide. o The temporary topsoil		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			stockpiles must be kept free of weeds. **Storm water handling** • Storm water must be diverted around the topsoil heaps, stockpile areas and access roads to prevent erosion and material loss. • Runoff water must be diverted around the stockpile areas with trenches and contour structures to prevent erosion of the work areas. **Waste management** • No processing area or waste pile may be established within 100 m of the edge of any river channel or other water bodies. • Regular vehicle maintenance may only take place in the service bay area of the off-site workshop. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			present. All waste products must be disposed of in a 200 l closed container/bin to be removed from the emergency service area to the workshop to ensure proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, for resale or appropriate disposal at a recognised facility. • Spills must be cleaned immediately to the satisfaction of the Regional Manager by removing the spillage and the polluted soil and disposing it at a recognised facility. Proof must be filed. • Suitable covered receptacles must be available at all times and conveniently placed for waste disposal. • Non-biodegradable refuse, such as		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point and collected on a regular basis and disposed of at a recognised landfill site. Specific precautions must be taken to prevent refuse from being dumped on or in the vicinity of the mine area. • Biodegradable refuse generated must be handled as indicated above.		
Blasting	Operational phase	3.9ha	**Management of Health and Safety Risks** • The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity, • The surrounding landowners and communities must be informed in	**Health and safety** • MHSA, 1996 • OHSA, 1993 • OHSAS 18001 **Dust and noise** NEMAQA, 2004 Regulation 6(1)	Applicable with each blasting event.

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			writing ahead of any blasting event • Measures to limit fly rock must be taken • Audible warning of a pending blast must be given at least 3 minutes before the blast • All fly rock (of diameter 150mm and larger) which falls beyond the working area, together with the rock spill must be collected and removed, • Workers must have access to the correct PPE as required by law. • All operations must comply with the OHSA. **Dust handling** • Dust liberation into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. • Speed on the access roads must be		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			limited to 40km/h to prevent the generation of excess dust. **Noise handling** • The applicant must ensure that staff conduct themselves in an acceptable manner while on site, both during work hours and after hours. • No loud music permitted at the mining area. • All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. • The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. Surrounding landowners must be notified in writing prior to blasting.		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
Excavation	Operational phase	4.47 ha	**Visual mitigation** • 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. **Dust handling** • Dust liberation into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness. • Speed on the access roads must be limited to 40km/h to prevent the generation of excess dust.	**Dust and noise** NEM: AQA, 2004 Regulation 6(1) **Health and safety** MHSA, 1996 OHSA, 1993 OHSAS 18001 **Fauna and flora** NEM:BA, 2004 **Waste** NEMWA, 2008 **Weeds** CARA, 1983	Throughout the operational phase

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			• Roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCBs (e.g. DAS products) if dust is generated above acceptable limits. **Noise handling** • The applicant must ensure that staff conduct themselves in an acceptable manner while on site, both during work hours and after hours. • No loud music permitted at the mining area. • All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. **Management of health and safety risks** • Workers must have access to the		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			correct PPE as required by law. • All operations must comply with the OHSA. **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. **Waste management** • No processing area or waste pile may be established within 100 m of the edge of any river channel or other water bodies. • Regular vehicle maintenance may only take place within the service bay area of the off-site workshop. If		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 L closed container/bin to be removed from the emergency service area to the workshop in order to ensure proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from site, for resale/ appropriate disposal at a recognised facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage and polluted soil and disposing it at a recognised facility. Proof must be filed.		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			• Suitable covered receptacles must be available at all times and conveniently placed for waste disposal. • 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 recognised 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 must be handled as indicated above. **Management of weed/invader plants** • A weed and invader plant control management plan must be		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			implemented at the site to ensure eradication of all listed invader plants in terms of CORA (Act No 43 1983). • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: o The plants can be uprooted, felled or cut off and can be destroyed completely. o The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide. o The temporary topsoil stockpiles need to be kept free of weeds.		
Crushing	Operational phase	0.05 ha	**Dust handling**	**Dust and noise**	Throughout the

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			• Dust liberation into the surrounding environment must be effectively controlled by using, inter alia, water spraying and/or other dust-allaying agents. • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness. • Speed on the access roads must be limited to 40km/h to prevent excess dust generation. • The crusher plant must have operational water sprayers to alleviate dust generation from conveyor belts. Noise handling • The applicant must ensure that staff conduct themselves in an acceptable manner while on site, during work hours and after hours. • No loud music permitted at the	NEMAQA 2004 **Waste** NEMWA 2008	operational phase

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			mining area. • All mining vehicles must be equipped with silencers and kept roadworthy in terms of the Road Transport Act. Waste management • No processing area or waste pile may be established within 100 m of the edge of any river channel or other water bodies. • Regular vehicle maintenance may only take place in the service bay of the off-site workshop. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 l closed container/bin to be removed from the emergency service area to the workshop for proper disposal. • Any effluents containing oil, grease		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			or other industrial substances must be collected in a suitable receptacle and removed from site, either for resale or appropriate disposal at a recognised facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager by removing spillage and polluted soil and by disposing it at a recognised facility. Proof must be filed. • Suitable covered receptacles must 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 recognised landfill site. Specific		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			precautions must be taken to prevent refuse from being dumped on or in the vicinity of the mine area. • Biodegradable refuse generated must be handled as indicated above.		
Stockpiling and transporting	Operational phase	0.36 ha	**Visual mitigation** • The site must be neat and be kept in good condition at all times. • Upon closure, the site must be rehabilitated and sloped to ensure that the visual impact on the aesthetic value of the area is minimal. **Storm water handling** • Storm water must be diverted around the stockpile areas and access roads to prevent erosion and material loss. • Runoff water must be diverted around the stockpile areas with	**Storm water** NWA, 1998 **Weeds** CARA, 1983 **Dust and noise** NEMAQA, 2004 Regulation 6(1) **Waste** NEMWA, 2008	Throughout operational phase

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			trenches and contour structures to prevent erosion of work areas. • Mining must be conducted 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 DWS, and any other conditions that the DWS may impose: • Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. Prevent clean water from running or spilling into dirty water systems. • Dirty water must be collected and contained in a system separate from the clean water system. • Dirty water must be prevented from		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			spilling/seeping into clean water systems. • 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. **Management of weed/invader plants** • A weed and invader plant control management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of CORA (Act No 43 1983). • Management must take		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: o The plants can be uprooted, felled or cut off and can be destroyed completely. o The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide. • The temporary stockpile area must be kept free of weeds. **Dust handling** • Dust liberation into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. • The site manager must ensure		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			continuous assessment of all dust suppression equipment to confirm its effectiveness. • Speed on the access roads must be limited to 40km/h to prevent excess dust generation. • Roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCBs (e.g. DAS products) if dust is generated above acceptable limits. Management of access roads • Storm water should be diverted around the access roads to prevent erosion. • Vehicular movement must be restricted to existing access routes to prevent crisscrossing of tracks through undisturbed areas. • Rutting and erosion of the access road caused as a result of the		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			mining activities must be repaired by the applicant. **Noise handling** • The applicant must ensure that staff conduct themselves in an acceptable manner while on site, both during work hours and after hours. • No loud music permitted at the mining area. • All mining vehicles must be equipped with silencers and kept roadworthy in terms of the Road Transport Act. **Waste management** • No processing area or waste pile may be established within 100 m of the edge of any river channel or other water bodies. • Regular vehicle maintenance may only take place in the service bay area of the off-site workshop. If		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 l closed container/bin to be removed from the emergency service area to the workshop for proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from site, for resale or appropriate disposal at a recognised facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage and polluted soil and disposing of it at a recognised facility. Proof must be filed. • Suitable covered receptacles must		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			be available at all times and conveniently placed for waste disposal. • 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 recognised 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 must be handled as indicated above.		
Sloping and landscaping during rehabilitation	Decommissioning phase	5 ha	**Storm water handling** • Storm water must be diverted around the rehabilitated area to prevent erosion and loss of reinstated material.	**Storm water** NWA, 1998 **Health and safety** MHSA, 1996 OHSA, 1993	Upon cessation of mining

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			Management of health and safety risks • Excavations have to be rehabilitated as stipulated in the closure plan to ensure the site is safe upon closure. • Workers must have access to the correct PPE as required by law. • All operations must comply with the OHSA. **Dust handling** • Dust liberation into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness. • Speed on the access roads must be limited to 40km/h to prevent	OHSAS 18001 **Dust and noise** NEMAQA 2004, Regulation 6(1) **Waste** NEMWA 2008	

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			excess dust generation. • Roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCBs (e.g. DAS products) if dust is generated above acceptable limits. **Noise handling** • The applicant must ensure that staff conduct themselves in an acceptable manner while on site, both during work hours and after hours. • No loud music permitted at the mining area. • All mining vehicles must be equipped with silencers and kept roadworthy in terms of the Road Transport Act. **Waste management** • Waste material of any description, including receptacles, scrap,		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			rubble and tyres, will be removed entirely from the mining area and disposed of at a recognised landfill facility. It will not be permitted to be buried/burned on site • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from site, for resale/ appropriate disposal at a recognised facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and disposing of it at a recognised facility. Proof should be filed. • Suitable covered receptacles must be available at all times and conveniently placed for waste disposal.		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			• Non-biodegradable refuse, like 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 recognised 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 must be handled as indicated above.		
Replacing of topsoil and rehabilitation of disturbed area	Decommissioning phase	5 ha	**Rehabilitation of excavated area** • Rocks and coarse material removed from the excavation must be dumped into the excavation. • No waste will be permitted to be deposited in the excavations. • Once overburden, rocks and coarse natural materials have	**Rehabilitation** MPRDA, 2008 **Health and safety** MHSA, 1996 OHSA, 1993 OHSAS 18001 **Dust and noise** NEMAQA, 2004	Upon cessation of mining

