DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED COAL PROSPECTING ON PORTION 01 OF FARM ZALFLAGER NO 525 HU; PORTION 01 AND THE REMAINDER PORTION OF FARM ONGEMAAKT 301 HU AND PORTION 02; 08 AND 13 OF FARM MADEMOISELLE 123 HU UNDER THE JURISDICTION OF ABAQULUSI LOCAL MUNICIPALITY OF THE ZULULAND MAGISTERIAL DISTRICT OF IN KWA-ZULU NATAL PROVINCE

DMR REF: KZN 30/5/1/1/2/11180 PR

Prepared for: Coal Africa Mining (Pty) Ltd

Prepared by: Mielelani Consultancy

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FEBRUARY 2022

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BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT: Coal Africa Mining Pty Ltd
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FILE REFERENCE NUMBER SAMRAD: KZN 30/5/1/1/2/11180 PR

IMPORTANT NOTICE

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

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

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

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or 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 these aspects to determine:

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

(ii) the degree to which these impacts—

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored.

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SCOPE OF ASSESSMENT AND REPORT

1 Contact Person and correspondence address

1.1 Details of the EAP

Names of Practitioners:	Khuliso V Ramulondi (Pr.Sci.Nat; REG. EAP)
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e-mail address:	khuliso@mielelani.co.za / ramufhi@outlook.com / consultations@mielelani.co.za

1.2 Expertise of the EAP.

The EAP holds a Bachelor of Earth Sciences in Mining and Environmental Geology from University of Venda.

Summary of the EAP's past experience

Mr Ramulondi is a registered EAP with Environmental Assessment Practitioners Association of South Africa (EAPASA) and a registered Natural Professional Scientist with SACNASP. He has over five years of experience in conducting Environmental Impact Assessments (EIAs). He has conducted EIAs for various projects including but not limited to Construction, Agriculture, Prospecting and Mining as well as Waste Management.

He currently serves as the ECO for the construction of Tshwane Automotive Special Economic Zone (TASEZ) in Silverton, Gauteng and has also served as an Environmental Control Officer (ECO) for Eskom 400 kV Powerline Construction in the Free State Province.

His exposure to different working environment has greatly advanced his technical ability in identifying and assessing impacts as well as providing mitigation thereof. Working as an ECO has also improved his understanding of impacts management as he had to monitor and audit the implementation of Impacts Management strategies, from this role he has learned the best practical strategies to manage and mitigate impacts. The EAPs' CVs is attached as Appendix 02.

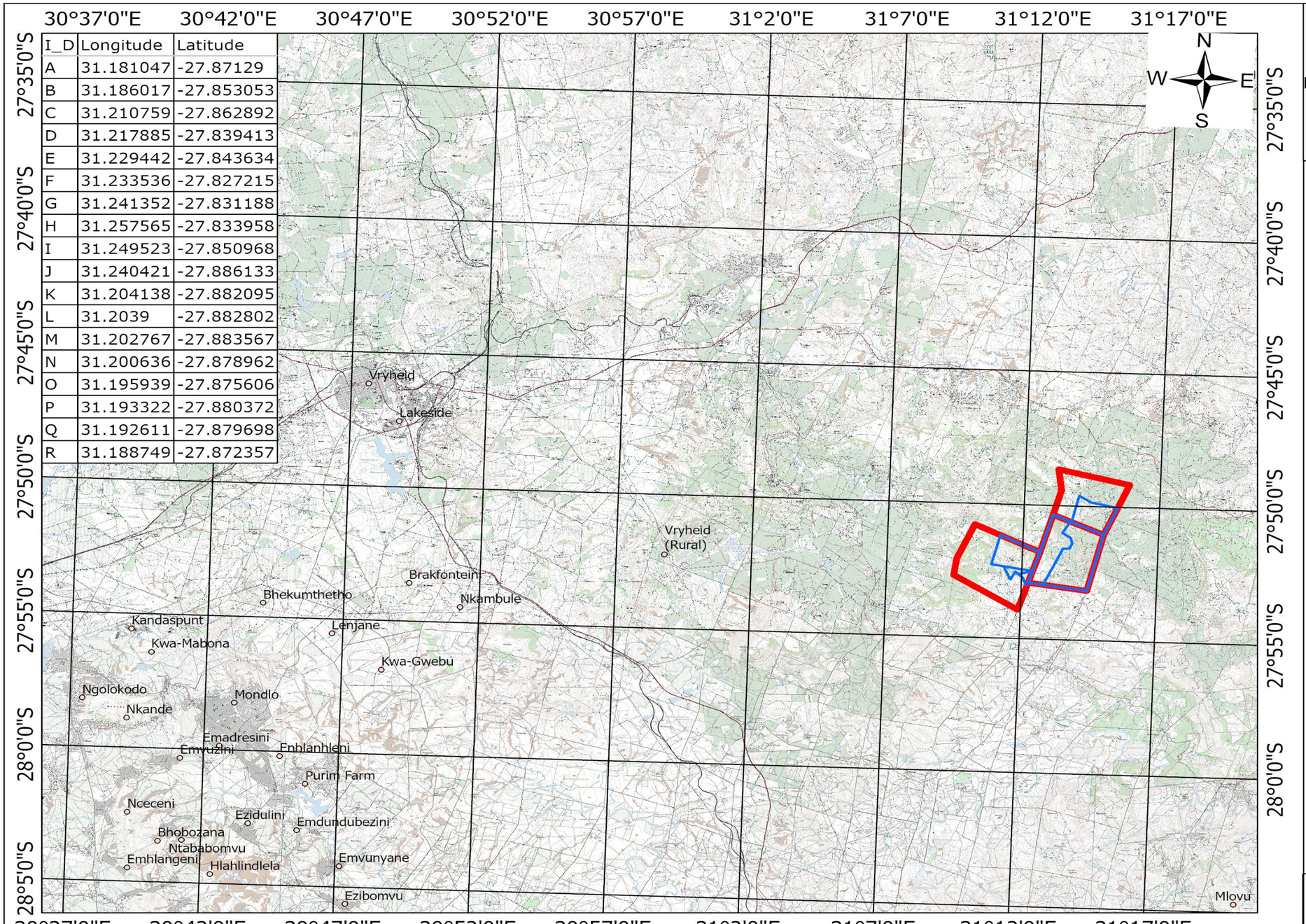
2 Project Locality

2.1 Location of the overall activity

Farm Name:	Portion 01 of Farm Zalflager No 525 HU; Portion 01 and the Remainder Portion of Farm Ongemaakt 301 HU and Portion 02; 08 and 13 of Farm Mademoiselle 123 HU
Application area (Ha)	Approximately 3,203.93 Hectares
Magisterial district:	Zululand District
Distance and direction from nearest town	Approximately 40 km east of Vryheid
21 digit Surveyor General Code for each farm portion	N0HU00000000052500002; N0HU00000000030100000; N0HU00000000030100001; N0HU00000000012300002; N0HU00000000012300008; N0HU00000000012300013.

2.2 Locality map

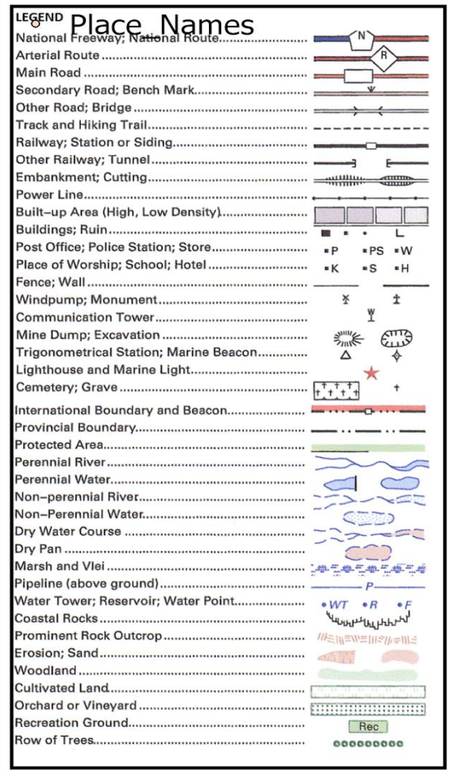
I_D	Longitude	Latitude
A	31.181047	-27.87129
B	31.186017	-27.853053
C	31.210759	-27.862892
D	31.217885	-27.839413
E	31.229442	-27.843634
F	31.233536	-27.827215
G	31.241352	-27.831188
H	31.257565	-27.833958
I	31.249523	-27.850968
J	31.240421	-27.886133
K	31.204138	-27.882095
L	31.2039	-27.882802
M	31.202767	-27.883567
N	31.200636	-27.878962
O	31.195939	-27.875606
P	31.193322	-27.880372
Q	31.192611	-27.879698
R	31.188749	-27.872357



Locality Map for the Proposed Prospecting Activities in Portion 02 of Farm Zalflager 525; Portion RE & 01 of Farm Ongemaakt 301 and Portion 02, 08 & 13 of Farm Mademoiselle 123 within Administrative District of Vryheid, KwaZulu Natal Province

Map Legend

- Parent Farms
- Proposed Portions



Scale 1:238,419

Spatial Reference
Name: WGS 1984 UTM Zone 35S

Applicant: Coal Africa Mining (Pty) Ltd

In Accordance with Section 48 (2) of MPRDA, NWA (1998) NEMA (1998) (2002) and Regulation 17 of Mine Health and Safety Act (1996), the Prospecting Area excludes any area within a horizontal distance of 100 metres of any Water Courses, Wetlands, Protected Areas, Public Roads, Railway or Cemetery.

TOTAL AREA EXTENT: 320⁴ **559.03**

Figure 2-1: Locality Map

3 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

3.1 Listed and specified activities

Table 3-1: Listed Activities

Name of Activity	Aerial Extent of the Activity Ha Or M²	Listed Activity (Mark With An X	Applicable Listing Notice	Waste Management Authorisation (Mark With An X)
Any activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Application area: 3,203.93 Ha	X	GNR 983 – Listing 1: Activity 20	N/A
The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation. The clearance will be to make way for: Drill pad areas and temporary storage area	≤ 2 ha	X	GNR 983 – Listing 1: Activity 27	N/A
Drill sites (All 23 Drill Sites)	1.15 ha	X	GNR 983 – Listing 1: Activity 27	N/A
Creation of access roads	1.2 ha			
Ablution facility (mobile hired toilets closer to each drill site)	100 m^2			
Rehabilitation (access roads, drill sites and removal of all foreign materials)	2 ha			

3.1.1 Description of the EIA (BAR) Activities

Below is the EIA Process Conceptualization and Study Plan

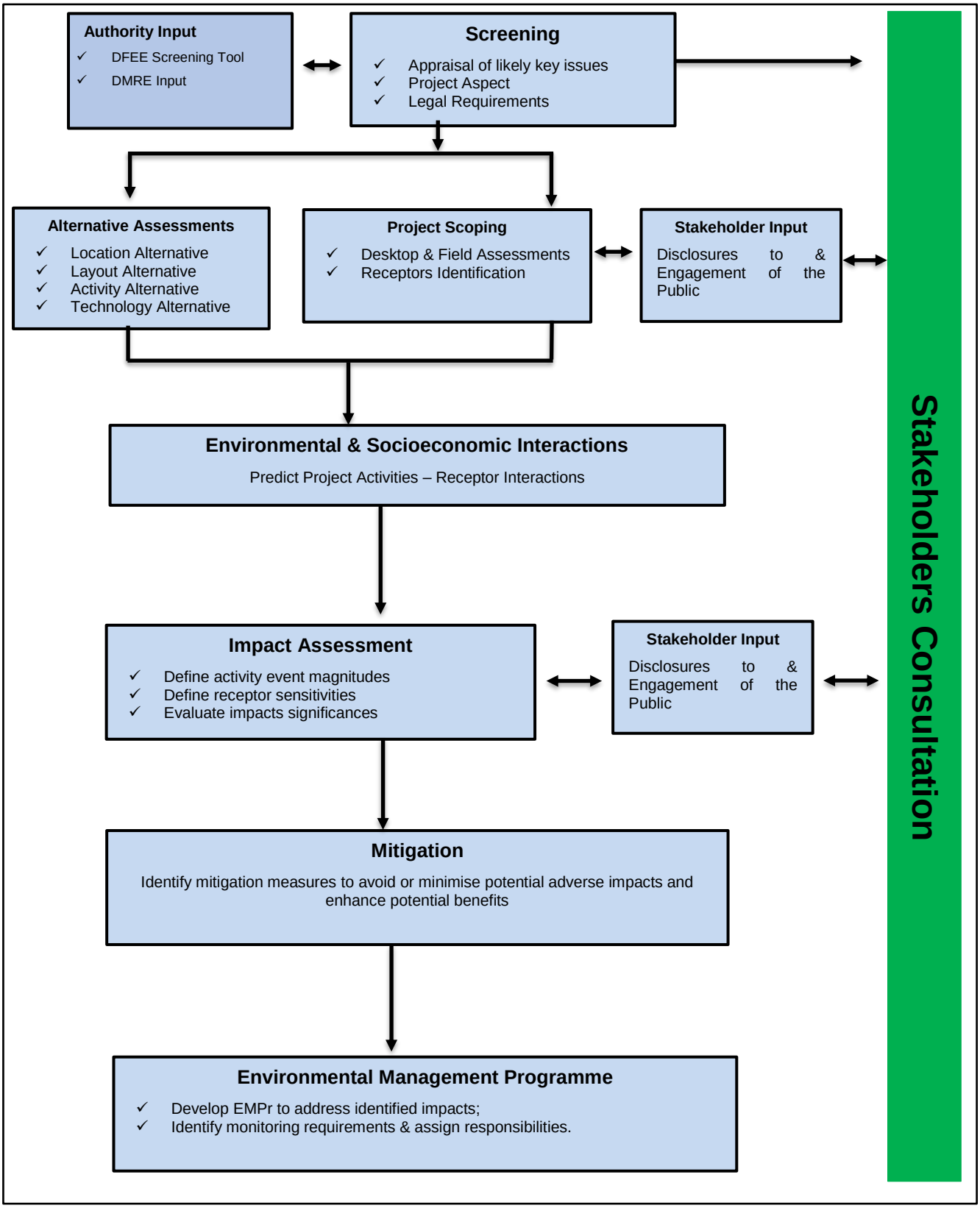


Figure 3-1: EIA Study Plan

3.1.2 EIA Study Terms of Reference

- ✓ Description of the proposed activities;
- ✓ Identification of the EIA Listed Activities;
- ✓ Identification of relevant policies and legislations and description of their project applicability;
- ✓ Description of the receiving environment;
- ✓ Description of the project needs and desirability;
- ✓ Assessment of the project and activities alternatives;
- ✓ Conduct Public Participation Process;
- ✓ Description of Impact identification and assessment methodology;
- ✓ Identification and Assessment of project probable Impacts and Risks;
- ✓ Formulation of impact management strategies;
- ✓ Identification of Monitoring Requirements;
- ✓ Develop a rehabilitation plan;
- ✓ Assessment of rehabilitation costs; &
- ✓ Compile an environmental awareness plan.

3.1.3 Key Questions to be addressed by the EIA Study

Project Description:

- ✓ What are the proposed activities?
- ✓ Where are they to be undertaken?

Legal framework:

- ✓ What are the relevant legislations and policies?
- ✓ Which are the triggered listed activities in terms of all applicable legislations?
- ✓ Are there other required permits and licenses?

Description of the receiving environment:

- ✓ What are the environmental attributes to be affected by the proposed activities?
- ✓ How will the affected parties be identified and notified of the proposed project?

Undertaking of the proposed activities:

- ✓ Are the proposed activities the best practicable environmental options for the area?
- ✓ What are the needs to be addressed by the proposed activities?