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			been added to the excavation and were profiled with acceptable contours and erosion control measures, the topsoil previously stored will be returned to its original depth over the area. • The area will be fertilised if necessary to allow vegetation to establish rapidly. The site will be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from site closure. • If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining	Regulation 6(1) **Weeds** CARA, 1983 **Waste** NEMWA, 2008	

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			operation be corrected and the area seeded with a vegetation seed mix to his or her specification. **Rehabilitation of plant area** • The compacted areas will be ripped and the topsoil returned over the area. • Coarse natural material used for the construction of ramps will be removed and dumped into the excavations. • Stockpiles will be removed during the decommissioning phase, the area ripped and topsoil returned to original depth to provide a growth medium. • On completion of operations, all structures or objects will be dealt with in accordance with Section 44 of the MPRDA 2002 (Act 28 of 2002): • Where sites have been rendered devoid of vegetation/grass or soils		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			have been compacted by traffic, the surface will be scarified or ripped. • The site will be seeded with a vegetation seed mix adapted to reflect the local indigenous flora if natural vegetation does not re-establish within 6 months of site closure. • Photographs of the mining area and office sites, before and during the mining operation and after rehabilitation, will be taken at selected fixed points and kept on record for the information of the Regional Manager. • On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, will be scarified to a depth of at least 300 mm and graded to an even surface condition. The previously stored topsoil will be returned to its original depth over the area. • Prior to replacing the topsoil, the overburden material that was removed from these areas will be replaced in the same order as it originally occurred. • The area will then be fertilised if necessary to allow vegetation to establish rapidly. The site will be seeded with a local, adapted indigenous seed		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			mix if natural vegetation does not re-establish within 6 months after site closure. • If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to their specification. **Final rehabilitation** • Rehabilitation of the surface area will entail landscaping, levelling, top dressing, land preparation, seeding (if required) and maintenance, and weed/alien clearing. • All infrastructure, equipment, plant, temporary housing and other items used during the mining period will be removed from the site (section 44 of the MPRDA). • Waste material of any description,		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			including receptacles, scrap, rubble and tyres, will be removed entirely from the mining area and disposed of at a recognised landfill facility. It will not be permitted to be buried/burned on site. • Weed/alien clearing will be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1 weeds according to CORA, 1983 – Act 43; Regulations 15 & 16 (as amended in March 2001) must be eradicated from the site. • Final rehabilitation will be completed within a period specified by the Regional Manager.		

4.8 Impact management outcomes

A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Whether listed or not. E.g. excavations, blasting, stockpiles, discard dumps/ dams, loading, hauling, transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	E.g. dust, noise, drainage, surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution, etc.		In which impact is anticipated. E.g. construction, commissioning, operational decommissioning, closure and post-closure.	Modify, remedy, control or stop through, e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity, etc.	Impact avoided, noise levels, dust levels, rehabilitation standards, end-use objectives, etc.
Topsoil stripping and stockpiling	Visual intrusion associated with the establishment of the	The visual impact may affect the residents of the	**Site establishment/ construction**	Control: Implementation of proper	• Impact on the surrounding environment mitigated until rehabilitation standards can be

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	mining area.	immediate area.	**phase**	housekeeping	implemented.
	Dust nuisance caused by soil disturbance.	Dust will be contained within property boundaries and therefore affect only the landowner.		Control: Dust suppression	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels have to comply with the standard published in the NIOSH guidelines – particulates >1/10th of the occupational exposure limit. NEMAQA 2004, Regulation 6(1)
	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	The noise impact should be contained within property boundaries, but might have a periodic impact on the closest residents of the Witbank community.		Control: Noise control measures	• Noise levels on the site must be managed and needs to comply with the standards stipulated in NEMAQA, 2004 Regulation 6(1) as well as the n*oise standards of SANS 10103:2008* • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	Infestation of the topsoil heaps by weeds and invader plants	Biodiversity		Control and remedy: Implementation of weed control	• The impact must be avoided through the eradication of Category 1 weeds/ invader plants in terms of CARA, 1993 as well as the implementation of the mitigation measures in this document.
	Loss of topsoil due to incorrect storm water management.	Loss of topsoil will affect the rehabilitation of the mining area.		Control: Storm water management	• The impact must be avoided through the implementation of storm water management.
	Contamination of area with hydrocarbons or hazardous waste materials.	Contamination may cause surface or ground water contamination if not addressed		Control and remedy: Implementation of waste management	• The impact must be avoided through the implementation of the mitigation measures stipulated in this document. • Should spillage occur, the area needs to be cleaned in accordance with the standards of the NEMWA, 2008.
Blasting	Health and safety risk posed by blasting activities	Impact might affect the employees working on site.	**Operational phase**	Control: Health and safety monitoring management	• Impact must be avoided through compliance with the MHSA, 1996, OHSA, 1993 and OHSAS 18001 • Fallout dust levels must comply with the acceptable dust fall rate

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
					published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day.
	Dust nuisance caused by blasting activities	Dependent on the blast, the impact might affect the surrounding community. Blasting will only occur twice a year.		Control: Dust suppression	Gravimetric dust levels has to comply with the standard published in the NIOSH guidelines particulates >1/10th of the occupational exposure limit. NEMAQA, 2004 Regulation 6(1)
	Noise nuisance caused by blasting activities	Dependent on the blast, the impact might affect the surrounding community. Blasting will only occur twice a year.		Control: Noise control measure	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEMAQA, 2004 Regulation 6(1) as well as the noise standards of SANS 10103:2008 • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.
Excavation	Visual intrusion associated with the excavation activities	The visual impact may affect the	**Operational phase**	Control: Implementation of proper	• Impact on the surrounding environment mitigated until rehabilitation standards can be

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
		residents of the immediate area.		housekeeping	implemented.
	Dust nuisance due to excavation activities.	Dust will be contained within the property boundaries and will therefore affect only the landowner.		Control: Dust suppression	• Fallout dust levels must comply with the acceptable dust fall rate published for non-residential areas, as per National Dust Control • Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels must comply with the standard published in the NIOSH guidelines –Particulates >1/10th of the occupational exposure limit. • NEMAQA, 2004 Regulation 6(1).
	Noise nuisance generated by excavation equipment	The noise impact must be contained within the boundaries of the property, but might have a periodic impact on the closest residents of the Witbank community.		Control: Noise control measures	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEMAQA, 2004 Regulation 6(1) as well as the noise standards of SANS 10103:2008. • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	Unsafe working conditions for employees.	Impact might affect employees		Control: Health and safety monitoring and management	• Impact must be avoided through compliance with the MHSA, 1996, OHSA, 1993 and OHSAS 18001
Excavation	Negative impact on the fauna and flora of the area.	Biodiversity	**Operational phase**	Control: Protection of fauna and flora through operational phase	• The impact must be avoided through implementation of the mitigation measures stipulated in this document. • NEMBA, 2004.
	Contamination of area with hydrocarbons or hazardous waste materials.	Contamination may cause surface or ground water contamination if not addressed.		Control: Implementation of waste management	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • Should spillage however occur the area needs to be cleaned in accordance with the standards of the NEMWA, 2008.
	Weed and invader plant infestation of the area.	Biodiversity		Control: Implementation of weed control	• The impact should be avoided through the eradication of Category 1 weeds/invader plants in terms of CARA, 1993 as well as the implementation of the mitigation measures in this document.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Crushing	Dust nuisance due to the crushing activities	Dust will be contained within the property boundaries and will therefore affect only the landowner.	**Operational phase**	Control: Dust suppression	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels have to comply with the standard published in the NIOSH guidelines – Particulates >1/10th of the occupational exposure limit. • NEMAQA, 2004 Regulation 6(1).
	Noise nuisance generated by the crushing activities	The noise impact should be contained within the boundaries of the property, but might have a periodic impact on the closest residents of the Witbank community.		Control: Noise control measures	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEMAQA, 2004 Regulation 6(1) as well as the n*oise standards of SANS 10103:2008.* • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.
	Contamination of	Contamination		Control:	• The impact should be avoided

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	area with hydrocarbons or hazardous waste materials.	may cause surface or ground water contamination if not addressed.		Implementation of waste management	through the implementation the mitigation measures stipulated in this document. • Should spillage however occur the area needs to be cleaned in accordance with the standards of the NEMWA, 2008.
	Loss of material due to ineffective storm water handling.	Impact will affect income of applicant.		Control: Storm water control measures	• The impact should be avoided through the implementation of storm water management.
	Weed and invader plant infestation of the area due to the disturbance of the soil	Biodiversity		Control and remedy: Implementation of weed control	• The impact should be avoided through the eradication of Category 1 weeds/invader plants in terms of CARA, 1993 as well as the implementation of the mitigation measures in this document.
Stockpiling and transporting	Dust nuisance from stockpiled material and vehicles transporting the material.	Dust will be contained within the property boundaries and will therefore affect only the landowner.	**Operational phase**	Control: Dust suppression	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels have to comply with the standard published

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
					in the NIOSH guidelines – Particulates >1/10th of the occupational exposure limit. • NEMAQA, 2004 Regulation 6(1).
	Degradation of access roads.	All road users will be affected.		Control and remedy: Road management	• The impact should be avoided through the implementation of the mitigation measures proposed in this document.
	Noise nuisance caused by vehicles.	The noise impact should be contained within the boundaries of the property, but might have a periodic impact on the closest residents of the Witbank community.		Control: Noise management monitoring and management	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEMAQA, 2004 Regulation 6(1) as well as the n*oise standards of SANS 10103:2008.* • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.
Sloping and landscaping during rehabilitation	Contamination of area with hydrocarbons or hazardous waste materials	Contamination may cause surface or ground water contamination if not addressed.	**Decommissioning phase**	Control: Implementation of waste management	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • Should spillage however occur the

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
					area needs to be cleaned in accordance with the standards of the NEM:WA, 2008.
	Soil erosion	Biodiversity		Control: Soil management	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • CARA, 1993
	Health and safety risk posed by un-sloped areas	Impact will affect employees and residents of the property		Control: Health and safety monitoring and management.	• The impact should be avoided through compliance with the standards of the MHSA, 1996, OHSA, 1993 and OHSAS 18001
	Dust nuisance caused during sloping and landscaping activities.	Dust will be contained within the property boundaries and will therefore affect only the landowner.		Control: Dust suppression	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels have to comply with the standard published in the NIOSH guidelines – Particulates >1/10 of the occupational exposure limit. NEM:AQA, 2004 Regulation 6(1).
	Noise nuisance	The noise impact		Control: Noise	• Noise levels on the site has to be

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	caused by machinery.	should be contained within the boundaries of the property, but might have a periodic impact on the closest residents of the Witbank community.		monitoring	managed and need to comply with the standards stipulated in NEM: AQA, 2004 Regulation 6(1) as well as the n*oise standards of SANS 10103:2008.* • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.
	Contamination of area with hydrocarbons or hazardous waste materials.	Contamination may cause surface or ground water contamination if not addressed.		Control: Waste management	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • Should spillage however occur the area needs to be cleaned in accordance with the standards of the NEM: WA, 2008.
Replacing of topsoil and rehabilitation of disturbed area	Loss of reinstated topsoil due to the absence of vegetation	Biodiversity and soil management	**Decommissioning phase**	Control: Soil management	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • CARA, 1993
	Infestation of the	Biodiversity and soil		Control and	• The impact should be avoided

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
	area by weed and invader plants.	management		remedy: Implementation of weed control	through the eradication of Category 1 weeds/invader plants in terms of CARA, 1993 as well as the implementation of the mitigation measures in this document.

4.9 Impact management actions

A description of impact management actions, identifying the manner in which the impact management objectives and outcomes in paragraph (c) and (d) will be achieved.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
Whether listed or not, e.g. excavations, blasting, stockpiles, discard dumps/dams, loading, hauling, transport, water supply dams, boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc.	E.g. dust, noise, drainage, surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution, etc.	Modify, remedy, control or stop through, e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity, etc. E.g. Modify through alternative method, control through noise control, control through management and monitoring, and remedy through rehabilitation.	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation therefore state either – Upon cessation of the individual activity or upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.	A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
Topsoil stripping and stockpiling	Visual intrusion associated with the establishment of the mining area.	Control: Implementation of proper housekeeping	To be implemented daily throughout the site establishment / construction phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	Impact on the surrounding environment must be mitigated until rehabilitation standards can be implemented in terms of the MRDA.
	Dust nuisance caused by the disturbance of soil.	Control: Dust suppression	To be implemented daily throughout the site establishment / construction phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels have to comply with the standard published in the NIOSH guidelines – Particulates >1/10th of the occupational exposure limit NEMAQA, 2004 Regulation 6(1)

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Control: Noise control measures	To be implemented daily throughout the site establishment / construction phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEM: AQA, 2004 Regulation 6(1) as well as the n*oise standards of SANS 10103:2008.* • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.
	Infestation of the topsoil heaps by weeds and invader plants	Control and remedy: Implementation of weed control	To be implemented when necessary throughout the site establishment / construction phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• The impact should be avoided through the eradication of Category 1 weeds/invader plants in terms of CARA, 1993 as well as the implementation of the mitigation measures in this document.
	Loss of topsoil due to incorrect storm water management.	Control: Storm water management	To be implemented daily throughout the site establishment / construction phase:	• The impact should be avoided through the implementation of storm water management.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
			• Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control officer	
	Contamination of area with hydrocarbons or hazardous waste materials	Control and remedy: Implementation of waste management	To be implemented daily throughout the site establishment / construction phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• The impact should be avoided through the implementation of the mitigation measures stipulated in this document. • Should spillage however occur the area needs to be cleaned in accordance with the standards of the NEM: WA, 2008.
Blasting	Health and safety risk posed by blasting activities	Control: Health and safety monitoring and management	To be implemented when necessary throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• The impact should be avoided through compliance with the standards of the MHSA, 1996, OHSA, 1993 and OHSAS 18001

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	Dust nuisance caused by blasting activities	Control: Dust suppression	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels have to comply with the standard published in the NIOSH guidelines – Particulates >1/10th of the occupational exposure limit. • NEMAQA, 2004 Regulation 6(1)
	Noise nuisance caused by blasting activities	Control: Noise control measures	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEM: AQA, 2004 Regulation 6(1) as well as the noise standards of SANS 10103:2008. • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
Excavation	Visual intrusion associated with the excavation activities	Control: Implementation of proper housekeeping	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Impact on the surrounding environment mitigated until rehabilitation standards can be implemented.
	Dust nuisance due to excavation activities.	Control: Dust suppression	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day • Gravimetric dust levels have to comply with the standard published in the NIOSH guidelines – Particulates >1/10th of the occupational exposure limit. • NEM: AQA, 2004 Regulation 6(1).

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	Noise nuisance generated by excavation equipment.	Control: Noise control measures	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEM: AQA, 2004 Regulation 6(1) as well as the n*oise standards of SANS 10103:2008.* • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.
	Unsafe working conditions for employees.	Control: Health and safety monitoring and management	To be daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• The impact should be avoided through compliance with the standards of the MHSA, 1996, OHSA, 1993 and OHSAS 18001
	Negative impact on the fauna and flora of the area.	Control: Protection of fauna and flora through operational phase	To be daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an	• The impact should be avoided through the implementation of the mitigation measures stipulated in this document. • NEM:BA, 2004.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
			• Environmental Control Officer.	
	Contamination of area with hydrocarbons or hazardous waste materials.	Control: Implementation of waste management	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • Should spillage however occur the area needs to be cleaned in accordance with the standards of the NEM: WA, 2008.
	Weed and invader plant infestation of the area.	Control: implementation of weed control	To be implemented when necessary throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• The impact should be avoided through the eradication of Category 1 weeds/invader plants in terms of CARA, 1993 as well as the implementation of the mitigation measures in this document.
Crushing	Dust nuisance due to the crushing activities	Control: Dust suppression	To be implemented daily throughout the operational phase: • Daily compliance monitoring	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
			by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels have to comply with the standard published in the NIOSH guidelines – Particulates >1/10th of the occupational exposure limit. • NEM: AQA, 2004 Regulation 6(1).
	Noise nuisance generated by the crushing activities.	Control: Noise control measures	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEM: AQA, 2004 Regulation 6(1) as well as the *noise standards of SANS 10103:2008.* • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.
	Contamination of area with hydrocarbons or hazardous waste materials.	Control: Implementation of waste management	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management.	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • Should spillage however occur

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
			• Quarterly compliance monitoring of site by an • Environmental Control Officer.	the area needs to be cleaned in accordance with the standards of the NEM: WA, 2008.
Stockpiling and transporting	Visual intrusion associated with the stockpiled material and vehicles transporting the material.	Control: Implementation of proper housekeeping	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Impact on the surrounding environment mitigated until rehabilitation standards can be implemented.
	Loss of material due to ineffective storm water handling.	Control: Storm water control measures	• To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer.	• The impact should be avoided through the implementation of storm water management
	Weed and invader plant infestation of	Control and remedy: Implementation of weed	To be implemented when necessary throughout the	• The impact should be avoided through the eradication of

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
	the area due to the disturbance of the soil	control	operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	Category 1 weeds/invader plants in terms of CARA, 1993 as well as the implementation of the mitigation measures in this document.
	Dust nuisance from stockpiled material and vehicles transporting the material.	Control: Dust suppression	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels have to comply with the standard published in the NIOSH guidelines – Particulates >1/10th of the occupational exposure limit. • NEM: AQA, 2004 Regulation 6(1).
	Degradation of access roads	Control and remedy: Road management	To be implemented when necessary throughout the operational phase: • Daily compliance monitoring	• The impact should be avoided through the implementation of the mitigation measures proposed in this document.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
			by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer.	
	Noise nuisance caused by vehicles.	Control: Noise management monitoring and management	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEM: AQA, 2004 Regulation 6(1) as well as the n*oise standards of SANS 10103:2008.* • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.
	Contamination of area with hydrocarbons or hazardous waste materials.	Control: Implementation of waste management	To be implemented daily throughout the operational phase: • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • Should spillage however occur the area needs to be cleaned in accordance with the standards of the NEMWA, 2008.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
Sloping and landscaping during rehabilitation	Soil erosion	Control: Soil management	To be implemented throughout the rehabilitation / closure phase: • Daily compliance monitoring by site management. • Compliance monitoring of site by an Environmental Control Officer.	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • CARA, 1993
	Health and safety risk posed by un-sloped areas	Control: Health and safety monitoring and management.	To be implemented throughout the rehabilitation / closure phase: • Daily compliance monitoring by site management. • Compliance monitoring of site by an Environmental Control Officer.	• The impact should be avoided through compliance with the standards of the MHSA, 1996, OHSA, 1993 and OHSAS 18001
	Dust nuisance caused during sloping and landscaping activities.	Control: Dust suppression	To be implemented throughout the rehabilitation / closure phase: • Daily compliance monitoring by site management. • Compliance monitoring of site by an Environmental Control Officer.	• Fallout dust levels has to comply with the acceptable dust fall rate published for non-residential areas in the National Dust Control Regulations 2013 – 600 < Dust Fall < 1 200 mg/m²/day. • Gravimetric dust levels have to comply with the standard

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
				published in the NIOSH guidelines – Particulates >1/10th of the occupational exposure limit. • NEM: AQA, 2004 Regulation 6(1).
	Noise nuisance caused by machinery.	Control: Noise monitoring	To be implemented throughout the rehabilitation / closure phase: • Daily compliance monitoring by site management. • Compliance monitoring of site by an Environmental Control Officer.	• Noise levels on the site has to be managed and need to comply with the standards stipulated in NEM: AQA, 2004 Regulation 6(1) as well as the n*oise standards of SANS 10103:2008.* • Employees working in areas with noise levels of more than 82dBA need to be issue with hearing protection.
	Contamination of area with hydrocarbons or hazardous waste materials.	Controls: Waste management	To be implemented throughout the rehabilitation / closure phase: • Daily compliance monitoring by site management. • Compliance monitoring of site by an Environmental Control Officer.	• The impact must be avoided through implementation of mitigation measures stipulated in this document. • Should spillage however occur the area needs to be cleaned in accordance with the standards of the NEMWA, 2008.