- ✓ Are there alternative options to undertake the proposed project and its activities?

Public Participation Process:

- ✓ Who are the project stakeholders?
- ✓ How will the stakeholders be identified and participate in the EIA Process?

Impact identification, assessment and management:

- ✓ What are the probable projects impacts and risks?
- ✓ How the projects impacts will be identified and assessed?
- ✓ How the impacts will be prevented, managed, control and/ or mitigated?
- ✓ What are the monitoring requirements?
- ✓ Which specialists' studies/ input are required?
- ✓ What are the project environmental management objectives?
- ✓ How will the rehabilitation costs be determined?
- ✓ How will the impacts, their management and mitigation options be communicated with the site personnel?

EAP assessment findings:

- ✓ Which assumptions were made during assessment?
- ✓ What are the information gaps?
- ✓ What are the EAP's project recommendation?
- ✓ Which conditions must be attached to the EA Application Outcome?

3.2 Description of the activities to be undertaken

Coal Africa Mining Pty Ltd proposes to undertake prospecting activities for coal in Portion 01 of Farm Zalflager No 525 HU; Portion 01 and the Remainder Portion of Farm Ongemaakt 301 HU and Portion 02; 08 and 13 of Farm Mademoiselle 123 HU in the Zululand District. The application was accepted by the Department of Mineral Resources on November 22, 2021.

What is coal prospecting?

Prospecting is the search of clues that indicates that there are coal deposits beneath the surface. It is generally the search of coal seams to determine if they are mineable at a profit. The confidence of coal seams deposit is gained through using maps and historical data, geophysics, ground truthing, geochemistry which are considered non-invasive activities.

When the local geology is understood, siting for drilling can then be undertaken. Drilling is done with fairly large machinery that use diamond-tipped, hollow drill 'bits' which produce varying amounts of 'core' depending on the extensiveness of the drill program. Diamond-tipped bits are used because they can go through the hardest of rock, and the core produced is cylindrical and not typically more than a couple inches in diameter. The details of each drill hole (including direction and depth) are recorded in much detail, each meter of core is marked with the depth that it came from and which hole, if there's been multiple drilled.

Once core has been obtained, samples are then sent to a laboratory facility to be 'assayed', which is essentially assessing the coal's physical and chemical properties in the rock. Using this data from the assaying, along with the records of where the assayed drill core came from, the data is re-interpreted to determine subsequent phases of follow-up drilling. If drilling continues, different drilling techniques are used to build confidence in the deposit by determining the size and grade of the 'strike' and 'dip'.

The objective will be to produce a 3D resource model of where and how the coal seam is located underground. All this information is used to complete an 'official resource estimate', which is a non-biased report that is required to have been developed by a 'Qualified Person' (QP). The 'Official Resource Estimate' will outline the categories of mineral resources (inferred, indicated, and measured) as well as the quantity and grade of each resource category.

Prospecting activities will be undertaken in seven (7) different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

3.2.1 The description of the proposed prospecting activities

Prospecting activities will be undertaken in different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

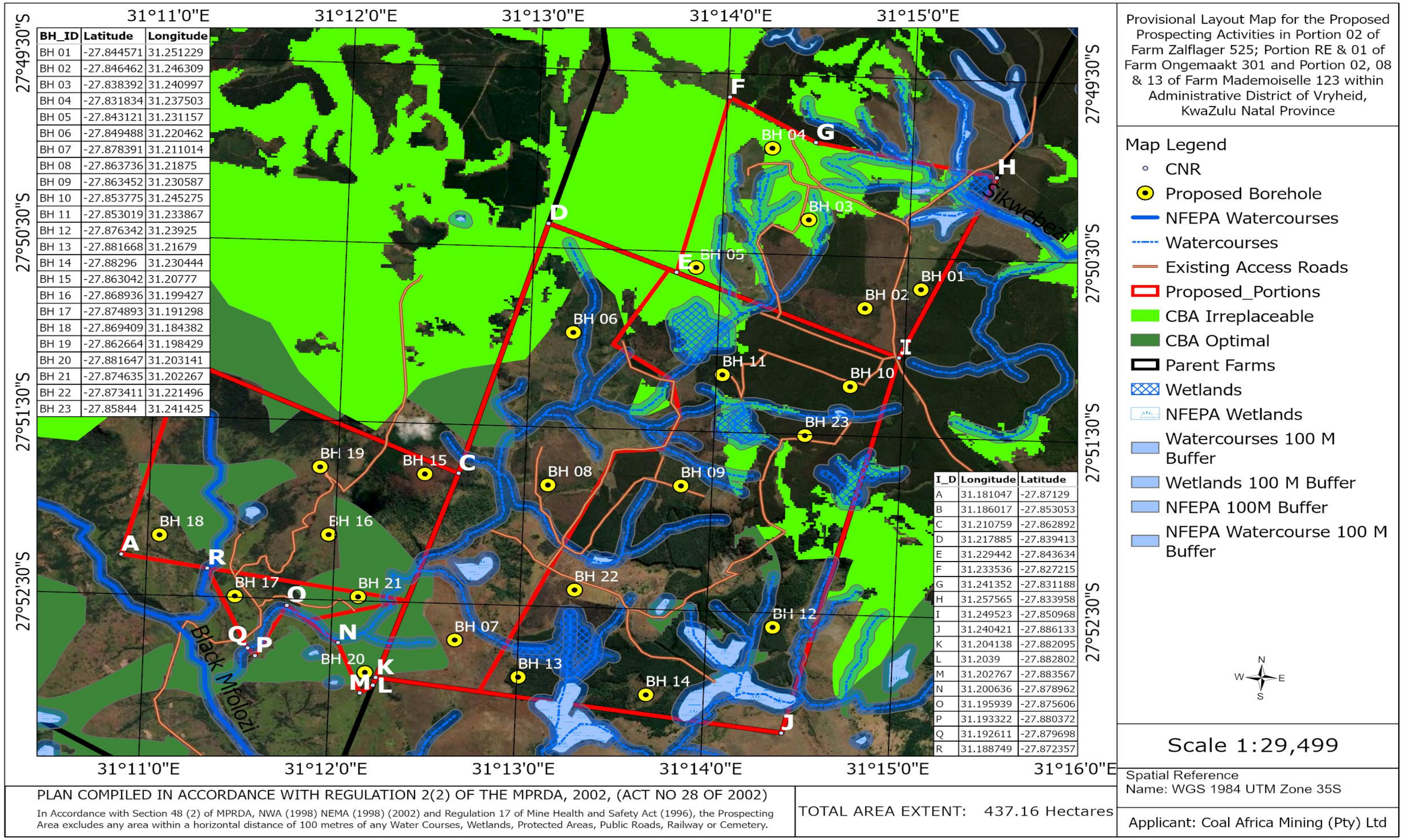


Figure 3-2: Provisional Site Layout Plan

3.2.1.1 Phase 1: Literature review and Field Mapping

(a) Literature Review

Phase 1 will include the collection and interpretation of all available data and the compilation of a Geographic Information Systems (GIS) database. The information to be collected will include aerial photos, Orthophoto, Aeromagnetic data, Topo-cadastral maps, and Geological maps, results of historic exploration programmes and any other published literature and maps. The desktop study will aid in compiling a preliminary geological model of the area to be utilized in the planning of site geological mapping and sighting of drill holes. It also includes accruing results from the companies that has already worked on the area. This provides information such as geological setting, biodiversity as well as water management.

(b) Mapping

Generally mapping involves the geologist walking the area and making observations which are then recorded on a map. To enhance the quality and reliability of geological maps data obtained during geophysical surveys will be used. Mapping is completed that meaningful structural and geological data may be derived from it and to confirm that the desktop study is accurate.

3.2.1.2 Phase 2: Geophysical Survey

The applicant will undertake aeromagnetic surveys to map the subsurface lithology without undertaking invasive prospecting activities. The aeromagnetic survey is critical for locating geological anomalies which are indicative of coal seam locations. Once the position of the deposits is known the drilling sites can then be sited.

3.2.1.3 Phase 3: Discovery Drilling and Sampling

The results of the Phase 1 and 2 will be used to assist in the ideal location ten (10) discovery drill holes at maximum depth of 250 m. Cores will be sampled and prepared for laboratory analysis. This phase is aimed at establishing if there are coal deposits within the proposed site. A provisional drill plan has been provided based on available literature. The provisional plan will be updated based on the outcome of the findings of the above phases.

3.2.1.4 Phase 4: Sample analysis/ Assaying

The assaying will be conducted to determine the coal content for each core at a South African National Accreditation System (SANAS) accredited laboratory. Sample analysis will inform if there are mineral deposits within the proposed site. Should there be coal deposits on site, preliminary economic assessment will be conducted.

3.2.1.5 Phase 5: Preliminary economic assessment

A preliminary economic assessment is a study conducted to determine whether a project has the potential to be viable. At this stage, the mineralization, regardless of its quantity and quality, is always considered to be a resource. This study is generally based on industry standards rather than derived from detailed site-specific data.

3.2.1.6 Phase 6: Resource drilling and sampling

Subsequent to Phase 3 drilling, the results will be used to design a systematic drill holes to define the site resource. This drilling programme will be more focussed on parts on which the coal deposits were intersected. At this point the position of the systematic drill holes is provisional and subjected to change based on outcomes of various phases. A total of thirteen (13) boreholes are proposed for resource definition taking the project total proposed boreholes to maximum of twenty three (23).

3.2.1.7 Phase 7: Pre-feasibility study

The pre-feasibility and feasibility studies are more detailed. By the time a decision is made to proceed with a pre-feasibility study, a preliminary mineral resource report has been finalized and the coal seam model demonstrating its shape, tonnes, and grade is available. A resource cannot be converted to a reserve unless it backed up by at least a pre-feasibility study. Their results will show with more certainty whether the project is viable. At this point, the mineral resource, or a portion thereof, becomes a mineral reserve. The pre-feasibility study will amongst others assess the following:

- ✓ Resource definition – estimation of resource quantity on site;
- ✓ Geological Modelling – Modelling of the site resource and its distribution;
- ✓ Initial conceptual Mine Plan;
- ✓ Determination of infrastructure requirements;
- ✓ Environmental management requirements;
- ✓ Financial modelling;
- ✓ Market analysis; and
- ✓ Assessment of socio-economic factors.

3.2.2 Activities associated with the proposed prospecting

3.2.2.1 Site Access

The undertaking of prospecting activities will require access into privately owned properties. Access into these properties must be through access agreements contracts signed between property owners and Coal Africa Mining (Pty) Ltd. The access agreements will be a legal

document effective from the date of signing until the exit contract is signed off. The access agreement contracts will detail specific conditions relevant to the property owner.

3.2.2.2 Access roads

There is an existing gravel road through the site, the same road will be primary access road into the prospecting area. New access roads will be created to reach the drilling stations. The created roads will avoid crossing site watercourses. The watercourses are dry for most period of the year and the proposed activities must therefore be scheduled for the dry period.

3.2.2.3 Temporary Camp site

The applicant will not establish camp site on site. Activities will be undertaken from one drill station to the other.

3.2.2.4 Drill station establishment

The establishment of the drill stations will chiefly be dictated to by the underlying geology, however sensitive features must be protected at all times. The provided drill stations layout map is provisional and subjected to change based on outcomes of other preceding phases.

3.2.2.5 Core Drilling

The primary objective is to obtain drill cores for assaying. The affected parties must be consulted and informed of the drilling programme which details the duration of the proposed activities and their input be incorporated into the programme.

3.2.2.6 Waste Management

The proposed prospecting activities are expected to generate both hazardous and general waste which includes sewage waste. Domestic waste will be generated by the site crew which will include food containers and left overs and any general waste generated by day to day site activities.

The drilling activities and site preparation will generate waste rock. The waste rock will be managed on site provided it’s not contaminated by hazardous substances.

Hazardous waste will be generated from hydrocarbons storage cans and containers. No refuelling and/or maintenance of major equipment, vehicles and machineries will be allowed on site and no maintenance facility will be established on site.

The operating vehicles and machinery also have the potential to leak and contaminate soils with hydrocarbons. The hazardous waste will be placed in closed bin for disposal off site at a registered hazardous waste management facility.

3.2.2.7 Water Usage

Prospecting activities are relatively dry activities requiring minimum input of water into the operation. Water will be required for cooling the drill bit, for dust control at the drill station and for human consumption. The water usage will not trigger water uses Listed in terms of Section 21 of the National Water Act No 36 of 1998. It is estimated that 100 litres of water will be used per day per drilling site.

3.2.2.8 Water Supply

The applicant will import water to the site. A water bowser will be used to import water to site sourced from legal connections such as boreholes and municipal connection.

3.2.2.9 Storage of Dangerous Goods (hydrocarbon)

There will be no storage of dangerous goods on site, however refuelling of the drill rig will be done on site. Hydrocarbons will be shipped to site whenever needed. Drip trays will be placed under refuelling points to prevent soil contaminations from spillages. The quantity of hydrocarbon to be shipped to site will be less than 1 000 litres (1 m^3) at a time. The transportation of the diesel does not trigger water use license application.

3.2.2.10 Material Storage

No storage camp will be established on site. The required materials will be brought to site whenever needed. Refuelling of the rig truck will be done on site, a dip tray will be placed under the refuelling point during refuelling.

3.2.2.11 Accommodation

No accommodation for staff and workers will be provided on-site and all people will be accommodated in nearby towns. Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established on site.

3.2.2.12 Sanitation

The applicant, Coal Africa Mining Pty Ltd will provide chemical toilets for the prospecting crew. Should different genders be on site, two separate toilets will be provided. The toilets will be cleaned weekly by a service provider. The toilets will be placed 100 metres away from water sources including dry ones.

3.2.2.13 Rehabilitation

It is proposed that prospecting be undertaken from one drill station to the other. When work is completed at one station, rehabilitation can immediately commence. Rehabilitation plan must

be communicated with the land owners for post closure land uses which may include borehole after use and continued use of access roads. Rehabilitation will be overseen by an ECO.

3.3 Project scheduling

The department of Mineral Resources and Energy allows for a maximum of five (5) years to conduct prospecting activities. The five years' period will include project planning and sourcing of the required materials and equipment. At least 5 working days will be required at each drill station and a maximum of twenty three (23) boreholes are proposed.

The drilling programme will be comprised of two programmes the discovery drilling and the resources definition programme. Once the first discovery drilling is completed, the drilling programme will be paused awaiting SANAS laboratory analysis results in order to discover if there are coal reserves on site and if the provisional drill plan is still appropriate.

It is recommended to undertake the proposed prospecting activities during the dry periods after harvest to reduce impact on crops and water resource.

3.4 Equipment and/or Technology to be used

- ✓ 1 drill rig mounted on a 10-tonne truck or trailer;
- ✓ 1 X 2 200 Litres water tanker;
- ✓ 1 X 1 000 litres diesel tank and
- ✓ 2X (4X2) Bakkie.

4 Policy and Legislative Context

Table 4-1: 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.
Constitution of South Africa, specifically section 24(a), (b)(i) – (iii).	Impact assessment and management; and Public Participation Process.	The prospecting activities will only proceed after effective consultation to protect the Rights of interested and affected parties.
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) section 16(1)(a)-(c).	This EIA is undertaken as a requirement for the granting of the Right.	The application for prospecting right was lodged and all required documents submitted (Company Registration Certificate, Prospecting Work Programme, Environmental Authorisation Application Form, and Regulation 2.2 plan.
National Environmental Management Act (107; 1998) section 23(1) & (2), 24(1); & 24(4)(b)(i) – (vii).	Impact Assessment, Financial Provision, Mitigation Measures and Public Participation.	✓ The receiving environment was assessed; ✓ Probable impacts were identified and their mitigation measures and monitoring mechanisms developed; ✓ Financial Provision for rehabilitation was determined and the applicant will pay the amount before the right is issued; ✓ Affected and Interested Parties will be engaged and given opportunities to get involved in the proposed project.
NEMA Environmental Impact Assessment (EIA) Regulations, 2014 as amended; GNR 326 and GNR 327.	Entire document	✓ All triggered listed activities have been identified and applied for; ✓ The Basic Assessment Report and the Environmental Management Programme were compiled in terms of Appendix 1 and 4 of GNR 326. ✓ The public participation was done as per the said Regulations.