Activity	Potential impact	Mitigation type	Time period for implementation	Compliance with standards
Replacing of topsoil and rehabilitation of disturbed area	Loss of reinstated topsoil due to the absence of vegetation	Control: Soil management	To be implemented throughout the rehabilitation / closure phase: • Daily compliance monitoring by site management. • Compliance monitoring of site by an Environmental Control Officer.	• The impact should be avoided through the implementation the mitigation measures stipulated in this document. • CARA, 1993
	Infestation of the area by weed and invader plants.	Control and remedy: Implementation of weed control	To be implemented throughout the rehabilitation / closure phase: • Daily compliance monitoring by site management. • Compliance monitoring of site by an Environmental Control Officer.	• The impact should be avoided through the eradication of Category 1 weeds/invader plants in terms of CARA, 1993 as well as the implementation of the mitigation measures in this document.

5 Determination of the amount of financial provision

5.1 Closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation

The closure objectives are aimed at re-instating the landform, land use and vegetation units to the same as before mining operations take place unless a specific, reasonable alternative land use is requested by the landowner. As such, the intended end use for the disturbed Mining Permit area and the closure objectives will be defined in consultation with the relevant landowner. Proof of such consultation will be submitted together with the Application for Closure Certificate. The overall aim of the rehabilitation plan is to rehabilitate the environment to a condition as close as possible to that which existed prior to mining. This shall be achieved with a number of specific objectives

- Making the area safe, i.e. decommission mining activities to ensure that the environment is safe for people and animals. This entails refilling the excavations.
- Recreating a free draining landform. This entails earthworks infilling, reshaping, levelling, etc. to recreate as close as possible the original topography and to ensure a free draining landscape.
- Re-vegetation. This involves either reseeding or allowing natural succession depending on the area, climate etc.
- Storm water management and erosion control. Management of stormwater and prevention of erosion during rehabilitation (e.g. cut off drains, berms etc. and erosion control where required).

5.2 Confirm specifically that the environmental objectives in relation to

The Public Participation Process (PPP) is a requirement of several pieces of the South African legislation and aims to ensure that all relevant Interested and Affected Parties (I&APs) are consulted, involved and their opinions are taken into account and a record included in the reports submitted to Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study.

The PPP which forms part of the Mining Permit application needs to be managed sensitively and according to best practices in order to ensure and promote:

- ❖ Compliance with national legislation.
- ❖ Establish and manage relationships with key stakeholder groups.
- ❖ Encourage involvement and participation in the environmental study and

authorisation/approval process.

As such, the purpose of the PPP and stakeholder engagement process is to:

- Introduce the proposed project.
- Explain the environmental authorizations required.
- Explain the environmental studies already completed and yet to be undertaken (where applicable).
- Determine and record issues, concerns, suggestions and objections to the project.
- Provide opportunity for input and gathering of local knowledge.
- Establish and formalize lines of communication between the I&APs and the project team.
- Identify all significant issues for the project.
- Identify possible mitigation measures or environmental management plans to minimise and/or prevent negative environmental impacts and maximise and/or promote positive environmental impacts associated with the project.

Landowners and I&APs were consulted and provided an opportunity to comment on the draft Basic Assessment Report, EMPR including all decommissioning, closure and rehabilitation plans. Their comments will be included in the final BAR and EMPR for consideration by the DMRE as part of their decision-making.

5.3 Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure

5.3.1 Integrated Rehabilitation and Closure Plan

The main aim in developing this rehabilitation plan is to mitigate the impacts caused by the mining activities and to restore land back to a satisfactory standard. It is best practice to develop the rehabilitation plan as early as possible so as to ensure the optimal management of rehabilitation issues that may arise. It is important that the project's closure plan is defined and understood before starting the process and is complementary to the rehabilitation goals. Rehabilitation and closure objectives need to be tailored to the project and be aligned with the EMPR.

The overall rehabilitation objectives for this project are as follows:

Maintain and minimise impacts to the ecosystem within the study area.

- Re-establishment of the pre-developed land capability to allow for a suitable post-mining land use.

- Prevent soil, surface water and groundwater contamination.
- Comply with the relevant local and national regulatory requirements.
- Maintain and monitor the rehabilitated areas.

Successful rehabilitation must be sustainable, requires an understanding of the basic baseline environment and project management to ensure that the rehabilitation program is a success.

5.3.1.1 Phase 1: Making site Safe

The Mining activity will result in an opencast. The purpose of rehabilitation will be to ensure the site becomes safe for humans and animals. The opencast will be filled with overburden. The overburden will be loaded, trucked and placed into the proposed mine, and the topography in the area adjacent to the proposed mine shaped to ensure that a free draining topography results.

Once the proposed mine has been backfilled, 300mm thick topsoil or soft overburden in place of soil will be spread on rehabilitated areas. Once placed, the "growth medium" should then be fertilised, ripped and revegetated. A small topsoil stockpile should be left for remedial work.

The following actions are required to meet the objectives of this phase:

- Remove all the facilities and equipment from the site.
- Inert waste with a salvage value to individuals such as scrap metal, building materials, etc. will be removed and disposed of at a proper facility.
- The company contracted to supply fuel will be requested to remove all fuel storage and reticulation facilities.
- Those sections of haul road where a lot of Coal spillage has occurred, will be picked up and the waste material taken back to the discard dump.
- Remove or control residual hazardous materials. Identify any potential toxic overburden or exposed strata and manage them so as to prevent environmental damage.
- Access roads around the site should be ripped for all areas except those needed to access the facilities for inspection after closure. Roads that can and will be used by other users post closure should, however, be left provided this is agreed upon by all parties concerned. For the rehabilitation of roads, a cost has been allocated to rip the area, add 300 mm topsoil and vegetate.
- Negotiations will take place with landowners to establish which sections of haul road they will require. The extra portions not required will be left and the remainder

ripped. This would normally mean that the edges or verges are ripped and the centre portion remains. They will be responsible for maintaining the roads after closure.

5.3.1.2 Phase 2: Landform Design, Erosion Control and Revegetation

Landform, erosion control and re-vegetation are important parts of the rehabilitation process. Landform and land use are closely interrelated, and the landform should be returned as closely as possible to the original landform. Community expectations, compatibility with local land use practices and regional infrastructure, or the need to replace natural ecosystems and faunal habitats all support returning the land as closely as possible to its original appearance and productive capacity.

This requires the following:

- Deep rip compacted surfaces to encourage infiltration, allow plant root growth and key the topsoil to the subsoil, unless subsurface conditions dictate otherwise.
- Reinstate natural drainage patterns disrupted by mining wherever possible.
- Characterize the topsoil and retain it for use in rehabilitation. It is preferable to reuse the topsoil immediately rather than storing it in stockpiles. Only discard if it is physically or chemically undesirable, or if it contains high levels of weed seeds or plant pathogens.
- If topsoil is unsuitable or absent, identify and test alternatives substrates, e.g. overburden that may a suitable substitute after addition of soil improving substances.
- Lime and superphosphate are applied to the surface.
- These ameliorants are then incorporated by deep ripping, which penetrated 100 mm through the soil into the underlying overburden material.
- Fertilizer is applied as part of seedbed preparation.
- Consider spreading the cleared vegetation on disturbed areas.
- Re-vegetate the area with plant species consistent with the post mining land use.
- The site is then mulched together with an indigenous grass seed mix. This is to stimulate the long term establishment of indigenous vegetation and to reduce erosion during early plant growth.

5.3.1.3 Phase 3: Monitoring and Maintenance

The post-operational monitoring and management period following decommissioning of mining activities must be implemented by a suitable qualified independent party for a minimum of one (1) year unless otherwise specified by the Competent Authority.

Maintenance will specifically focus on annual fertilising the rehabilitated area (where required), control of all other alien plants and general maintenance, including rehabilitation of cracks, subsidence and erosion gullies. Continuous erosion monitoring of rehabilitated areas and slopes should be undertaken and zones with excessive erosion should be identified. The cause of the erosion should be identified, and rectified. Zones with erosion will need to be repaired with topsoil.

The monitoring activities during this period will include but not be limited to:

- Biodiversity monitoring.
- Re-vegetation of disturbed areas where required.

Provision must be made to monitor any unforeseen impact that may arise as a result of the proposed mining activities and incorporated into post closure monitoring and management. The small-scale mine shall continue to monitor and manage rehabilitation areas until the vegetation is self-sustaining and meets the requirements of the landowner or land manager, until their management can be integrated into the management of the surrounding area.

5.3.1.4 Post-Closure Monitoring and Maintenance

Prior to decommissioning and rehabilitation activities, a monitoring programme shall be developed and submitted to the relevant authority for approval, as a part of the Final Rehabilitation Plan. The programme is to include proposed monitoring during and after the closure of the trench site and related activities.

It is recommended that the post-closure monitoring include the following:

- Confirmation that any waste, wastewater or other pollutants that is generated as a result of decommissioning will be managed appropriately, as per the detailed requirements set out in the Final Rehabilitation Plan.
- Confirmation that all de-contaminated sites are free of residual pollution after decommissioning.
- Confirmation that acceptable cover has been achieved in areas where natural vegetation is being re- established. 'Acceptable cover' means re-establishment of pioneer grass communities over the disturbed areas at a density similar to surrounding undisturbed areas, non-eroding and free of invasive alien plants.
- Confirmation that the Mining Permit site is safe and is not resulting in a pollution hazard.

Annual environmental reports will be submitted to the Designated Authority and other relevant Departments for at least one year post-decommissioning. The frequency and duration of this reporting period may be increased to include longer term monitoring, at intervals to be agreed with the Designated Authority.

The monitoring reports shall include a list of any remedial action necessary to ensure that infrastructure that has not been removed remains safe and pollution free and that rehabilitation of project sites are in a stable, weed and free condition.

5.4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives

The rehabilitation plan is compatible with the closure objectives in that is seeks to ensure that negative impacts on the receiving environment that could not be prevented or mitigated during mining are rehabilitated. The use of indigenous species during re-vegetation will ensure that ecosystem restoration is initiated and prevent invasion by alien species. The appropriate disposal of waste will ensure that land is usable, in alignment with surrounding land uses and that no hazardous materials are left on-site post-mining.

5.4.1 Rehabilitation of the excavated area

- Rocks and coarse material removed from the excavation must be dumped into the excavation.
- No waste will be permitted to be deposited in the excavations.
- Once overburden, rocks and coarse natural materials has been added to the excavation and was profiled with acceptable contours and erosion control measures, the topsoil previously stored will be returned to its original depth over the area.
- The area will be fertilised if necessary to allow vegetation to establish rapidly. The site will be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from site closure.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to their specification.

5.4.2 Rehabilitation of plant area

- The compacted areas will be ripped and the topsoil returned over the area.

- Coarse natural material used for the construction of ramps will be removed and dumped into the excavations.
- Stockpiles will be removed during the decommissioning phase, the area ripped and the topsoil returned to its original depth to provide a growth medium.
- On completion of operations, all structures or objects will be dealt with in accordance with Section 44 of the MPRDA, 2002 (Act 28 of 2002):
    - Where sites have been rendered devoid of vegetation/grass or soils have been compacted owing to traffic, the surface will be scarified or ripped.
    - The site will be seeded with a vegetation seed mix adapted to reflect the local indigenous flora if natural vegetation does not re-establish within 6 months of the closure of the site.
- Photographs of the mining area and office sites, before and during the mining operation and after rehabilitation, will be taken at selected fixed points and kept on record for the information of the Regional Manager.
- On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, will be scarified to a depth of at least 300 mm and graded to an even surface condition and the previously stored topsoil will be returned to its original depth over the area.
- Prior to replacing the topsoil the overburden material that was removed from these areas will be replaced in the same order as it originally occurred.
- The area shall then be fertilised if necessary to allow vegetation to establish rapidly. The site will be seeded with a local, adapted indigenous seed mix if natural vegetation does not re-establish within 6 months after site closure.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to their specification.

5.4.3 Final rehabilitation

- Rehabilitation of the surface area will entail landscaping, levelling, top dressing, land preparation, seeding (if required), maintenance, and weed/ alien clearing.
- All infrastructures, equipment, plant, temporary housing and other items used during the mining period will be removed from the site (section 44 of the MPRDA).
- Waste material of any description, including receptacles, scrap, rubble and tyres, will

be removed entirely from the mining area and disposed of at a recognised landfill facility. It will not be permitted to be buried/burned on site.

- Weed/alien clearing will be done in a sporadic manner during the life of the mining activities.
- Species considered Category 1 weeds as per CARA, 1983 – Act 43, Regulations 15 & 16 (as amended in March 2001) must be eradicated from site.
- Final rehabilitation will be completed within a period specified by the Regional Manager.

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

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

5.5.1 Mine type and saleable mineral by-product

According to Tables B.12, B.13 and B.14:

Mine type	Coal
Saleable mineral by-product	None

5.5.2 Risk ranking

According to Tables B.12, B.13 and B.14:

Primary risk ranking (either Table B.12 or B.13)	C (Low risk)
Revised risk ranking (B.14)	N/A

5.5.3 Environmental sensitivity of the mine area

According to Table B.4:

Environmental sensitivity of the mine area	Low

5.5.4 Level of information

According to Step 4.2:

Level of information available	Limited

5.5.5 Identify closure components

According to Table B.5 and site-specific conditions:

Component nr	Main description	Applicability of closure components	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)		No
2 (A)	Demolition of steel buildings and structures		No
2 (B)	Demolition of reinforced concrete buildings and structures		No
3	Rehabilitation of access roads		No
4 (A)	Demolition and rehabilitation of electrified railway lines		No
4 (B)	Demolition and rehabilitation of non-electrified railway lines		No
5	Demolition of housing and facilities		No
6	Opencast rehabilitation including final voids and ramps	Yes	
7	Sealing of shafts, adits and inclines		No
8 (A)	Rehabilitation of overburden and spoils	Yes	
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)		No
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)		No
9	Rehabilitation of subsided areas		No
10	General surface rehabilitation, including grassing of all denuded areas	Yes	
11	River diversions	Yes	
12	Fencing		No
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)		No
14	2 to 3 years of maintenance and aftercare		No

5.5.6 Calculation of closure costs

CALCULATION OF THE QUANTUM

Applicant: **Hlubi Properties (Pty) Ltd** — **Ref no.: 13157 MP**
Evaluator: **Boitumelo Mohololа** — **Date: 6 Jul 2022**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	19	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	271	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	400	1	1	0
3	Rehabilitation of access roads	m2	0.05	49	1	1	2.45
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	257	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	542	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha		284292	1	1	0
7	Sealing of shafts adits and inclines	m3	0	146	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0.32	189528	1	1	60648.96
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	236054	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0.06	685612	1	1	41136.72
9	Rehabilitation of subsided areas	ha	0	158701	1	1	0
10	General surface rehabilitation	ha	5	150138	1	1	750690
11	River diversions	ha	0	150138	1	1	0
12	Fencing	m	0	171	1	1	0
13	Water management	ha	0.09	57087	1	1	5137.83
14	2 to 3 years of maintenance and aftercare	ha	0	19980	1	1	0
15 (A)	Specialist study	Sum	0		1	1	0
15 (B)	Specialist study	Sum	0		1	1	0
					Sub Total 1		857615.96

1	Preliminary and General	102913.9152	weighting factor 2 1	102913.9152
2	Contingencies	85761.596		85761.596
			Subtotal 2	1046291.47
			VAT (15%)	156943.72
			Grand Total	**1203235**

Signature — Boitumelo Mohololа
Date — 6-Jul-22

The amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum total of **R1,203,235**.

5.6 Confirm that the financial provision will be provided as determined

The amount will be provided from the operating expenditure.

5.7 Mechanisms for compliance monitoring against EMPs

Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including:

a) Monitoring of Impact Management Actions
b) Monitoring and reporting frequency
c) Responsible persons
d) Time period for implementing impact management actions
e) Mechanisms for monitoring compliance

Source activity	**Impacts required monitoring programme**	**Functional requirements for monitoring**	**Roles and responsibilities for the execution of monitoring programmes**	**Monitoring and reporting frequency and time periods for implementing impact management actions**
• Topsoil stripping and stockpiling • Blasting • Excavation • Crushing • Stockpiling and transporting • Sloping and landscaping	**Dust monitoring** • The dust generated by the mining activities should be continuously monitored and addressed by the implementation of dust suppression methods.	**Dust handling and monitoring** • Dust suppression equipment, like a water car and water dispenser. The applicant already has this equipment available.	**Role** • Site Manager to ensure compliance with EMPr guidelines. • Compliance to be monitored by the Environmental Control Officer. **Responsibility** • Control dust liberation into surrounding environment by using, e.g., water spraying and/or other dust-allaying agents. • Limit speed on access roads to 40km/h to prevent excess dust generation.	Throughout construction, operational and decommissioning phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer.

Source activity	Impacts required monitoring programme	Functional requirements for monitoring	Roles and responsibilities for the execution of monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
during rehabilitation			• Spray roads with water/environmentally-friendly dust allaying agent that contains no PCBs (e.g. DAS products) if dust is generated above acceptable limits. • Assess effectiveness of dust suppression equipment. • Re-vegetate all disturbed/exposed areas as soon as possible to prevent any dust source from being created. • Ensure the crusher is equipped with water sprayers.	
• Topsoil stripping and stockpiling • Blasting • Excavation • Crushing • Sloping and landscaping during rehabilitation	**Noise monitoring** • The noise generated by the mining activities should be continuously monitored, and any excessive noise should be addressed.	**Noise handling and monitoring** • Site manager to ensure that the vehicles are equipped with silencers and kept roadworthy. • Compliance with the appropriate legislation with	**Role** • Site Manager to ensure compliance with EMPr guidelines. • Compliance to be monitored by the Environmental Control Officer. **Responsibility** • Ensure that staff conduct themselves in an acceptable manner while on site. • No loud music permitted at mining area. • Ensure that all mining vehicles are equipped with silencers and kept roadworthy in terms of the Road	Throughout construction, operational and decommissioning phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer.

Source activity	Impacts required monitoring programme	Functional requirements for monitoring	Roles and responsibilities for the execution of monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
		respect to noise will be mandatory.	Transport Act. • Plan the type, duration and timing of the blasting procedures with due cognizance of other land users and structures in the vicinity. • Notify surrounding landowners in writing prior blasting occasions. • Use noise mufflers and/or soft explosives during blasting.	
• Topsoil stripping and stockpiling • Excavation Stockpiling and transporting	**Management of weed or invader plants** • The presence of weed and/or invader plants should be continuously monitored, and any unwanted plants should be removed.	**Management of weed or invader plants** • Removal of weeds should be manually or by the use of an approved herbicide	**Role** • Site Manager to ensure compliance with EMPr guidelines. • Compliance to be monitored by the Environmental Control Officer. **Responsibility** • 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.	Throughout operational and decommissioning phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer.