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.
National Environmental Management: Waste Act	Used as guidance for mitigation measures as no listed activities were triggered.	The project activities do not trigger a waste management license but proper waste management measures will be addressed in the EMPr.
Section 38 of the National Heritage Resources Act (Act No. 25 of 1999).	Part A Section 8.7	There are no identified heritage significance site and artefacts on site. However, this does not absolve the client from exercising caution when conducting invasive activities.
The National Environmental Management Biodiversity Act (NEM:BA), 2004 (Act No. 10 of 2004), provides for:	Impact Assessment and Baseline Description	✓ The proposed site is located within the Vulnerable Northern KwaZulu-Natal Moist Grassland and Northern Zululand Mistbelt Grassland; ✓ ecosystem according to the 2014 KwaZulu-Natal (KZN) Biodiversity Sector Plans; ✓ The CBAs on site are highly avoidable; ✓ There are no protected species on site that would require permits to remove and/ or manage; ✓ Alien invasive species will be controlled and monitored; ✓ Impacts on the biodiversity have been identified and mitigation has been provided.
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004);	Impact assessment & Management	As part of the EMPr dust suppression methods will be used.

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.
The National Water Act (NWA) (Act No. 36 of 1998)	Impact Assessment	✓ No water use license is required for this application; ✓ Impacts on water resource will be prevented; and ✓ Any water required for drilling activities will be obtained from a legal source within the area and brought to site by a tanker.
National Water Act, 1998 (Act No. 36 Of 1998). Regulation 704 (GN 704) Regulations on use of water for mining and related activities	Impact Assessment & Management	All water sources have been identified and water usage for prospecting activities will be controlled in line with the NWA and its regulations.
Restitution of Land Rights Act (Act 22 of 1994)		There are no land claims on the application area
Spatial Planning Land Use and Management Act (Act 16 of 2013)	S7 refers to rezoning of agricultural land in relation to mining and related activities.	This application is not submitted in terms of SPLUMA S7 rezoning. Applications in terms of SPLUMA will be submitted separately by a registered Townplanner if required.
Mine Health and Safety Act, 1996 (Act No. 29 of 1996);	Impact assessment and management	Activity based risk assessment will be conducted prior undertaking the site prospecting activities.

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.
Guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine; 2005.	Financial Provision &	The rehabilitation costs were calculated based on this guideline.
2014 KwaZulu-Natal (KZN) Biodiversity Sector Plans	Impact Assessment & Description of receiving environment	The BSP was considered and Critical Biodiversity Areas avoided. There are no protected areas to be impacted by the proposed activities according to the plan.
National Freshwater Ecosystems Priority Areas (NFEPA, Nel et al., 2011);	Impact Assessment & Description of receiving environment	✓ There are no NFEPA water resources (rivers & wetlands) within the proposed site. ✓ However, non-NFEPA watercourses are present on site.
Mining and Biodiversity Guidelines 2013	Impact Assessment & Description of receiving environment	There are sections with B. Highest Biodiversity Importance - Highest Risk to Mining along the CBA as determined by the Provincial BSP.
National Development Plan 2030	Baseline environment description	The plan is aimed at reducing poverty and inequality. Should prospecting be successful a mine will be developed that will contribute to the local socio-economy. The mining sector is one of the greatest contributor to the South African GDP and labour force.
White Paper on Environmental Management Policy, 1997	Impact management, sustainable development, consultation.	Impact management is provided for all identified impacts

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.
National Climate Change Response White Paper; 2011: Climate change will compound the pressures on already stressed ecosystems that have resulted from the unsustainable use and inadequate management of many of South Africa's ecosystems and so potentially reduce the quantity and quality of the services that ecosystems currently provide.	Baseline environment description and impact assessment	The water resources will be protected to ensure supply to local users is not interrupted due to the proposed prospecting which is already under stress due to various factors including Climate Change and over extraction
	Biodiversity and ecosystems	The proposed site is largely located on "other" areas. Sections of ESA and CBA are located just outside the site to the north. The site ecology will be rehabilitated on completion of the proposed prospecting activities.
White Paper On Integrated Pollution waste Management for South Africa; 2000	Impact Assessment and Management	The prospecting activities will minimise generation of wastes on site and waste disposal will be at a registered facility.
White Paper on Environmental Management Policy for South Africa; 1998	Impact Assessment and Management	Sustainable resource usage will be promoted throughout the prospecting duration.
		Ecologically sensitive areas have been identified and mapped and considered a "no-go" areas. This is to ensure Biodiversity is conserved.

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 activity will take place within 100 metres buffer of water sources (rivers and wetlands) to ensure water is available to other users at an acceptable quality.
White Paper on the Conservation and Sustainable Use of South Africa' s Biological Diversity, 1997	Impact Assessment and Management	Ecologically sensitive areas have been identified and mapped and considered a “no-go” areas. This is to ensure Biodiversity is conserved.
World Heritage Convention Act, 1999	Description of Heritage Resources on site	There are no identified heritage significance sites within the proposed site.
National Environmental Health Policy, 2013 Ensure the right to an "environment that is not harmful to the health and wellbeing of South Africans".	Impact assessment and Management	The prospecting activities will be undertaken taking into cognisance the health and safety of the general public which also include its crew, farm workers and farmers.
AbaQulusi Local Municipality Integrated Development Plan 2021 – 2022	The Need and Desirability for the proposed project	The plan note the contribution made by the mining sector to the Municipality GDP. The proposed prospecting activities are a decision making tool for mining industries and have little significance in terms of socioeconomic returns.

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.
Guideline on Need and Desirability, Department of Environmental Affairs; 2017	The Need and Desirability for the proposed project	The Need and Desirability for the proposed project was investigated, assessed and reported in terms of the guideline.
Stakeholder Engagement, Integrated Environmental Management, Information Series 3; 2002	Public Participation Report (Appendix 05)	The public Participation Process was undertaken in terms of this guideline and the 2017 EIA Regulations.
Scoping, Integrated Environmental Management, Information Series 2, Department of Environmental Affairs and Tourism (DEAT), Pretoria; 2002	Baseline environment	The project environmental scoping was undertaken in terms of the guidelines. The scoping process was undertaken to ensure that all key aspects of the proposed activities were understood and investigated.
Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006	Alternative assessment	The impact assessment was undertaken as informed by the guidelines and other relevant materials

5 Need and desirability of the proposed prospecting activities

The need and desirability of the proposed prospecting activities were investigated and assessed based on the DEA (2017), Guideline on Need and Desirability. According to this guideline the concept of "need and desirability" can be explained in terms of the general meaning of its two components in which need primarily refers to time and desirability to place (i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed?), "need and desirability" are interrelated and the two components collectively can be considered in an integrated and holistic manner. The "need" relates to the interests and needs of the broader public.

Addressing the need and desirability of a development is a way of ensuring sustainable development – in other words, that a development is ecologically sustainable and socially and economically justifiable – and ensuring the simultaneous achievement of the triple bottom-line. The 2017 Need and Desirability Guideline sets out a list of questions which should be addressed when considering need and desirability of a proposed development. These are divided into questions that relate to ecological sustainability and justifiable economic and social development.

The questions that relate to ecological sustainability include how the development may impact ecosystems and biological diversity; pollution; and renewable and non-renewable resources. When considering how the development may affect or promote justifiable economic and social development, the relevant spatial plans must be considered, including Municipal Integrated Development Plans (IDP), Spatial Development Frameworks (SDF) and Environmental Management Frameworks (EMF). The assessment reports will need to provide information as to how the development will address the socio-economic impacts of the development, and whether any socio-economic impact resulting from the development impact on people's environmental rights. Considering the need and desirability of a development entails the balancing of these factors.

In the National Spatial Development Perspective (NSDP) (2003 and updated in 2006) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on economic infrastructure is focused in priority areas ("spatial targeting") with potential for economic development, with development to serve the broader societies' needs equitably.

The New Growth Path (NGP) (2010) in turn highlights the need to focus on facilitating growth in sectors ("sectorial targeting") able to create employment on a large scale, while not neglecting more advanced industries that are crucial for sustained long-run growth, and encouraging stronger investment by the private and public sectors to grow employment-creating activities rapidly while maintaining and incrementally improving South Africa's core

strengths in sectors such as capital equipment for construction and mining, metallurgy, heavy chemicals, pharmaceuticals, software, green technologies and biotechnology.

The National Development Plan 2030 (NDP) (2012) stresses that the threat to the "environment and the challenge of poverty alleviation are closely intertwined" and as such environmental policies should not be framed as a choice between the environment and economic growth. The NDP states that: South Africa faces urgent developmental challenges in terms of poverty, unemployment and inequality, and will need to find ways to "decouple" the economy from the environment, to break the links between economic activity, environmental degradation and carbon-intensive energy consumption.

The aspects of need and desirability of the proposed prospecting project are discussed below in subsection (5.1) and (5.2)

5.1 Securing ecological sustainable development and use of natural resources

5.1.1 How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?

Prospecting activities are of short duration and conducted over a small area and impacts are highly manageable and reversible and the activities are less likely to impact the ecological integrity of the area. The principle of Prevent, Avoid, Manage and Reverse will be applied to the proposed project. The disturbances will be limited to active areas and sensitive areas will all be marked as a "No-Go". The proposed prospecting activities will impact the ecological sensitive wetlands, koppies and the least threatened vegetation units. The sensitive areas were buffered to prevent direct impact and a provisional drill plan was developed. Although the drilling positions as indicated in this report are provisional, should they be relocated they will not be established within 100 metres buffers of wetlands areas. The Access roads in cases where they should be created will also be outside sensitive features buffers.

5.1.2 How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?

The site assessment conducted to date has established that there are no protected or threatened ecosystems within the proposed site. According to the National Vegetation Map Project (VEGMAP) »» 2012 Vegetation Map, the proposed site is located on the vulnerable Northern Zululand Mistbelt Grassland, Northern Zululand Sourveld and the Paulpietersburg Moist Grassland.

According to the 2014 KwaZulu-Natal (KZN) Biodiversity Sector Plans, there are Critical Biodiversity Areas (optimal and irreplaceable) covering of the proposed site. The CBA is partially impacted by crop farming, plantation and sparse residential areas. The areas of the

CBA to be impacted will be restored immediately and activities duration made as short as possible.

The proposed prospecting project will have negative impact on the ecosystem as the natural environment will be disturbed to make way for the establishment of drill stations and access roads. Prospecting activities are chiefly dictated to by the location of mineralised zones and can only be undertaken where a potential for mineral deposits exists. Although the ecosystems will be disturbed, the impact can be greatly reversed as the disturbed area will be limited to creation of access roads and establishment of drill stations (25m X 25m). Full impact assessment is provided in Part A, Section 9 & 11 and Part B, Section 4 of this report.

5.1.3 How will this development pollute and/or degrade the biophysical environment?

There is a potential to pollute underground water resource during drilling, soil contamination, wetlands destruction and loss of flora and fauna. To note is that the proposed site is located within the Grassland Biome (site within Sub-Escarpment Grassland Bioregion) with the two grassland vegetation units on site considered vulnerable due to intensive agricultural practices in the area and the change in weather patterns.

The prospecting activities will be undertaken on a relatively small area affecting minimal biophysical environment. Impact management strategies have been provided in this report to prevent, mitigate and manage probable impacts from the proposed prospecting activities. The potential impacts are discussed in Part A, Section 9 & 11 and Part B, Section 4 of this report.

5.1.4 What waste will be generated by this development?

The prospecting activities are expected to generate general wastes, and small quantities of hazardous and sewage waste. All the waste to be generated will be disposed of at registered waste facilities and disposal certificates will be kept on site. Hazardous waste will result from spills and leakages of hydrocarbons from operating equipment and vehicles.

5.1.5 How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?

There are no known heritage resources on site, however since there are people residing on site there is a potential for graves on site.

5.1.6 How will this development use and/or impact on non-renewable natural resources?

The project is aimed at prospecting for non-renewable mineral resources. The operating machineries and equipment will also make use of non-renewable in the form of hydrocarbons. The project is not expected to excessively use non-renewable in such a way that it can affect

other users. The proposed prospecting activities will not promote dependency on non-renewable energy.

5.1.7 How will the ecological impacts resulting from this development impact on people's environmental right?

The ecological impacts will not largely impact on people's right, there are no natural resource harvesting in the area. The impacts on water resources are highly avoidable and will therefore have little significance.

The proposed site is also used for livestock farming, undertaking of the proposed activities will result in loss of grazing pastures which will be rehabilitated on cessation of prospecting activities.

5.2 Promoting justifiable economic and social development

Prospecting is the research, planning and development phase of a mining project. The evaluation of a project aims to determine whether coal seams occur and if so, does it occur in economically extractable quantities. Initially these are measured in tonnage and grade. While geological studies are integral to prospecting, prospecting also includes, amongst others, infrastructural, environmental, socio-economic, financial evaluation and metallurgical studies thereby encouraging the national research and educational sectors.

A successful prospecting project will result in an establishment of mine depending on the feasibility study conducted. Mining operations on their own are a sustainable development that contribute largely to the South African GDP and creates a large number of employment opportunities. Should the prospecting activities established a mineable deposit on site, relevant studies which will include socioeconomic study will be commissioned.

5.2.1 What is the socio-economic context of the area

The proposed site is located east of the Vryheid Town which is a small town largely dominated by agricultural activities. There are good roads and rail network connecting the town with other major towns. Mining and related activities are common in the area. The IDP of the AbaQulusi Local Municipality acknowledges the poor living conditions in the municipality which includes poor health, access to housing and unemployment. The aridity of the area limits the economic activities that can be undertaken in the area. There are small mining activities in the area contributing to the local GDP and job creation. Agricultural activities which includes both the Livestock and the Crop Farming is a major role player in the economic sector of the local AbaQulusi Municipality.

5.2.2 What will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?

Prospecting activities are of short duration and are not considered an economic activity. The socio-economic input is very limited, the number of employment opportunities to be created for locals is usually less than five and very little support is required from local businesses. It should however be noted that prospecting is a predecessor of mining which on its own have significant social and economic impacts. The site according to consultation conducted is largely used for agricultural activities. Prospecting activities due to their nature of non-complexity and smaller surface area can be undertaken simultaneously with the site agricultural activities.

5.2.3 How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?

The proposed activities will not have significant impacts on the local natural and built/human environment. The current site activities can be undertaken concurrently with prospecting activities. Prospecting activities are not economic activities and will have very least to non-beneficial impact on the communities. Prospecting activities are considered are research project whose objective is to inform decision makers about the prospects of mining.

5.2.4 Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?

The proposed prospecting activities are of short term and it is unknown at this stage if mineable ore deposit are present on site. Prospecting activity on its own will not have any benefit for the local communities, benefits will only be realised if the prospecting activities are successful and a mine is established. In such a case, a social and economic impact study will be commissioned and a social labour plan will be drafted which will address the needs of the local communities.

5.2.5 In terms of location, describe how the placement of the proposed development will result in the creation of residential and employment opportunities in close proximity to or integrated with each other and reduce the need for transport of people and goods

Prospecting activities are not labour intensive and will also not attract any other secondary activities. The prospecting activities are aimed only at determining if there are feasibly mineable coal seam on site. No new residential areas will be developed and job opportunities

from the prospecting activities will not exceed five which is insignificant considering the dire socio economic state of the AbaQulusi Local Municipality.