Source activity	Impacts required monitoring programme	Functional requirements for monitoring	Roles and responsibilities for the execution of monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
• Stockpiling and transporting • Sloping and Landscaping during rehabilitation	**Surface and storm water monitoring** • The effectiveness of the storm water infrastructure needs to be continuously monitored.	**Surface and storm water handling** • Trenches and contours to be made to direct storm- and runoff water around the stockpile areas.	**Role** • Site Manager to ensure compliance with EMPr guidelines. Compliance to be monitored by the Environmental Control Officer. **Responsibility** • Divert storm water around topsoil heaps, stockpile areas and access roads to prevent erosion and material loss. • Divert runoff water around the stockpile areas with trenches and contour structures to prevent erosion of the work areas. • 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 DWS, and any other conditions the DWS may impose.	
• Blasting • Excavation	**Management of health and safety**	**Management of health and safety**	**Role** • Site Manager to ensure compliance with EMPr	Throughout construction, operational and

Source activity	Impacts required monitoring programme	Functional requirements for monitoring	Roles and responsibilities for the execution of monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
• Sloping and Landscaping during rehabilitation	• All health and safety aspects need to be monitored on a daily basis.	**risks** • Site manager to ensure that workers are equipped with required PPE while operating on site. • The necessary warning signs must be present at the site to inform the public and workers of mining activities.	guidelines. • Compliance to be monitored by the Environmental Control Officer. **Responsibility** • Submit an application for approval of access onto the R392 to the Department of Roads and Public Works prior to the commencement of work. • Inform the Traffic Department of each blast. If necessary, arrange for temporary road closure during a blast. • Plan the type, duration and timing of the blasting procedures with due cognizance of other land users and structures in the vicinity. • Inform the surrounding landowners and communities of any blasting event. • Use noise mufflers and/or soft explosives during blasting. • Limit fly rock. • Give audible warning of a pending blast at least 3 minutes before the blast.	decommissioning phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer

Source activity	Impacts required monitoring programme	Functional requirements for monitoring	Roles and responsibilities for the execution of monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
			• Remove all fly rock (diameter 150mm and larger) which falls beyond working area, together with the rock spill. • Ensure that workers have access to the correct PPE as required by law.	
• Excavation • Crushing stockpiling and transporting • Sloping and landscaping during rehabilitation	**Waste management** • Management of waste should be a daily monitoring activity. • Hydrocarbon spills need to be cleaned immediately and the site manager should check compliance daily.	**Waste management** • Closed containers for the storage of general/hazardous waste until waste is removed to the appropriate landfill site. • Hydrocarbon spill kits to enable sufficient clean-up of contaminated areas. • Drip trays should	**Role** • Site Manager to ensure compliance with EMPr guidelines. Compliance to be monitored by the Environmental Control Officer. **Responsibility** • Ensure that vehicle repairs only take place in the service bay area and all waste products are disposed of in a 200 l closed container/bin inside the emergency service area. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and remove from site, for resale or appropriate disposal at a recognised facility. • Clean spills immediately to the satisfaction of the	Throughout construction, operational and decommissioning phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.

Source activity	Impacts required monitoring programme	Functional requirements for monitoring	Roles and responsibilities for the execution of monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
		be available to place underneath haul vehicles while the vehicles are parked at night. • Should a vehicle have a break down, it should be serviced immediately.	Regional Manager by removing the spillage and polluted soil and by disposing of them at a recognised facility. • Ensure availability of suitable covered, conveniently placed receptacles at all times for waste disposal. • Place all used oils, grease or hydraulic fluids therein and remove receptacles from site regularly for disposal at a registered/licensed hazardous disposal facility. • 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 regularly and disposed of at the recognised landfill site at Witbank. Prevent refuse from being dumped on or in the vicinity of the mine area. • Biodegradable refuse to be handled as indicated above.	

Source activity	Impacts required monitoring programme	Functional requirements for monitoring	Roles and responsibilities for the execution of monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
Stockpiling and transporting	**Management of access roads** • Access road conditions must be continuously monitored. • Vehicles carrying materials has to be equipped with adequate tarpaulin type covers to ensure that material being transported will not leave the vehicle during transportation.	**Management of access roads** • Dust suppression equipment such as a water car and dispenser. • Trenches and contours to be made to direct storm- and runoff water around the access roads.	**Role** • Site Manager to ensure compliance with EMPr guidelines. • Compliance to be monitored by the Environmental Control Officer. **Responsibility** • Maintain newly constructed access roads (if applicable) to minimise dust, erosion or undue surface damage. • Divert storm water around access roads to prevent erosion. • Erosion of access road: Restrict vehicular movement to existing access routes to prevent crisscrossing of tracks through undisturbed areas. • Cover vehicles carrying materials with adequate tarpaulin type covers to ensure that material being transported does leave the vehicle during transportation. • Ensure vehicles entering and using the public road system from the site does not exceed the	Throughout construction, operational and decommissioning phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an • Environmental Control Officer.

Source activity	Impacts required monitoring programme	Functional requirements for monitoring	Roles and responsibilities for the execution of monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
			permissible legal limits on gross vehicle mass and individual axle loads as prescribed in terms of the National Road Traffic Act (Act No 93 of 1996).	
Topsoil stripping and stockpiling	**Topsoil handling** • When topsoil has been removed from any area the topsoil heaps need to be continuously protected against	**Topsoil handling** • Excavating equipment to remove the first 300mm of topsoil from the proposed work areas. The	**Role** • Site Manager to ensure compliance with EMPr guidelines. • Compliance to be monitored by the Environmental Control Officer. **Responsibility** • Remove the first 300mm of topsoil in strips and	Throughout construction, operational and decommissioning phase • Daily compliance monitoring by site management. • Quarterly compliance

Source activity	Impacts required monitoring programme	Functional requirements for monitoring	Roles and responsibilities for the execution of monitoring programmes	Monitoring and reporting frequency and time periods for implementing impact management actions
	loss of soil due to wind and water erosion.	applicant already has this equipment available. • Trenches and contours to be made to direct storm and runoff water around stockpiled topsoil area.	store at the stockpile area. • Keep the temporary topsoil stockpiles free of weeds. • Place topsoil stockpiles on a levelled 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 2 m 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.	monitoring of site by an • Environmental Control Officer.

5.8 Indicate frequency of the submission of the performance assessment/ environmental audit report

The committed time frames for monitoring and reporting are stipulated in the following:

Monitoring aspect	Time frames	Reporting
Dust handling	Throughout construction, operational and decommissioning phase	• Daily compliance monitoring by site management • Quarterly compliance monitoring of site by an Environmental Control Officer
Noise handling		
Management of weed/invader plants	Throughout operational and decommissioning phase	
Surface and storm water handling		
Management of health and safety risks	Throughout construction, operational and decommissioning phase	
Waste management		
Management of access roads		
Topsoil handling		

It is proposed that the performance assessment/environmental audit report be quarterly submitted to DMR.

5.9 Environmental Awareness Plan

5.9.1 Manner in which the applicant intends to inform employees of any environmental risk which may result from their work

Training, as detailed below, will address the specific measures and actions required for specific emergency events. In this way, each employee will be provided the knowledge required for their job to, firstly, prevent impact and secondly identify if an impact is likely to occur and then to report the possibility of risk or impact immediately so as to ensure immediate response. The most likely potential environmental emergencies in this proposed mining operation are fires and explosion, chemical spills/leaks, and flooding. In the case of environmental emergencies, the remedial measures and actions as listed in the Emergency Response Plan should be followed, in addition the following relevant authorities should be contacted:

Dept. of Water Affairs

Cell: 082 327 5886
Prorom Building
c/o Brown & Paul Kruger Streets
NELSPRUIT
1200
MulaudziM@dws.gov.za

Dept. of Mineral Resources

Mpumalanga
Saveways Crescent Centre, Mandela Drive, Emalahleni, 1035
Private Bag X7279, EMALAHLENI, 1035(013) 653 0500 (013) 690 3288
Secretary

Victor Khanye Fire & Rescue
Corner Van Der Walt Street and Samuel Road

Delmas, 2210

P.O. Box 6
Delmas, 2210

Contact numbers (013) 665 3333 & (013) 665 2939

5.9.1.1 Fire and explosion control measures

Hazardous waste and dangerous substances can, by the verify definition, be flammable and reactive. As such, special precautionary measures must be taken when handling these substances. On the other hand, veld fires and fires resulting from other sources must be handled with extreme caution. In the event of a fire:

- Fire extinguishers must be placed around the mine at accessible locations and needs to be frequently inspected and maintained in working condition.
- An alarm must be activated to alert all employees and contractors.
- Identify the type of fire and the appropriate extinguishing material. E.g., water for a grass fire and mono ammonium phosphate based fire extinguisher for chemical and electrical fires
- In the event of a small fire, the fire extinguishers placed around the mine should be used to contain and extinguish the fire.
- In the event of a large fire, the fire department will be notified.
- All staff will receive training in response to a fire emergency on site, including evacuation

procedures.

- A Fire Association should be set up with the mine and surrounding landowners to facilitate communication during fire events and assist in fighting fires, where necessary. If such an association exists, the mine will join it.
- If possible, surrounding drains, such as storm water drains must be covered and/or protected to prevent any contaminated water from entering the drains.
- In case of a chemical or petroleum fire, run-off from the area must be contained as far as possible using the most appropriate measures, e.g. spill absorbent cushions, sand or a physical barrier.
- Contaminated run-off must be diverted into an oil sump or cleaned up.

Control measures include:

- Minimising the storage of flammable liquids on site (e.g. fuel, flammable wastes)
- Using a nitrogen atmosphere for organic waste liquid with a low flashpoint stored in tanks
- Not allowing smoking anywhere on site
- Providing an emergency tipping area for waste loads identified to be on fire or otherwise deemed an immediate risk
- Preparing and annually reviewing a fire risk assessment
- Enduring all staff are appropriately trained for fire and explosion hazards

Other than explosion incidents related to mining, explosions can occur in the workshop areas when working with gas cylinders and chemicals. These could result in large numbers of employees being injured and requiring medical assistance.

The procedure to be followed includes:

- Devising safe evacuation routes in the event of an uncontrolled explosion and all staff trained on relevant evacuation routes and assembly points.
- Providing first aid to injured parties, once safe to do so for first responders.
- Notifying relevant emergency response units and hospitals of incoming patients.
- Notifying the DMR of the incident.

5.9.1.2 Chemical spills

Hydrocarbons such as diesel, petrol, and oil used as fuel for mine machinery will be kept on site, meaning that spillage may occur. As this is a coal mine there is also the possibility of a coal spillage occurring. Any chemicals contained on site, such as those associated with explosives may also be detrimental to the environment if spills occur. In the event of a spillage, procedures must be put into place to ensure that there are minimal impacts to the surrounding environment.

The following procedure applies to a chemical spill:

- The incident must be reported to the SHE officer immediately.
- The SHE officer will assess the situation from the information provided and set up an investigation team. Included in this team could be the General Mine Manager, SHE Officer, the employee who reported the incident and an individual responsible for the incident.
- When investigating the incident, priority must be given to safety.
- Once the situation has been assessed, the Environmental Coordinator must report back to the Mine Manager.
- The General Mine Manager and the investigation team must make a decision on what measures can be taken to limit the damage caused by the incident, and if possible, any remediation measures that can be taken.
- In the event of a small spillage, the soil must be treated in situ, using Hazmat clean up kits and bioremediation.
- Every precaution must be taken to prevent the spill from entering the surface water environment.
- In the event of a large spillage, adequate emergency equipment for spill containment or collection, such as additional supplies of booms and absorbent materials, will be made available and if required, a specialised clean-up crew will be called in to decontaminate the area. The soil must be removed and treated at a special soil rehabilitation facility.
- Reasonable measures must be taken to stop the spread of spills and secure the area to limit access.

5.9.1.3 Flooding

There is always potential for flooding during the rainy season. This could result in a large volume of water accumulating in a water containment facility, which could cause major damage to equipment and endanger the lives of employees on site. Procedures must be put in place to ensure a quick response to flood events and minimal damage.

The procedure for flooding is as follows:

- During operations, DWS's flood warning system must be reviewed annually.
- The use of emergency pumps must occur if the water floods the proposed mine.
- Mine management must be made aware of any such event so they can take appropriate action to ensure minimal production losses.
- The Pollution Control Dam should have a 0.8m freeboard and an overflow or outlet to ensure that no damage occurs to the facilities.

- All contaminated water must be contained on site, as far as possible and discharges to the environment must only occur if absolutely necessary in an extreme flood event.

6 Manner in which risk will be dealt with to avoid pollution or environmental degradation

6.1 Training (educational needs)

The Safety, Health and Environment (SHE) Officer must ensure that:

- New employees attend environmental awareness programmes through inductions
- Mine management conducts bi-annual workshops
- Documented training and competency
- Training records be maintained
- Training includes proper management of waste streams, labelling, containers and emergency procedures outlined
- Hazardous waste handlers and their supervisors/managers must complete training or on-the-job instruction relevant to their duties to include hazardous waste management procedures and contingency plan implementation
- Training of all personnel must be completed before duties are assigned and training in terms of handling of hazardous waste must be repeated annually and as and when required

6.2 Outsourced specialist skills

A training department will be established on site during operations. All inductions and workshops will be hosted by this department. This department, in conjunction with the SHE Officer, is responsible for ensuring job-specific training for personnel performing tasks, which can cause significant environmental (e.g. receipt of bulk hazardous chemicals/fuel, hazardous materials handling, responding to emergency situations etc.). The General Mine Manager (GM) with the assistance of the SHE Officer must identify relevant personnel and training courses. Short courses such as First aid training, Level 1 and 2; Fire Fighting Level; safety representative training; etc. should be mandatory and sourced from the training providers,

6.3 Review and updating of training manual and course layout

Before implementing the emergency and response plans and other environmental standard operating procedure, the SHE Coordinator and GM/Supervisors will designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

All training manual and courses must be reviewed with all employees at the following times:

- Initially when the plan is developed,

- Whenever the employee's responsibilities or designated action under the plan change, and whenever the plan or mining processes has changed.
- At least annually employee meetings are to be held to train employees of the contents of the EP&RP and revise the plan as appropriate.
- Drills will be conducted and full participation encouraged.
- All training must be documented in writing and copies sent to GM.

Effectiveness of the environmental management training will be done by management through task observations and during internal and external audits. All training material for presentation to personnel and contractors will be reviewed annually to ensure consistency with organisational requirements and best practice guidelines. In addition to this, annual monitoring reports, audit results and all incident reports will be reviewed; any shortcomings and non-compliancy will be highlighted and management measures incorporated or improved upon within the training material.

6.4 Records

The mine will keep records such as waste, water, electricity usage etc. Record of incoming and outgoing waste must be kept and these must include:

- Types and categories of incoming and outgoing waste
- Quantities of each waste type and category
- Transporter details
- Safe disposal certificate must always be returned and filed at waste disposal site
- Training records for all employees working on the hazardous waste facility
- All records must be computerised or legible paper trails and cross-referenced, waste tracking easily accessed
- Records must be kept in a database on site for 3 years or more

Records from the implementation of this EAP will be kept and controlled in accordance with the SHE Management System Control of Records Procedure of the mine, which is required to be implemented so as to provide evidence of conformity and effective operation of the relevant requirements of the SHE management system.

6.5 Environmental awareness notice boards

The following basic environmental education material will be posted on a monthly basis on accessible notice boards on mine premises, one topic will be selected each month:

The operations manager must ensure that they understand the EMPr document, its requirements and commitments before any mining takes place. An Environmental Control Officer must ensure

compliance of 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.

6.5.1 Site management

- Stay within site boundaries – do not enter adjacent properties
- Keep tools and material properly stored
- Smoke only in designated areas
- Use toilets provided – report full or leaking toilets

6.5.2 Water management and erosion

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

6.5.3 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

6.5.4 Hazardous waste management (petrol, oil, diesel, 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

6.5.5 Discoveries

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

6.5.6 Air quality

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

6.5.7 Driving and noise

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

6.5.8 Vegetation and animal life

- Do not remove any plants or trees without approval of the site manager
- Do not collect firewood
- 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

6.5.9 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

6.6 Specific information required by the Competent Authority

Among others, confirm that the financial provision will be reviewed annually.

The applicant undertakes to annually review and update the financial provision calculation, upon which it will be submitted to DMR for review and approved as sufficient to cover the environmental liability at the time and for closure of the mine at that time.

7 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
- that the information provided by the EAP to I&APs and any response of the EAP to comments or inputs made by I&APs are correctly reflected herein

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Signature of the Environmental Assessment Practitioner

Singo Consulting (Pty) Limited

Name of company

21/07/2022

Date

-END-

Appendix1: EAPs CV and qualification

Due to POPI act sensitive information will not be shared

Appendix 2: DMRE letters

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

Private Bag X7279, Emalahleni, 1035, Tel: 013 653 0500, Fax 013 690 3288, Saveways Centre, First Floor, Mandela Drive, Emalahleni, 1035, Directorate: Mineral Regulation: Mpumalanga Region, **Enquiries:** P. Maluleka Email Address: P.Maluleka@dmre.gov.za **Sub-directorate:** Mineral Laws, **Ref:** MP 30/5/1/1/3/**13157 MP.**

BY: Email/Fax

The Director/s
Hlubi Properties (Pty) Ltd
P/Bag X7297
Highveld Mall
1035

Fax: 086 514 4103
Email: kenneth@signoconsulting.co.za.

ACCEPTANCE OF AN APPLICATION FOR MINING PERMIT IN TERMS OF SECTION 27 OF THE MINERAL AND PETROLEUM DEVELOPMENT ACT, 2002 (ACT 28 OF 2002) [HEREIN AFTER REFERRED TO AS THE ACT] AS AMENDED BY SECTION 23 OF THE MINERALS AND PETROLEUM RESOURCES DEVELOPMENT AMENDMENT ACT, 2008 (ACT 49 OF 2008) [HEREINAFTER REFERRED TO AS THE AMENDMENT ACT].

1. Please be informed that your application for a mining permit to mine **Coal on Portion of Portion 35 of the farm Modderfontein 236 IR, Magisterial District of Delmas,** is hereby accepted in terms of Section 27 and 9(1) (b) of the Act.