5.2.6 How were a risk-averse and cautious approach applied in terms of socio-economic impacts?

5.2.6.1 What are the limits of current knowledge?

It has not been physically proven if there are ore deposit on site as no drilling has been conducted previously. The resource modelling software were used to correlate the local geology from the nearby explored properties. It is therefore possible that ore deposit may be absent on site, and/or be of poor quality.

5.2.6.2 What is the level of risk associated with the limits of current knowledge?

Since the prospecting activities are not an economic activity, targeted on less sensitive areas and affect relatively smaller areas, the risk associated with undertaking the prospecting activities have low – medium significance and highly reversible. The prospecting activities raise expectations of the vulnerable and poor communities and should the prospecting activities be unsuccessful the local communities will be at distraught as the prospect of a mine establishment will be lost.

5.2.6.3 Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?

The probable impacts were identified, assessed and mitigation measures provided.

5.2.7 How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:

Health – The proposed project will generate dust during driving on gravel access roads and during drilling. Dust particles will be scattered within the immediate area and although to a less significant scale affect the air quality and to people with respiratory diseases. The dust generation must be monitored during operation and controlled through watering and use of biodegradable dust control chemical agents;

Water contamination: The prospecting activities have the potential to contaminate both the underground and the surface water, through spillage of hydrocarbons, interception of aquifers and driving through streams and/or wetlands. The surface water must be clearly delineated on the project layout plan and marked as "no-go" areas and buffers created around each surface water area. Should the groundwater be intercepted the during drilling, a borehole report will be drafted for submission to the Department of Water and Sanitation which will include the depth at which the water was intercepted and the water quality as tested in a controlled laboratory;

Safety: Site access by the prospecting crew may attract opportunist criminals into the private properties. The prospecting crew must at all times carry with them identification cards.

5.2.8 What are the positive impacts & what measures were taken to enhance positive impacts?

The prospecting process is not an economic activity and does not generate any income. It is however necessary to establish whether there is a mineable deposit on site which could then result in a mine development.

The obtained geological knowledge will contribute to South African geological data pool and mapping of the South African deposits.

South Africa faces illegal mining challenge where local knowledge exists about buried economic deposits. The illegal activities does not only result in loss of revenue but the reckless mining methods have higher significant environmental impact and have no commitments to improving the societal living standards. Should prospecting be successful, a legally operating mine will be developed operating within all mining related regulations including the requirements of a social labour plan.

5.2.9 Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?

- ✓ The proposed prospecting will not create competition for natural resources with the locals;
- ✓ The proposed activities will not result in net loss of naturally resources such that other land users and members of the public are affected.

5.2.10 What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?

The assessments conducted did not identify any threatened ecosystems. The proposed activities will not create social challenges or use-up available natural resources.

Furthermore, prospecting activities are undertaken on relatively smaller areas (drill stations) allowing for other land uses to continue. The functioning of local ecology will be least impacted by the proposed prospecting activities.

The assessment conducted will be provided to the registered interested and affected parties including land owners.

5.2.11 What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)

The prospecting site is chiefly dictated to by the geological setting of the area, the impacts will not discriminate against anyone on site.

The development is located appropriately as there are no high density communities nearby that may be affected by the proposed activities. The impacts will not discriminate against anyone and will be mainly on the directly affected areas as dictated to by the local geology.

5.2.12 What measures were taken ensure transparent and effective participation of all interested and affected parties

- ✓ This is thoroughly discussed in Public Participation Process Section of this report and Appendix 05: Public Participation Report;
- ✓ In summary a newspaper advert was placed in Newcastle Advertiser on January, 21, 2022, and site notices were placed on the affected properties, major access roads (26 – 28 January 2022). The landowners were identified through deed search, and will also be invited through site notices, their comments will be incorporated into this report. All registered IAPs will be provided with the draft report for review and a public meeting has been requested.

5.2.13 What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage

- ✓ The IAPs will be informed of the application outcome by the DMRE,
- ✓ Should prospecting establish a mineable resource, the IAPs will be fully engaged through EIA process and Social Labour Plans through which the public interest will be protected.

5.2.14 Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?

The proposed mitigation measures are realistic and practical and will ensure that the land will be restored to its original state. The remaining will be the borehole capping made of cement. This disturbance will be less than 500 m^2 at each drill station. A total of 23 is proposed thus 23 X 500 = 11 500 m^2 (1.15 ha).

5.2.15 Measures taken to ensure that impact management costs are paid for by those responsible for harming the environment?

The cost of managing the impacts was calculated using the Department of Mineral Resources (DMR)' Guidelines document for the evaluation of the quantum of closure-related financial provision provided by a mine. The calculated rehabilitation fee will be paid to the DMRE before the Environmental Authorization is issued.

5.2.16 How the alternatives identified resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?

- ✓ The proposed site for invasive activities (drilling and access roads) will be located such that sensitive areas are avoided to ensure access to natural resources is not affected.
- ✓ The water resources were avoided to prevent contamination and disruption of water supply to other users.
- ✓ The proposed activities will not result in net loss of ecological diversity ensuring equitable access by others, rehabilitation will be undertaken to restore pre-prospecting conditions.
- ✓ The proposed prospecting activities will not prohibit the use of land in future for other unrelated activities as the site will rehabilitated.

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

6.1 Preferred Site

The choice for the preferred site was based on the following aspects about the site:

Site geology: the site is underlain by Vryheid sedimentary deposits with high potential for coal deposit in the area.

Site Sensitivity: the site does not contain any protected areas and located on least threatened ecosystems. The proposed site is arid and dry during most period of the year and the identified watercourses can be easily avoided.

6.2 Preferred Activities

There are various methods of mineral prospecting which can be either intrusive or non-intrusive in nature. For this project both the non-invasive and invasive method will be used. Invasive methods, that is drilling and core sampling provides highly reliable data which would be a true reflection of what is to expect on site. Non-invasive methods (desktop study, site walk & geological mapping) rely only outcrops to model site geology whereas in drilling the cores of the substrata are obtained and analysed. The analysis provide data on the grade of ore deposits and its economic viability. Using the drilling technique, the prospecting will successfully determine how viable the mining for coal seams is and how long, at what rate the can be mined.

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

Alternatives were chosen based on the consideration of intended outcome, environmental and geological attributes as well as the current land uses within the proposed site. Geological attributes were determined with the use of geological maps. The local geology determines the type of technology to be used depending on the rock strength and burial depth. A comparison of cost-benefit of alternatives was done to choose the most cost-effective methods that are environmentally sound. Areas that need protection would be excluded from the targeted sites in the demarcation process. Existing infrastructure that could be of use was also considered such as farm roads to ensure minimal impact on the environment.

6.3.1 The property on which or location where it is proposed to undertake the activity;

The proposed site was preferred based on the historical geological data which from the desktop standpoint acknowledges the potential presence of mineral deposits

NO OTHER SITES WERE ASSESSED.

6.3.2 The type of activity to be undertaken;

There were three alternatives assessed for this project, geophysical survey, diamond drilling, soil sampling through trenches and a combination of geophysical and any of the other two.

6.3.2.1 Geophysical Survey/ aeromagnetic survey

A geophysical survey is a method of collecting information about the physical properties of underground rocks and sediments without tunnelling or digging. The method uses equipment that detects anomalies between buried rock formations. The coal seam would have different conductivity or electromagnetic properties from the surrounding rocks and will be detected through the anomaly. The short coming of this method is its unreliability on the grade and quantity of the coal deposit. A mining decision cannot be taken solely based on geophysical method. The method has been used for detection of coal deposits and siting of boreholes.

6.3.2.2 Core Drilling

A solid core is extracted from depth, for examination on the surface. The drill uses a diamond encrusted drill bit to drill through the rock. The bit is mounted onto a core barrel which is attached to the drill stem, which is connected to a rotary drill. Water is injected into the drill pipe, so as to wash out the rock cuttings produced by the bit and also to reduce the heat produced due to friction which causes less wear and tear of the bits. The core is brought to the surface in a tube with diameter ranging between 27 – 85 mm, the thicker the core the more expensive it is.

The obtained core is a true representative of the underground lithology. From the core, burial depth and grade can be determined. Multiple cores will establish the thickness of the mineral containing coal seam, the dip and strike directions. A full resource estimate and mine feasibility study can be determined through core sampling and laboratory assessments. Core drilling is highly informative and can reach the depth of 300 metres.

6.3.2.3 Trenching and soil sampling

Trenches are dug using electric shovels for sampling and/or exposing ore containing deposit. This method is preferred for near surface deposits and alluvial sampling for minerals such as diamonds. Trench digging have higher significance environmental impact as compared to core drilling as the disturbance area is much extensive.

Only two of the above discussed methods will be used for this project. Geophysical will be used to site drill stations and Core Drilling will be used for site geological modelling.

6.3.3 The design or layout of the activity;

The design of the activity in this project refers to the locations of drilling stations. The intrusive areas are located away from sensitive features, and also determined by the distribution and

extent of the coal seam. The drilling points will be located such that site watercourses are protected and marked as “No-Go” Areas. For this application the drilling areas will be based on geology, topography and environmental sensitivity.

6.3.4 The technology to be used in the activity;

Technology was assessed to determine that which would bring reliable and desirable results. The following factors were evaluated when considering technology:

6.3.4.1 Local geological strata

The geological settings (rock types) and depth of burial determines the type of geophysical methods that are most likely to be successful therefore the technology that goes with such methods.

6.3.4.2 Rock Strength

The drilling equipment must be able to cut through site geological strata to reach buried ore deposits, therefore for instance a diamond drilling will be preferred where rock strength is very high.

The diamond drilling is the preferred technology because of its ability to cut through hard rock materials.

6.3.5 The operational aspects of the activity

The prospecting activities are carried out in phases with each subsequent phase dependant on the success predecessor. Therefore, a strict operational scheduling must be adhered to.

6.3.6 Other operational aspects:

Water requirement: The prospecting activities (excluding human usage) will require six (6) litres of water per 40 metres drilled, thus 37 litres per proposed 250 metres. The water requirement can be met through sourcing water from the local municipality connection or from the local registered boreholes. No new boreholes will be drilled on site for water sourcing. A consent will be obtained from the municipality for water usage. The water usage onsite is not expected to trigger the NWA Listed activities which would require water use application.

Waste Management: The principle of Reduce, Re-use and Recycle must be implemented at all times. The waste must be separated at source and disposed at an appropriate waste management facility.

Access Roads: The existing access tracks on site will be used to access drilling points. No new roads will be developed without prior communication with the landowner.

6.4 The option of not implementing the activity

The option of not implementing the activity also referred to as a “No-Go” option ensures that the current status quo remains i.e. the site activities continue as they are. There will be no disturbances as a result of prospecting activities.

However, it should be noted that prospecting activities are of short term duration with a maximum of five years. The impacts created by mineral prospecting can be managed and mitigated, and current site activities can be undertaken simultaneously with the prospecting programme. The prospecting activities will disturb less than 05 ha of the total area under this application.

The aim of the proposed prospecting is to establish the presence, extent and grade of coal deposits on site and should the activity be not implemented this information will remain unknown.

The literature review indicates that there is potential for coal deposits, this information is readily available to the public and future applications for mineral deposits in the area will always be expected. This proposed application will establish if there are ore deposits on site and establish if the minerals are mineable without economic loss. The geological data obtained through full prospecting process will then be submitted to the council of geoscience for safe keeping and evidence based mapping of South Africa.

7 DETAILS OF THE PUBLIC PARTICIPATION PROCESS (PPP) FOLLOWED

This section of the report provides an overview of the tasks undertaken for the PPP to date. All PPP undertaken is in accordance with the requirements of the EIA Regulations as amended in April 2017. It further provides an outline of the next steps in the PPP and makes recommendations for tasks to be undertaken during the environmental assessment phase of the environmental authorisation process. A full Public Participation Process (PPP) report will be attached as **Appendix 05.**

Land owners were identified through a search conducted via online search engines accessing the Title Deed office database. In addition to land owner's other relevant organisations where identified and notified of the application. This includes municipal and State departments with jurisdiction in the area and Non-Governmental Organisations (NGOs) with an interest.

The PPP tasks conducted for the proposed project to date include:

1) Identification of Interested and Affected Parties (affected and adjacent landowners) and other stakeholders (organs of state and other parties);
2) Formal notification of the application to Interested and Affected Parties (all adjacent landowners) and other stakeholders;
3) Consultation and correspondence with I&AP's and Stakeholders and the addressing of their comments; and
4) Newspaper advert and site notices.

7.1 IAP and Stakeholder identification, registration and the creation of an electronic database

Public Participation is the involvement of all parties who are either potentially interested and or affected by the proposed development. The principle objective of public participation is to inform and enrich decision-making.

Interested and Affected parties (IAPs) representing the following sectors of society has been identified:

- ✓ National, provincial and local government;
- ✓ Agriculture, Tourism and Land user;
- ✓ Community Based Organisations;
- ✓ Non-Governmental Organisations;
- ✓ Water bodies;
- ✓
- ✓ Tourism;
- ✓ Industry and mining;
- ✓ Commerce; and
- ✓ Other stakeholders.

7.2 Formal notification of the application to key Interested and Affected Parties (adjacent landowners) and other stakeholders

The interested and affected parties were informed about the project as follows:

7.2.1 Newspaper advertisement

Newspaper Advert will be published in Newcastle Advertiser on the January 21, 2022.

7.2.2 Site notice placement

In order to inform surrounding communities and adjacent landowners of the proposed development, site notices will be placed on site and at visible locations close to the site (26 – 28 January 2022).

7.2.3 Written notification

IAPs and other key stakeholders were notified of the project. Background information document was sent out to the identified and registered I&AP's. The Background Information Document (BID) and a comment and registration form were sent to all identified and Registered I&APs. This communication was sent electronically via email. Copies of the documents mentioned above can be seen as Appendix. The IAPs database will be attached as Appendix 05.

7.2.4 Meetings

No meeting has been proposed to date.

7.2.5 Review of draft reports

The draft report will be released for public review on February 01, 2022. All registered IAPs were notified of the report's availability for comment for 30 days.

Additionally, electronic and or hard copies will be made available to interested and affected parties who request for them. Copies of the report were also be submitted to affected organs of state and relevant authorities in their preferred format.

7.2.6 Telephonic conversations

Where necessary telephonic conversations will be held prior to sending out information.

7.3 Summary of issues raised by Interested and Affected Parties

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
Land Owners				
Portion 01 of Farm Zalflager No 525 HU;				
Portion 01 of Farm Ongemaakt 301 HU				
Remainder Portion of Farm Ongemaakt 301 HU				
Portion 02 of Farm Mademoiselle 123 HU				
Portion 08 of Farm Mademoiselle 123 HU				
Portion 13 of Farm Mademoiselle 123 HU				
Local Administration				
Ward Councillor: Ward 04 AbaQulusi Local Municipality				
AbaQulusi Local Municipality				
Zulu Land District Municipality				

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
Provincial Departments				
KZN Department of Agriculture and Rural Development (DARD)				
KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA)				
KZN Ezemvelo Wildlife				
KZN AMAFA Heritage Agency				
DWS Durban Region				
Other Interested and Affected Parties				
Mpembeni Primary School				

8 The Environmental attributes associated with the alternatives.

Key aspects of the baseline environment that are likely to impact on the scope of the impact assessment and management measures that are implemented as well as project decisions regarding alternatives are listed below.

8.1 Topography

The topography of the region is a gently undulating to moderately undulating landscape. The altitude ranges between 1230 to 1599 metres above mean sea level (mamsl). The north-south topographical orientation is sloping towards the centre to the two site streams. The highest point in the north is at 1435 mamsl, the highest point on the south is at 1455 mamsl. The lower central area is at 1312 mamsl.

The east-west topographical orientation is sloping towards the west. The highest point from the east is at 1599 mamsl and the lowest on the west is at 1230 mamsl, with average sloping of 13.8% with an elevation loss of 366 metres.

The analysis of the site elevation has established that the site is rugged with flat plateau on the west.

8.2 Climate

8.2.1 Evaporation

The proposed site is located in Evaporation Zone 22B, the WR90 project recorded the evaporation to range between 1800 – 2000 mm. The apan mean annual evaporation for the site is 1700 – 1800 mm. A-pan mean annual evaporation is measured as the average depth of water (in millimetres (mm)) evaporating from the pan.

8.2.2 Precipitation and Temperature

The Vryheid Town climate can best portrayed in terms of two seasons, which are the cool dry season and the warm rainy season rather than summer, autumn, winter and spring. The town is within the humid subtropical climate region and rain zone W2I with mean annual precipitation (MAP) of 850 - 1000 mm. The wet months (summer) period is from October to February of the following year, and the driest months are June and July which are also the coldest. The site receives the least rainfall (14 mm) in June and July and the highest

precipitation (167 mm) in December. The month with the highest number of rainy days is December (19.33 days). The month with the lowest number of rainy days is June (2.03 days).

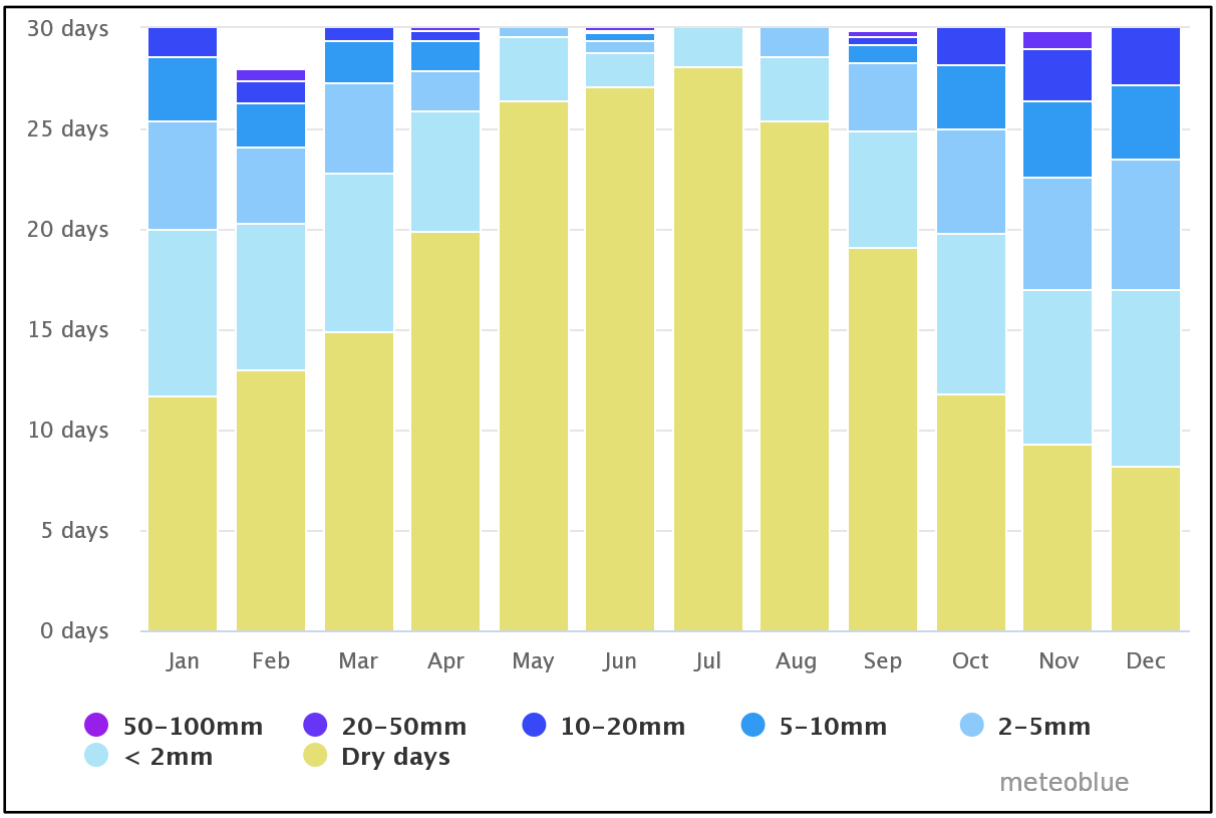


Figure 8-1: Precipitation amounts graph

The summer period which is from September of the previous year to early March of following year is the hottest period in the township and late March to August is the cold period. The site is coldest in June and July when the temperatures reaches an average low of 4.4˚C and an average high of 19˚C. The site records its highest temperature in December and January when temperatures are at an average low of 15.6˚C and an average high of 25.6˚C.

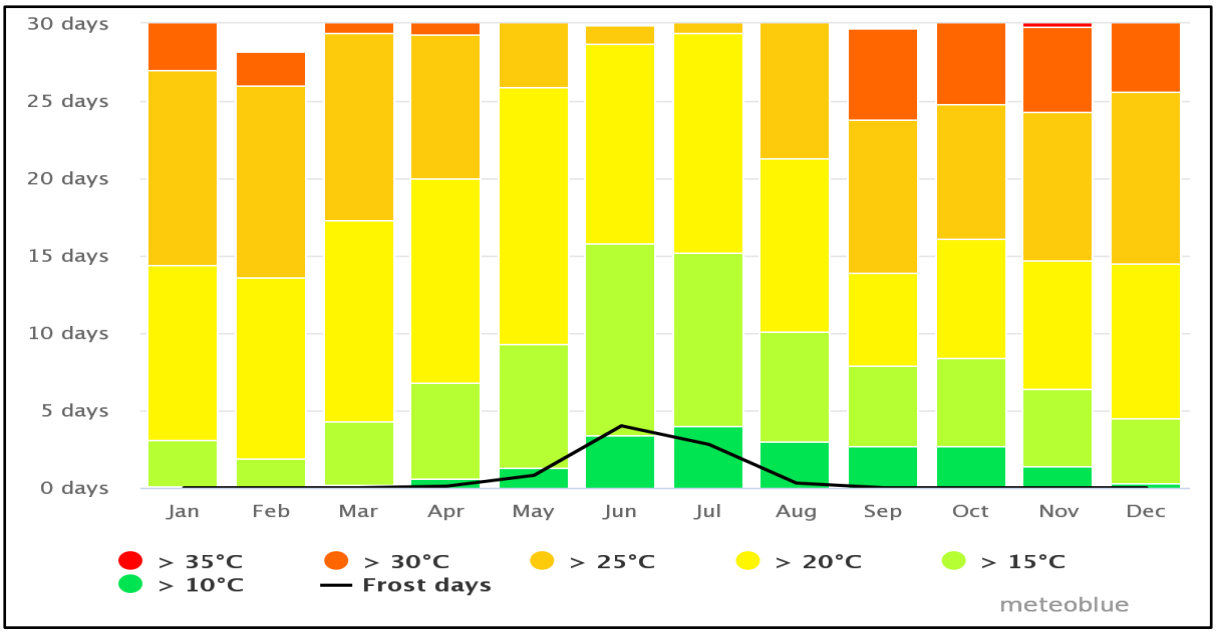
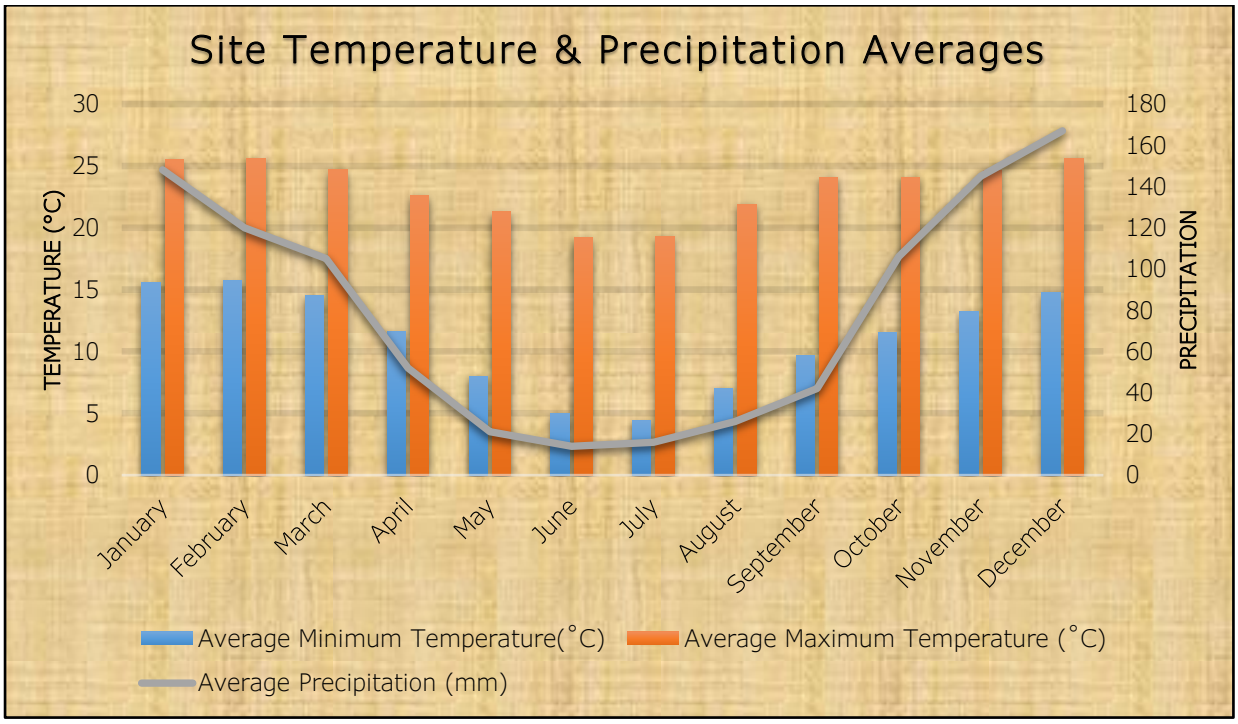


Figure 8-2: Site maximum temperatures

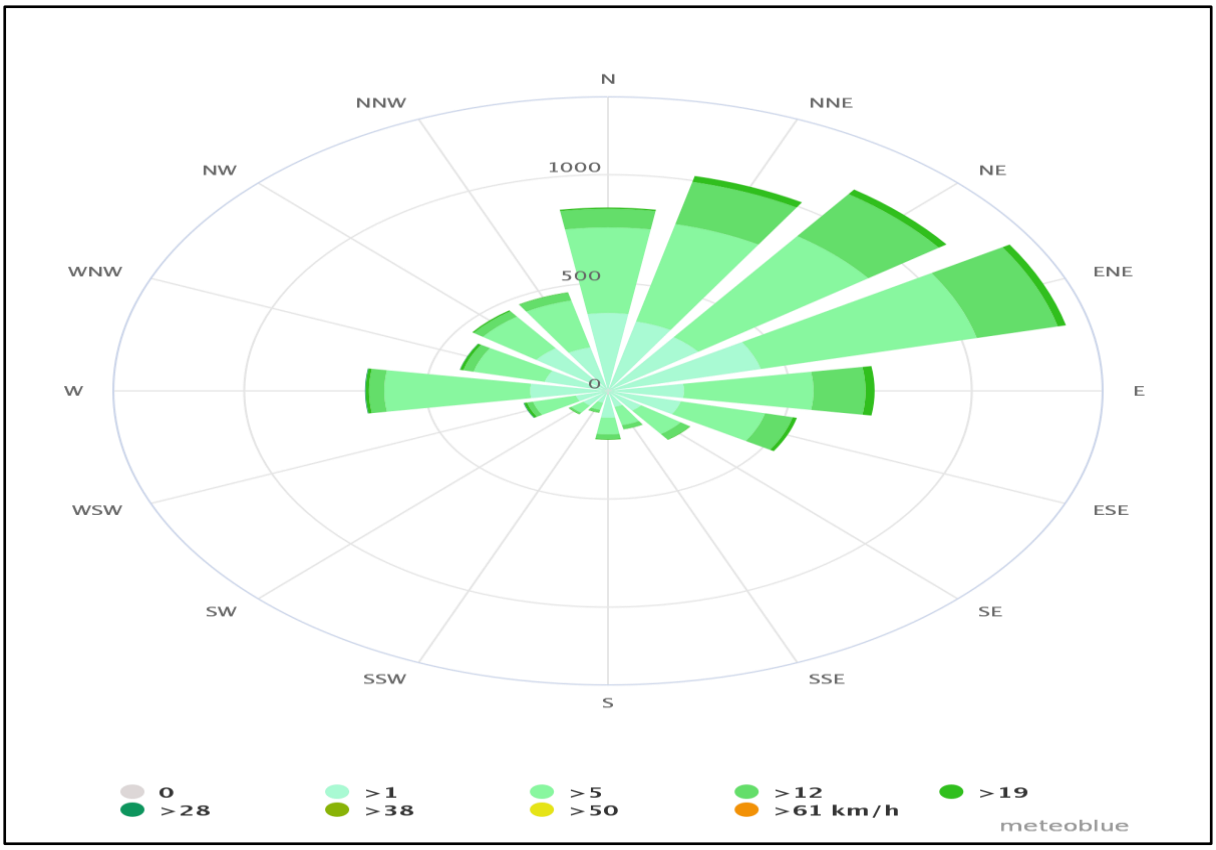


Source: Meteoblue website

Figure 8-3: Site Climatic Background

8.2.3 Wind

The most prevalent wind direction at the site is from the north-east. The strong wind season is from August to January of the following year with wind speed exceeding 28 km/h but less than 38 km/h.