2. **Further take note that there is a prior received prospecting right application by Zondekile Resources (Pty) limited under file reference number 17120PR which remain to be either granted or refused and should it be successful, yours will automatically falls away.**

3. **Furthermore, note that acceptance of your application does not grant you the right to commence with mining operations. Your application will be evaluated/ processed and a recommendation will be made on either to issue or refuse your application. Any person operating without an issued mining permit will be in contravention of Section 5(4) of the MPRDA and would be guilty of an offence in terms of the relevant Act.**

13157 MP- Acceptance

Appendix 3: BID

BACKGROUND INFORMATION DOCUMENT

APPLICANT:

Hlubi Properties (Pty) Ltd

Physical address: House No.28, 3rd Street, Delmas
Mpumalanga
2210

Contact person: Mr. N L Mgwenya

Tel: +27 13 6651 341

Email: cobra.koena@gmail.com

DMRE Ref: MP 30/5/1/1/3/13157 MP

CONSULTANT:

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Tasbet Part Ext 2
Witbank
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boitumelo@singoconsulting.co.za

INTRODUCTION AND THE PURPOSE OF THIS DOCUMENT

Singo Consulting (Pty) Ltd has been appointed as an independent Environmental Consultant by **Hlubi Properties (Pty) Ltd** to conduct Environmental Impact Assessment (EIA) through Basic Assessment, Compile an Environmental Management Programme report (EMPr) and undertake Public Participation Process (PPP). This is done for processes of acquiring Environmental Authorization for the proposed Mining Permit Application within **portion of Portion 35 of the Farm Modderfontein 236 IR**, under the **Magisterial District of Delmas, Mpumalanga Province. (DMRE Ref: MP 30/5/1/1/3/13157 MP)**

The Purpose of this Background Information Document (BID) is to provide a perfunctory description of the project and outline EIA processes to be followed and contributions from Interested and Affected Parties (I&APs) on the issues related to the project in question, allowing comments and concerns to be raised. Results of the EIA through basic assessment, both negative and positive will be submitted and made available to the relevant Departments such as the Department of Mineral Resources and if requested, Environmental Affairs, Water and Sanitation, Landowners, and other interested stakeholders.

This Background Information Document therefore requests and invite I&APs to comment on the environmental, physical, Social and economic impacts associated with the proposed Mining Activities. Be assured that your comments are of great value as they ensure that relevant issues are taken into consideration. Attached at the end of this document is a registration form, kindly complete it and send it back to **Ms Boitumelo Mohololа** through given means of communication also attached there.

Notice is hereby given in terms of the Mineral and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002) and EIA regulations 2014, published under Government Notice No. 982 in Gazette No. 3822 of 8 December 2014, amended on 7 April 2017, that **Hlubi Properties (Pty) Ltd** has an intention to mine coal on the aforementioned portion.

Be assured that your comments are of great value as they ensure that relevant issues are taken into consideration. **Attached at the end of this document is a registration form**, kindly complete it and send it back to consultant details provided on the left of this page.

PROJECT DESCRIPTION

Mining Permit Application has been submitted for the extraction of **Coal** resource on the property mentioned above. The Mining Permit area, as seen in figure 1 and figure 2 is situated approximately 15 km West of Delmas town and approximately 2.4 km west of Rietkol AH Settlements.

Mining activities will be undertaken over a period of two (2) years. This project will entail an open cast method of excavation. The mine design will be developed according to the dimension of the applied mineral deposit within the project area, but overall mining activities will be limited to an area of 5 Ha as per mining permit requirements. The topsoil will be stockpiled elsewhere on site preferably next to the farm boundary and will be used during rehabilitation period. Once a box cut has been made, the overburden and mineral resources where necessary will be loosened by blasting. The loosened material will then be loaded onto trucks by excavators. A haul road will be situated at the side of the open cast, forming a ramp up which trucks can drive, carrying ore and waste rock. Waste rock will be piled up at the surface, near the edge of the open cast (waste dump). The waste dump will be tiered and stepped, to minimize degradation. All the activities will be guided by the project's EMPr such that the project does not impact the environment negatively.

REGULATORY FRAMEWORK

The EIA process through BAR & EMPR to be undertaken will be conducted in accordance with the National Environmental Management Act (Act 107 of 1998) and Environmental Impact Assessment regulations as amended (April 2017).

The activity is to extract the existence and occurrence of the applied mineral; therefore, this will be conducted in accordance with Mineral and Petroleum Resources Development Act, (Act 28 of 2002). Other regulatory guidelines to be followed include: National Water Act, 1998 (Act 36 of 1998), National Air Quality Standards (GN 1210: 2009) and National Dust Control Regulations (GN 36974: 2013).

These all will accurately be followed to ensure that identified impacts are assessed and mitigated according to their significance so that the protection of the receiving environment and populations is met.

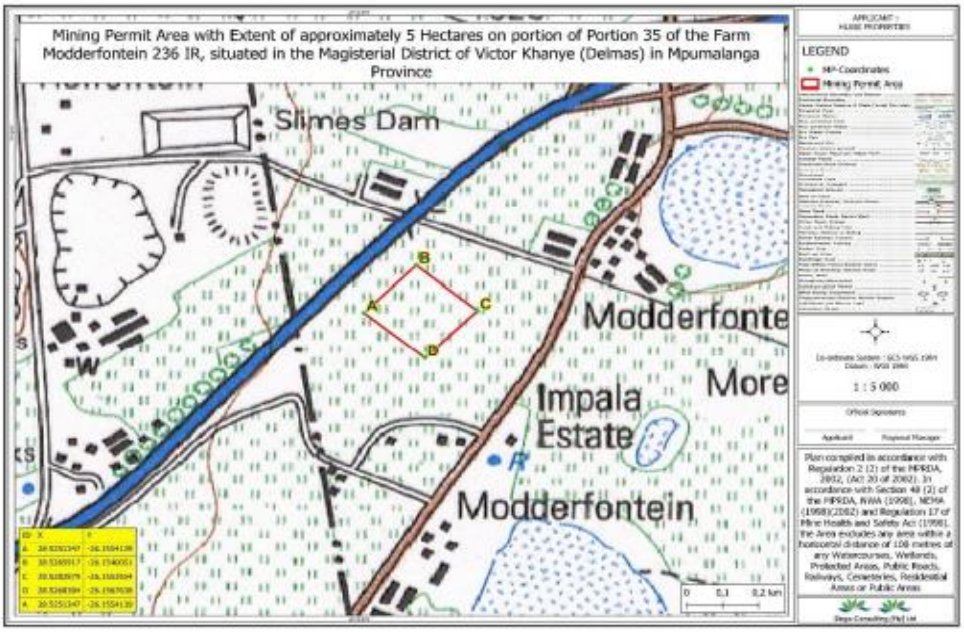

Figure 1: Regulation 2.2 map

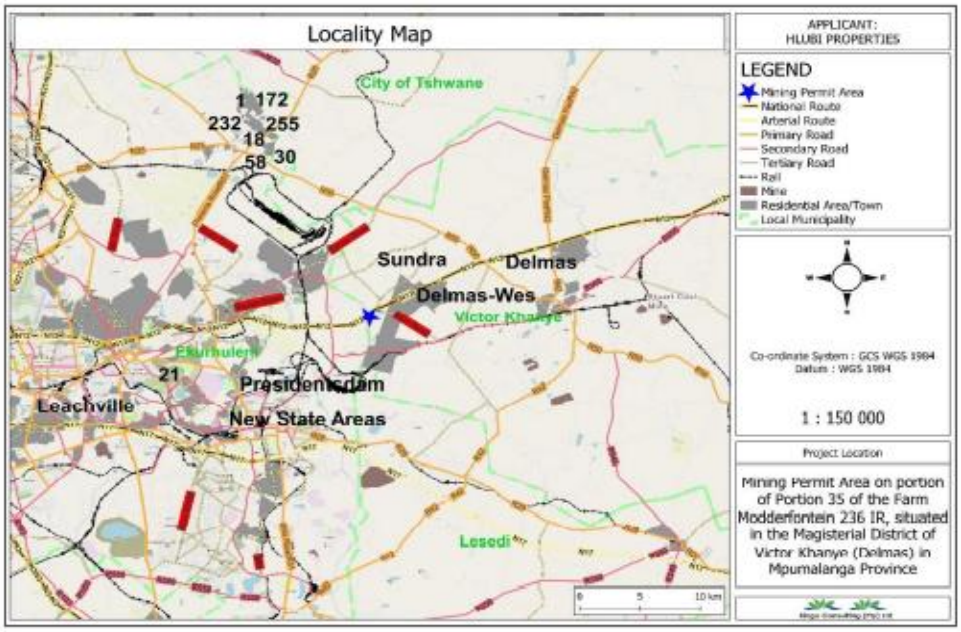

Figure 2: Locality Map

BASIC AND ENVIRONMENTAL IMPACT ASSESSMENT & PUBLIC PARTICIPATION PROCESS

These are planning and decision-making tools used in identifying potential environmental, economic, and social consequences of a proposed activity prior the commencement of the activity.

These together with the public issues and concerns are to be identified sufficiently early so that they can be assessed and incorporated into the final reports when/if necessary.

These tools are regarded crucial because they are utilized in order to demonstrate to the relevant stakeholders about the potential impacts, which in turn leads to the Mining application process being a success or declined.

Public Participation remains a cornerstone of the Environmental Impact Assessment process. It ensures provision of relevant and enough information with openness and transparency. Public Participation process presents to I&APs, an opportunity to understand what the project is about, and affords them an opportunity to make valuable contributions towards the EIA process.

I&AP can be any person, group of persons or organization interested in or affected by the proposed activity, and any organ of state that may have jurisdiction over any aspect of the activity.

Kindly keep the following dates:

- Announcement of the project: **24th June 2022**
- Review period of the draft BAR & EMPR: **24th July- 23rd August 2022**

The BAR & EMPr will be available at **Delmas Public Library** (Cnr Sarel cilliers & Van Riebeeck) and a soft copy upon request from Singo Consulting (Pty) Ltd using the detailed EAP's contact's below, via emails; Dropbox link; Google drive; WeTransfer, etc.

Singo Consulting (Pty) Ltd

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Cell: +27 71 1309 956

Email: boitumelo@singoconsulting.co.za/
admin@singoconsulting.co.za

REGISTRATION & COMMENT SHEET-(MINING PERMIT REF MP 30/5/1/1/3/13157 MP)

Title		Name		Surname	
Company					
Designation					
Address					
Tel No.				Fax No.	
E-mail				Cell No.	
I would like to receive my notifications be (mark with "X"):			Post	E-mail:	
				Fax:	
	Please indicate why you would have an interest in the above-mentioned project.				
	Please provide your comments and questions here:				
	Please feel free to attach a separate document				
	Please add any person you think may be interested and affected parties:				
Full name				Company	
Address					
E-mail				Contact No.	