Source: Meteoblue website

Figure 8-4: Site wind rose

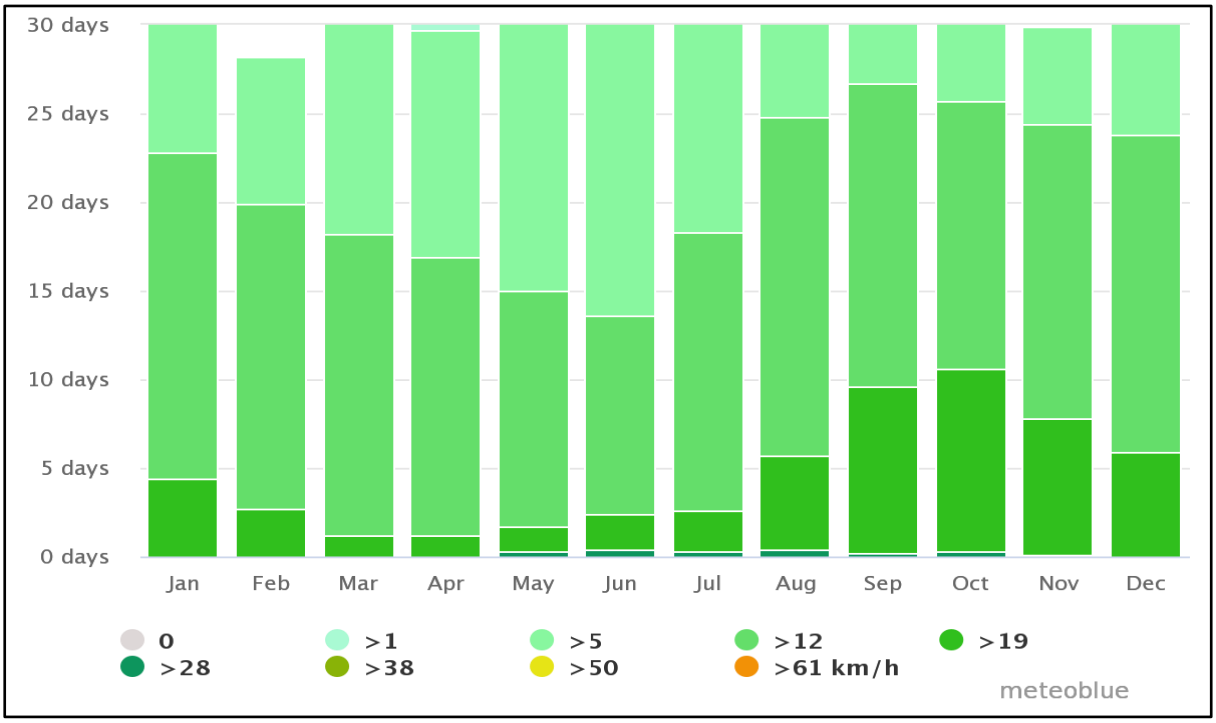


Figure 8-5: Site wind speeds

8.3 Air Quality

The main objective of the Air Quality Impact Assessment is to determine the potential impact of emissions from the operational activities associated with the proposed prospecting project on ambient air quality. The proposed project area and surrounding where mainly utilised for Livestock farming and cultivation. Sources identified as possibly impacting the air quality in the region include, but are not limited to:

- ✓ **Fugitive dust:** This includes fugitive dust from paved and unpaved roads, agricultural activities (land preparation and harvesting) and wind erosion from open areas, which generates fugitive dust and PM10;
- ✓ **Stack emissions:** stack emission include the release of Sulphur dioxide (SO_2) and heavy metals from surrounding nearby mining operation;
- ✓ **Biomass burning biomass:** burning emissions include with carbon monoxide (CO), methane (CH_4) and nitrogen dioxide (NO_2) gases;
- ✓ **Household fuel combustion:** It is likely that households within the local utilize wood for cooking and space heating (during winter) purposes. Emissions from domestic burning include PM10, carbon dioxide (CO_2), Sulphur dioxide SO_2 and carbon monoxide (CO).
- ✓ **Vehicle tailpipe emissions:** Significant primary pollutants include carbon dioxide (CO_2), carbon (C), Sulphur dioxide (SO_2), oxides of nitrogen (mainly NO), particulates and lead. Secondary pollutants include NO_2, photochemical oxidants such as ozone, Sulphur acid, sulphates, nitric acid, and nitrate aerosols (particulate matter).

The proposed prospecting project that we are proposing will also contribute to the above mentioned sources. Below are some of the impact prevention, mitigation and control to address air quality concerns:

- ✓ **Household fuel combustion**-regarding this, we can advise people to wear warm clothes during winter than burning of woods to warm the space or using electric heaters.
- ✓ **Fugitive dust** – Dust is suppressed all the time -Reduced unnecessary trips; and

  – Vehicles low speed will be implemented
- ✓ **Vehicle tailpipe emissions**-all vehicles should be serviced and always be in a good condition to avoid producing unnecessary smoke.

- ✓ **Biomass burning**-the drilling team will be advised not to start any fire on site to avoid burning of the bush but then if this happens the EAP will be informed and call fire fighters to end the fire.

8.4 Geology

The proposed site is located with Vryheid formation of the Ecca Group which lies on the southern margin of the Karoo Sequence geological basin.

8.4.1 Regional Geology

8.4.1.1 The Karoo Depositional Basin

Sediments of the Karoo Sequence were deposited in, and into, a large body of water, possibly marine. The basin into which these sediments were being deposited was quite large and today the sediments cover an area of roughly 550 000 km^2 on the southern African mainland. In the south the basin is bounded by the mountain chain of the Cape Fold Belt. In the north the sediments lap onto the Kaapvaal Craton.

Deposition of the Karoo Sequence sediments started with the melting of the glaciers that covered most of the African subcontinent in the Carboniferous, around 340 million years ago. The melting of the glaciers resulted in the deposition of an extensive tillite horizon, called the Dwyka Formation. Following the retreat of the glaciers the basin was transgressed by the Ecca sea, with active sediment fill from the south and north. As the climate slowly warmed the sediment style became more terrestrial. The major depositional style in the Beaufort Group is fluvio-deltaic. Sediment deposition actively continued until it was interrupted by the outpouring of the Drakensberg lavas in the mid Jurassic, roughly 170 million years ago.

Economic exploitable coal seams of Permian and Triassic ages occur within the strata that make up the sequence. The climate, tectonic framework and depositional style in the Permian were much more conducive to extensive peat formation and ultimately economic exploitable coal seams than in the Triassic (Cad-le et al., 1990). Coals of Permian age therefore have a greater significance regarding mining The Permian coals and the Vryheid Formation strata in which they occur are mostly confined to the northern and north-eastern regions of the Karoo basin. The Volksrust Formation is mostly present along the western and southern escarpment and isolated occurrences of the Beaufort Group are encountered on the high ground towards the southern part of the coalfield.

8.4.1.2 The Ecca Group of the Karoo Sequence

During the Early Permian deep marine shales, submarine-fan sediments and shelf shales were deposited along the southern margin of the Karoo basin. At this time the sediments from the northern, more passive margin, were more shallow water, deltaic and fluvial sediments

with associated coal seams (Cadle et al., 1990). All these sediments together make up the Ecca Group. Sediments of the Ecca Group attain a maximum thickness of over 400 m (SACS, 1980).

The Ecca Group sediments can be subdivided into three distinct formations (from old to young): The Pietermaritzburg, the Vryheid, and the Volksrust formations (SACS, 1980). The Pietermaritzburg and Volksrust Formations merge southwards to form the central Ecca shale facies and represent shales deposited on the marine shelf. The Vryheid Formation on the other hand comprises a series of alternating conglomerates, sandstones and shales within which the coal seams are found. The sandstones are predominantly developed only at the margin of the basin (SACS, 1980). The marine shales of the Volksrust Formation grade up into the terrestrial sediments of the Beaufort Group, reflecting the climatic change (Cadle et al., 1990). The Ecca shales are characteristically dark grey and carbonaceous. In the north-eastern part of the basin, i.e. the area covered by the Eastern Transvaal Coalfield, the sandstones are cross-bedded and consists of upwards fining cycles (SACS, 1980).

Greenshields (1986) states that at least four major cyclothems, each with an associated coal seam, occur in the Ecca Group. They are commonly called the "coal measures of South Africa" and crop out in the mountains near the town Vryheid, and so were named the Vryheid Formation (SACS, 1980).

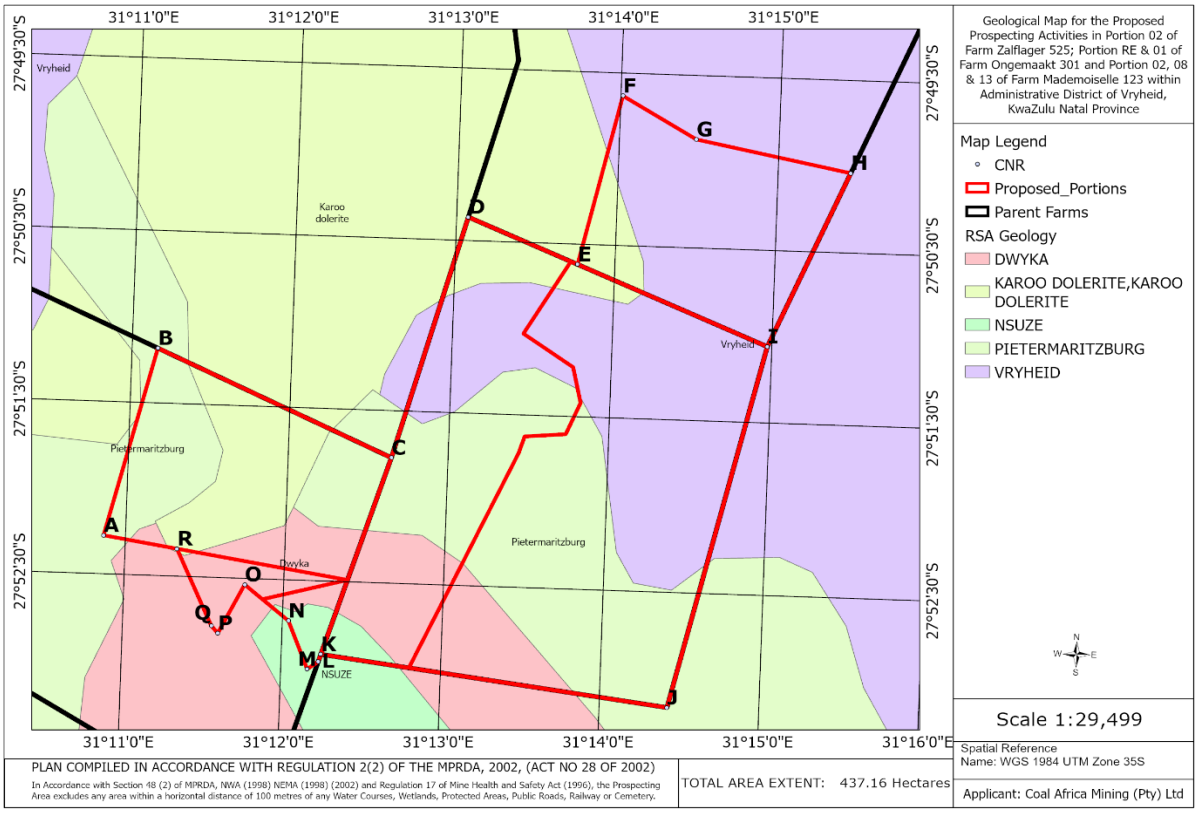


Figure 8-6: Site Geology

8.4.2 Local Geology

8.4.2.1 Vryheid Formation

The tectonic style changes from east to west and from north to south in the Karoo Basin. These factors are the main control on the distribution and stratigraphic thickness of the formation. The Vryheid Formation pinches out northward as a result of the asymmetry of the basin.

The Vryheid Formation consists mainly of sandstone and shale with some subordinate coal seams associated with it (SACS, 1980). The sediments of the Vryheid Formation probably represent alluvial plain, upper and lower delta plain deposits with associated shallow lagoon and coastal swamps (Jermy and Bell, 1990). The change from stable margin to subsiding foreland basin confined 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 marön. They state that this is due to rapid basinward facies migration down the southernly dipping paleoslope.

The Formation attains a maximum thickness of 500 m in the deeper part of the basin (SACS, 1980), but in the area of the Eastern Transvaal Coalfield only attains a maximum thickness of 170 m (Greenshields, 1986) and thins to about 80 m in thickness in the pro>ä-mal basin settings (Cadle et al., 1990).

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).

Although the five major coal seams, and their associated overlying and underlying sedimentary packages, can be correlated between coalfields (Cadle et al., 1990), they have different names in different coalfields (Greenshields, 1986).

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).

8.5 Ground and Surface Water

8.5.1 Groundwater

Groundwater resources in the area can be divided into two distinct aquifers, namely a shallow perched aquifer in the weathered zone followed by a deeper fractured hard rock aquifer. The fractured rock aquifer occurs as transmissive fractures in undifferentiated assemblage of compact sedimentary extrusive and intrusive rocks and Porous unconsolidated and consolidated sedimentary strata of either the Karoo sediments. A third, deeper aquifer in the underlying basement granite can also occur.

It is further estimated that the long term recharge of the aquifers in the Region is estimated at between and 5 % of the mean annual precipitation.

The proposed site is located within region 45: Northeastern Middleveld of the Vegter's Groundwater Region. The site is underlain by the compact, dominantly arenaceous strata of Ecca Gp, with borehole yield ranging between 0.5 – 2.0 l/s. The local transmissivity as determined by WRC Project in 2005 ranges between 70 - 300 mS/m.

According to the aquifer classification map (2013), the proposed site is within the **minor** aquifer region. The site aquifers are **least** vulnerable according to the Aquifer Vulnerability Map of South Africa which indicates the likelihood for contamination to reach a specified position in the groundwater system after introduction at some location above the uppermost aquifer.

The site aquifer susceptibility is considered **Low** according to the SA Aquifer Susceptibility Map of South Africa which indicates the qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.

Table 8-1: Summary of site geohydrological data

Vegeter's Groundwateer Region	45: Northeastern Middleveld
Electrical Conductivity	70 - 300 mS/m
Average Depth to Groundwater	20.2 m
Exploitation Factor	0.325000
Mean Recharge	0.000012 - 0.088893 mm/a
Transmissivity	25 m^2/day
Relative Transmissivity	Low
Thickness of Fractured zone	100 – 105 m
Storage Volume in the Fractured Zone	133.92 m^3/km^2
Thickness of Weathered Zone	45 – 58 m
Storage Volume in the Weathered Zone	24657.59 – 28825.76 m^3/km^2
Storage Volume in the Aquifer	25798.98 - 31046.83 m^3/km^2
Average Groundwater Resource Potential (AGRP)	280.82 $m^3/km^2/a$
Average Groundwater Exploitation Potential (AGEP)	111.85 m3/km2/a
Utilisable Groundwater Exploitation Potential (UGEP)	130 - 160 $m^3/km^2/a$
Yield	0.5 – 2.0 l/s
EWR Management	Class C: Moderately Modified

Source: WRC; 2005

8.5.2 Surface Water

The site falls within quaternary cactchment W21B, and is within the Usutu to Mhlatuze Water Management area in which the main rivers draining the area are Usutu, Pongola, Mhlatuze and Mkuze.

8.5.3 Watercourses

Watercourse" means: –

a. a river or spring;
b. a natural channel in which water flows regularly or intermittently;
c. a wetland, lake or dam into which, or from which, water flows; and
d. any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

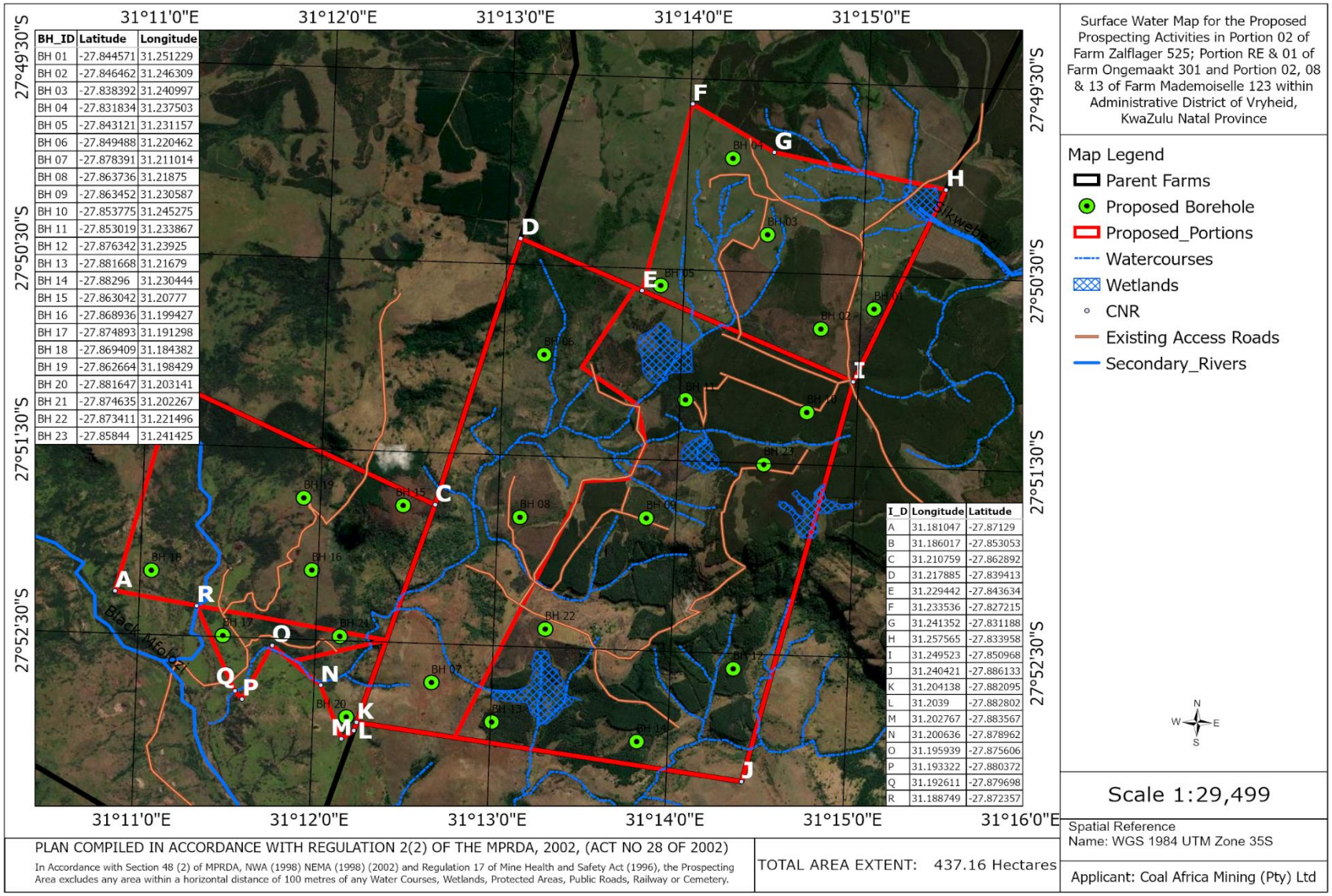
There are two main streams (outside the proposed site catchment) which are the Rietspruit (Mbilane) located 300 metres north and Black Mfolozi located 800 metres east. There are numerous unnamed periodic streams within the proposed site which are all flowing in a westerly direction into the Sterkstroom River. These streams originate within the proposed site on the higher eastern side of the site.

There are no nationally recognised Freshwater resources within the proposed site, this however does not imply that site water resources are of no significance. Local wetlands and watercourses are integral part of the local ecosystem and largely maintain flows of the main watercourses which in this case is the Sterkstroom River.

The main watercourse within the site is located on the south and originate from outside the site and originate on the east of the proposed site.

Table 8-2: Site water resources

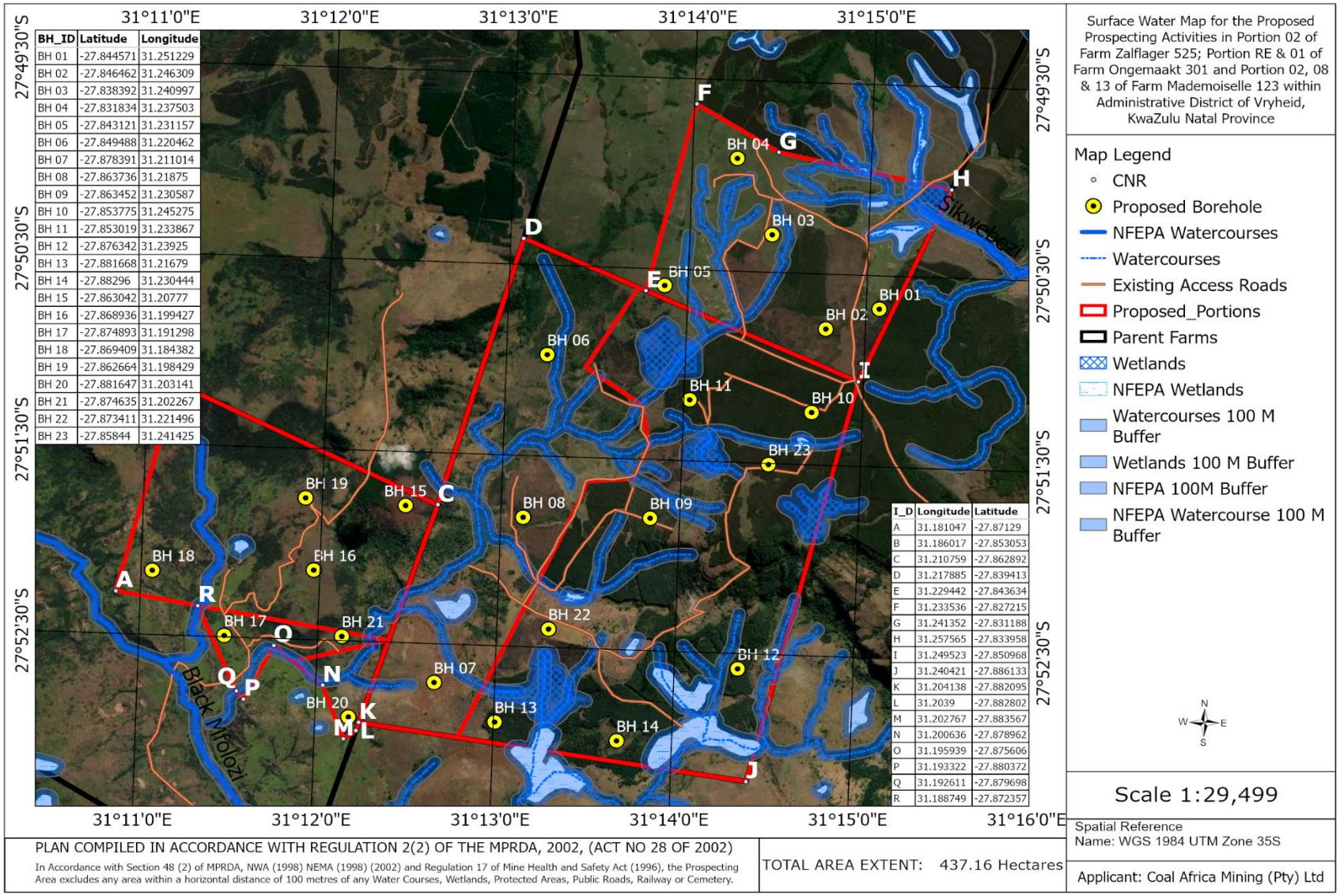
River Name	PES	River/ Wet Condition
Black Mfolozi (West of the site)	Class B: Largely Natural	B: Largely Natural
Mgobhozi (through portion 13 of Mademoiselle 123 HU)	Class B: Largely Natural	B: Largely Natural
Unnamed Streams	Not Determined	B: Largely Natural
NFEPA Wetlands (Channelled valley-bottom wetland)	Mostly C: Moderately Modified	



BH_ID	Latitude	Longitude
BH 01	-27.844571	31.251229
BH 02	-27.846462	31.246309
BH 03	-27.838392	31.240997
BH 04	-27.831834	31.237503
BH 05	-27.843121	31.231157
BH 06	-27.849488	31.220462
BH 07	-27.878391	31.211014
BH 08	-27.863736	31.21875
BH 09	-27.863452	31.230587
BH 10	-27.853775	31.245275
BH 11	-27.853019	31.233867
BH 12	-27.876342	31.23925
BH 13	-27.881668	31.21679
BH 14	-27.88296	31.230444
BH 15	-27.863042	31.20777
BH 16	-27.868936	31.199427
BH 17	-27.874893	31.191298
BH 18	-27.869409	31.184382
BH 19	-27.862664	31.198429
BH 20	-27.881647	31.203141
BH 21	-27.874635	31.202267
BH 22	-27.873411	31.221496
BH 23	-27.85844	31.241425

I_D	Longitude	Latitude
A	31.181047	-27.87129
B	31.186017	-27.853053
C	31.210759	-27.862892
D	31.217885	-27.839413
E	31.229442	-27.843634
F	31.233536	-27.827215
G	31.241352	-27.831188
H	31.257565	-27.833958
I	31.249523	-27.850968
J	31.240421	-27.886133
K	31.204138	-27.882095
L	31.2039	-27.882802
M	31.202767	-27.883567
N	31.200636	-27.878962
O	31.195939	-27.875606
P	31.193322	-27.880372
Q	31.192611	-27.879698
R	31.188749	-27.872357

Figure 8-7: NFEPA Wetlands Map



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F	31.233536	-27.827215
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M	31.202767	-27.883567
N	31.200636	-27.878962
O	31.195939	-27.875606
P	31.193322	-27.880372
Q	31.192611	-27.879698
R	31.188749	-27.872357

Figure 8-8: Surface Water Map with 100 metres buffer applied

8.5.4 Legislative requirements in terms of the National Water Act, 36 of 1998

The mining and related activities are regulated by the Government Notice 704 of the National Water Act (36) of 1998, Regulations on use of Water for mining and related activities aimed at the protection of water resource.

In terms of GN 704 section 4 (b): - No person in control of a mine or activity may:

(b) except in relation to a matter contemplated in regulation 10, carry on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood-line or within a horizontal distance of 100 metres from any watercourse or estuary, whichever is the greatest.

A 100 metres buffer has been applied to all identified watercourses (as defined by NWA, 1998) wherein no invasive activity can be undertaken. The GN 704 will therefore be compiled to.

The GN 509 of 2016: General Authorisation in terms of Section 39 of The National Water Act, 1998 (Act No. 36 Of 1998) For Water Uses as Defined in Section 21(C) Or Section 21(I).

GN 509 specifically deals with water uses as defined in Section 21(c) Or Section 21(i) and will therefore not be applicable in this application as no diversion and stream impeding will take place, and no altering the bed, banks, course or characteristics of a watercourse will take place.

8.5.5 Water Resource Management

- ✓ The drilling positions will be located such that sensitive areas (streams and their buffers) are avoided;
- ✓ A 100 metres buffer zone must be applied to all water features on site in terms of GN 704. In the absence of a national protocol, a generic 100m buffer should be established around river and wetland FEPAs and Fish Support Areas. This 100m buffer is considered adequate from a water quality perspective in providing functional filtering capacity to the river or wetland.
- ✓ Water extraction from site sources will not be permitted, this includes rivers and boreholes without consent from the owners in case of private water sources and consent from the Municipality where water will be sourced from municipal connections;
- ✓ Stream crossings must be through existing crossings;
- ✓ The applicant will appoint an independent environmental officer to precide over the propsecting activities protecting the integrity of the natural environment which includes biodivesity and water resource;

- ✓ The applicant must made available site notices during operation communicating the boundaries of the buffer zones of the water sources;
- ✓ The managemnt and control of probable impacts is further discussed in section 9 and 11 of this report.

8.6 Biodiversity

8.6.1 Regional Vegetation and habitats

The proposed prospecting site is within the Grassland Biome, the second largest of the nine biomes in South Africa, occupying an area of approximately 355 000 km^2 or 27.9% of South Africa (Mucina and Rutherford, 2006). Although this biome is found in eight of the nine provinces of South Africa, it occurs mainly on the high central plateau (Highveld and Mpumalanga), the inland areas of the seaboard of KwaZulu Natal, mountainous areas of KwaZulu-Natal and the central parts of the Eastern Cape (Mucina and Rutherford, 2006). Altitude ranges from 300 m above sea level (mamsl) on the coastal plateau to 2 850 mamsl in the Drakensberg (Rutherford and Westfall, 1994). The proposed site is located specifically within the Sub-Escarpment Grassland and Lowveld Bioregions. The vegetation type on site are the N**orthern Zululand Mistbelt Grassland (Gs1), Paulpietersburg Moist Grassland (Gm15)** and **Northern Zululand Sourveld (SVl 22)** as shown (Figure 8-9) below.

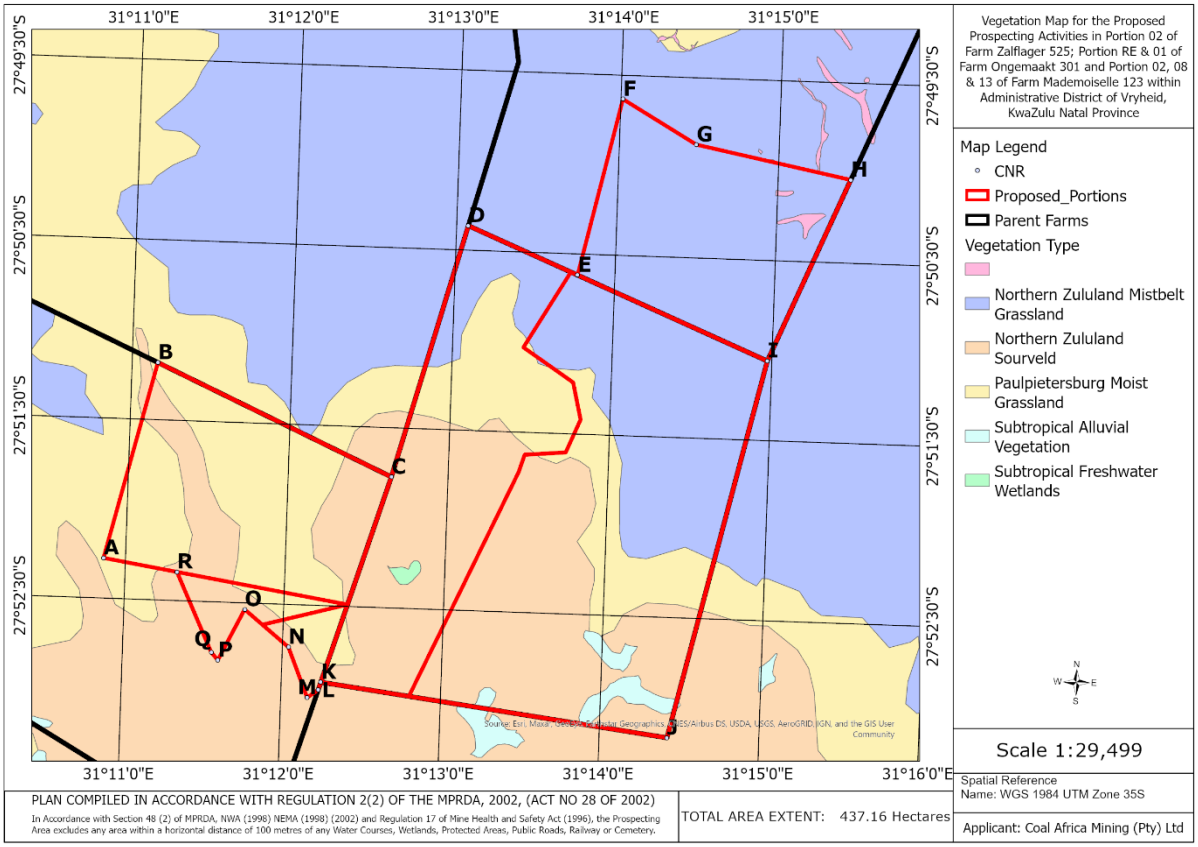


Figure 8-9: Site Vegetation

8.6.1.1 Gs 1 Northern Zululand Mistbelt Grassland

Distribution: KwaZulu-Natal Province: Crests and slopes of the Ngome Mountain range and the Ngoje Mountain surrounding Louwsburg as well as some smaller mountainous areas of Langkrans, KwaCeza, KwaNtimbankulu and Nhlazatshe.Altitude 780–1 540 m.

Vegetation & Landscape Features: Gentle to steep upper slopes of mountains formed by hard dolerite dykes dominated by relatively forb-rich, tall sour Themeda triandra grasslands.

Geology & Soils: Shales and sandstones of the Madzaringwe and Pietermaritzburg Formations (both Karoo Supergroup) as well as intrusive rocks of the Karoo Dolerite Suite. Dominant soil forms are Hutton, Clovelly and Griffin and are well drained, having 15–35% clay in the A-horizon. Dominant land type Ac, followed in importance by Fa and Ab.

Climate: Summer rainfall, with overall MAP around 960 mm, reaching 1 130 mm in places. Moisture-laden air frequently blows in from the southeast and is forced up 400–500 m over the mountains, creating 'mistbelt' conditions (particularly in spring and summer) that contribute to precipitation. MAT is 17.2°C (16–17.4°C) and mean annual range of evaporation is close to 1 790 mm. See also climate diagram for Gs 1 Northern.

The important taxa for the vegetation type was copied from Mucina, Ladislav & Rutherford, M.C. & Powrie, Leslie. (2006). Grassland Biome Vegetation. Some species names might have changed.

Zululand Mistbelt Grassland Important Taxa Graminoids: *Alloteropsis semialata* subsp. *eckloniana* (d), *Aristida congesta* (d), *Cynodon dactylon* (d), *Digitaria tricholaenoides* (d), *Elionurus muticus* (d), *Eragrostis patentissima* (d), *E. racemosa* (d), *Harpochloa falx* (d), *Hyparrhenia hirta* (d), *Themeda triandra* (d), *Tristachya leucothrix* (d), *Abildgaardia ovata*, *Andropogon appendiculatus*, *A. eucomus*, *A. schirensis*, *Aristida junciformis* subsp. *galpinii*, *Brachiaria serrata*, *Cymbopogon caesius*, *C. pospischilii*, *Cynodon incompletus*, *Digitaria monodactyla*, *D. san- guinalis, Diheteropogon amplectens, D. filifolius, Eragrostis chloromelas, E. plana, E. planiculmis, E. sclerantha, Festuca scabra, Heteropogon contortus, Hyparrhenia dregeana, Melinis nerviglumis, Microchloa caffra, Panicum natalense, Paspalum scrobiculatum, Setaria nigrirostris, Sporobolus africanus.* Herbs: *Acanthospermum australe (d), Argyrolobium speciosum (d), Eriosema kraussianum (d), Geranium wakkerstroomianum (d),Pelargonium luridum (d), Acalypha peduncularis, Chamaecrista mimosoides, Dicoma anomala, Euryops transvaalensis subsp. setilobus, Helichrysum caespititium, H. rugulosum, Hermannia depressa, Ipomoea crassipes, Pearsonia grandifolia, Pentanisia prunelloides subsp. latifolia, Sebaea grandis, Senecio inornatus, Thunbergia atriplicifolia, Zaluzianskya microsiphon. Geophytic* Herbs*: Chlorophytum haygarthii (d), Gladiolus aurantiacus (d), Asclepias aurea, Cyrtanthus tuckii var. transvaalensis, Gladiolus crassifolius, Hypoxis*

colchicifolia, H. multiceps, Moraea brevistyla, Zantedeschia rehmannii. Succulent Herbs: Aloe ecklonis, Lopholaena segmentata. Low Shrubs: Anthospermum rigidum subsp. pumilum, Erica oatesii, Hermannia geniculata. Succulent Shrub: Euphorbia pulvinata.

8.6.1.2 Gm 15 Paulpietersburg Moist Grassland

The grassland is distributed in KwaZulu-Natal and Mpumalanga Provinces: Broad surrounds of Piet Retief, Paulpietersburg and Vryheid, extending westwards to east of Wakkerstroom. Occurs in the uppermost catchments of the Phongolo River at an altitude ranging between 920–1 500 m.

Vegetation & Landscape Features: Mainly undulating with moderately steep slopes, but valley basins are wide and flat and mountainous areas occur mostly along the northern and eastern boundary. Tall closed grassland rich in forbs and dominated by *Tristachya leucothrix, Themeda triandra* and *Hyparrhenia hirta.* Evergreen woody vegetation is characteristic on rocky outcrops.

Low Escarpment Moist Grassland: Complex mountain topography. Steep, generally east- and south-facing slopes with a large altitudinal range. Supporting tall, closed grassland with Hyparrhenia hirta and Themeda triandra dominant. Protea caffra communities and patches of Leucosidea scrub feature at higher altitudes.

Geology & Soils: This area is underlain by Archaean granite and gneiss partly covered by Karoo Supergroup sediments (Madzaringwe Formation) and intruded by Karoo Dolerite Suite dykes and sills. Dominant soils on the sedimentary parent material are yellow apedal, well drained, with a depth of >800 mm and a clay content of >35%, representing the soil series: Hutton, Clovelly and Griffin. Shortlands soils are dominant on dolerite. Dominant land type Ac, with Fa and Ba of subordinate importance.

Important Taxa: Graminoids: *Alloteropsis semialata* subsp. *eckloniana* (d), *Andropogon schirensis* (d), *Brachiaria serrata* (d), *Ctenium concinnum* (d), *Cymbopogon caesius* (d), *Digitaria tricholaenoides* (d), *Eragrostis racemosa* (d), *Harpochloa falx* (d), *Heteropogon contortus* (d), *Hyparrhenia hirta* (d), *Loudetia simplex* (d), *Microchloa caffra* (d), *Monocymbium ceresiiforme* (d), *Rendlia altera* (d), *Setaria nigrirostris* (d), *Themeda triandra* (d), *Tristachya leucothrix* (d), *Andropogon appendiculatus*, *Cynodon hirsutus*, *Diheteropogon amplectens*, *D. filifolius*, *Elionurus muticus*, *Eragrostis chloromelas*, *E. curvula*, *E. plana*, *Festuca scabra*, *Melinis nerviglumis*, *Panicum ecklonii*, *P. natalense*, *Trachypogon spicatus*, *Urelytrum agropyroides*. Herbs: *Argyrolobium speciosum* (d), *Cissus diversilobata* (d), *Dicoma zeyheri* (d), *Eriosema kraussianum* (d), *Geranium wakkerstroomianum* (d), *Helichrysum nudifolium* var. *nudifolium* (d), *Ipomoea oblongata* (d), *Pelargonium luridum* (d), *Acalypha glandulifolia*, *A. peduncularis*, *Acanthospermum australe*, *Aster bakerianus*, *Becium filamentosum*,

Berkheya setifera, *Dicoma anomala*, *Euryops laxus, E. transvaalensis* subsp. *setilobus*, *E. transvaalensis* subsp*. transvaalensis, Helichrysum rugulosum*, *H. simillimum*, *Indigofera hilaris* var. *hilaris*, *I. velutina*, *Kohautia amatymbica*, *Pearsonia grandifolia*, *Pentanisia prunelloides* subsp. *latifolia*, *Senecio bupleuroides*, *S. coronatus*, *S. inornatus*, *S. isatideus*, *S. latifolius*, *Sonchus nanus*,

8.6.1.3 SVl 22 Northern Zululand Sourveld

Distribution KwaZulu-Natal Province and Swaziland: From the Lusthof area in Swaziland southwards with scattered patches in northern Zululand in the surrounds of Hlomohlomo, east of Louwsburg, Nongoma and the vicinity of Ulundi including Nkandla. In the Hluhluwe-iMfolozi Park it occurs at highest altitudes in the park. Altitude mainly 450–900 m.

The important taxa for the vegetation type was copied from Mucina, Ladislav & Rutherford, M.C. & Powrie, Leslie. (2006). Savanna Biome. Some species names might have changed.

IMPORTANT TAXA:

Small Trees: *Acacia sieberiana* var. *woodii* (d), *A. natalitia*, *A. nilotica*, *A. tortilis* subsp. *heteracantha*, *Plectroniella armata*.

Tall Shrubs: *Gardenia volkensii*, *Gnidia caffra*, *G. kraussiana.*

Low Shrubs*: Agathisanthemum bojeri, Chaetacanthus burchellii, Crossandra fruticulosa, C. greenstockii, Diospyros galpinii, Phyllanthus glaucophyllus, Ruellia cordata, Syncolostemon argenteus, Tetraselago natalensis.*

Succulent Shrub*: Aloe vanbalenii.*

Woody Climber: *Cryptolepis oblongifolia.*

Herbaceous Climber*: Cyphostemma schlechteri.*

Graminoids*: Eragrostis curvula (d), Hyparrhenia hirta (d), Microchloa caffra (d), Themeda triandra (d), Tristachya leucothrix (d), Alloteropsis semialata subsp. semialata, Digitaria argyrograpta, D. tricholaenoides, Diheteropogon amplectens, Elionurus muticus, Loudetia simplex, Trachypogon spicatus.*

Herbs: *Alepidea longifolia, Argyrolobium adscendens, Aster bakerianus, Berkheya speciosa, Chascanum hederaceum, Crabbea hirsuta, Gazania krebsiana subsp. serrulata, Gerbera ambigua, Helichrysum mixtum, H. nudifolium var. pilosellum, Hemizygia pretoriae subsp. pretoriae, Hermannia kraussigrandistipula, Hypericum aethiopicum, Lichtensteinia interrupta, Pimpinella caffra, Senecio glaberrimus, S. latifolius, Stachys nigricans, Vernonia galpinii, V. oligocephala.*

Geophytic Herbs: *Hypoxis hemerocallidea, Pachycarpus concolor.*

Succulent Herbs*: Aloe minima, A. parvibracteata, Senecio oxyriifolius. Geoxylic Suffrutex: Salacia kraussii.*

8.6.2 The POSA Search

The Plant of South Africa website quarter degree did not return any plant species.

8.6.3 Southern African Bird Atlas Project 2 Southern African Bird Atlas Project 2

The Southern African Bird Atlas Project 2 (SABAP2) is a citizen science project that is driven by the energy of several hundred volunteers who are mapping the distribution of birds across several southern African countries. Since 2007, more than 17 million records have been collected with about 2 million more being added each year (Unknown, n.d.).

The proposed site is within Pentads 3055_1840 and 3055_1835. The data for Pentad 3055_1840 was collected from June 2011 to July 2017. The data for Pentad 3055_1835 was collected from October 2011 to October 2020.

Table 8-3: Pentad 2745_3100 bird species

Common group	Common species	Genus	Species
	Bokmakierie	Telophorus	zeylonus
	Brubru	Nilaus	afer
	Neddicky	Cisticola	fulvicapilla
Apalis	Bar-throated	Apalis	thoracica
Apalis	Yellow-breasted	Apalis	flavida
Barbet	Black-collared	Lybius	torquatus
Barbet	Crested	Trachyphonus	vaillantii
Batis	Cape	Batis	capensis
Batis	Chinspot	Batis	molitor
Bishop	Southern Red	Euplectes	orix
Blackcap	Bush	Sylvia	nigricapillus
Boubou	Southern	Laniarius	ferrugineus
Brownbul	Terrestrial	Phyllastrephus	terrestris
Bulbul	Dark-capped	Pycnonotus	tricolor
Bushshrike	Olive	Chlorophoneus	olivaceus
Buzzard	Common	Buteo	buteo
Buzzard	Jackal	Buteo	rufofuscus
Camaroptera	Green-backed	Camaroptera	brachyura
Canary	Cape	Serinus	canicollis
Canary	Forest	Crithagra	scotops
Canary	Yellow-fronted	Crithagra	mozambica

Common group	Common species	Genus	Species
Chat	Buff-streaked	Campicoloides	bifasciatus
Cisticola	Croaking	Cisticola	natalensis
Cisticola	Lazy	Cisticola	aberrans
Cisticola	Levaillant's	Cisticola	tinniens
Cisticola	Wailing	Cisticola	lais
Cisticola	Wing-snapping	Cisticola	ayresii
Cisticola	Zitting	Cisticola	juncidis
Cormorant	Reed	Microcarbo	africanus
Coucal	Burchell's	Centropus	burchellii
Crombec	Long-billed	Sylvietta	rufescens
Crow	Pied	Corvus	albus
Cuckoo	Diederik	Chrysococcyx	caprius
Cuckoo	Red-chested	Cuculus	solitarius
Dove	Cape Turtle	Streptopelia	capicola
Dove	Emerald-spotted Wood	Turtur	chalcospilos
Dove	Laughing	Spilopelia	senegalensis
Dove	Red-eyed	Streptopelia	semitorquata
Dove	Tambourine	Turtur	tympanistria
Drongo	Fork-tailed	Dicrurus	adsimilis
Eagle	Wahlberg's	Hieraaetus	wahlbergi
Firefinch	African	Lagonosticta	rubricata
Fiscal	Southern	Lanius	collaris
Flufftail	Red-chested	Sarothrura	rufa
Flycatcher	African Paradise	Terpsiphone	viridis
Flycatcher	Southern Black	Melaenornis	pammelaina
Goose	Domestic	Anser	anser
Grassbird	Cape	Sphenoeacus	afer
Greenbul	Sombre	Andropadus	importunus
Guineafowl	Helmeted	Numida	meleagris
Harrier-Hawk	African	Polyboroides	typus
Heron	Black-headed	Ardea	melanocephala
Honeybird	Brown-backed	Prodotiscus	regulus
Ibis	Hadada	Bostrychia	hagedash
Ibis	Southern Bald	Geronticus	calvus
Kestrel	Rock	Falco	rupicolus
Kingfisher	Brown-hooded	Halcyon	albiventris
Kite	Black-winged	Elanus	caeruleus
Kite	Yellow-billed	Milvus	aegyptius

Common group	Common species	Genus	Species
Lapwing	Blacksmith	Vanellus	armatus
Lark	Rufous-naped	Mirafra	africana
Longclaw	Cape	Macronyx	capensis
Mannikin	Bronze	Spermestes	cucullata
Martin	Common House	Delichon	urbicum
Martin	Rock	Ptyonoprogne	fuligula
Mousebird	Speckled	Colius	striatus
Oriole	Black-headed	Oriolus	larvatus
Pigeon	African Olive	Columba	arquatrix
Pigeon	Speckled	Columba	guinea
Pipit	African	Anthus	cinnamomeus
Pipit	Nicholson's	Anthus	nicholsoni
Pipit	Striped	Anthus	lineiventris
Prinia	Drakensberg	Prinia	hypoxantha
Prinia	Tawny-flanked	Prinia	subflava
Puffback	Black-backed	Dryoscopus	cubla
Raven	White-necked	Corvus	albicollis
Robin-Chat	Cape	Cossypha	caffra
Robin-Chat	Chorister Robin-Chat	Cossypha	dichroa
Saw-wing	Black (Southern Africa)	Psalidoprocne	pristoptera holomelas
Scrub Robin	White-browed	Cercotrichas	leucophrys
Seedeater	Streaky-headed	Crithagra	gularis
Sparrow	Cape	Passer	melanurus
Sparrow	House	Passer	domesticus
Sparrow	Southern Grey-headed	Passer	diffusus
Sparrow	Yellow-throated Bush	Gymnoris	superciliaris
Spurfowl	Natal	Pternistis	natalensis
Spurfowl	Swainson's	Pternistis	swainsonii
Starling	Cape	Lamprotornis	nitens
Starling	Red-winged	Onychognathus	morio
Stonechat	African	Saxicola	torquatus
Sunbird	Amethyst	Chalcomitra	amethystina
Sunbird	Greater Double-collared	Cinnyris	afer
Sunbird	Malachite	Nectarinia	famosa
Sunbird	Southern Double-collared	Cinnyris	chalybeus
Sunbird	White-bellied	Cinnyris	talatala
Swallow	Barn	Hirundo	rustica
Swallow	Greater Striped	Cecropis	cucullata

Common group	Common species	Genus	Species
Swallow	Lesser Striped	Cecropis	abyssinica
Swallow	White-throated	Hirundo	albigularis
Swift	Little	Apus	affinis
Swift	White-rumped	Apus	caffer
Tchagra	Black-crowned	Tchagra	senegalus
Thrush	Cape Rock	Monticola	rupestris
Thrush	Olive	Turdus	olivaceus
Tit	Southern Black	Melaniparus	niger
Turaco	Purple-crested	Gallirex	porphyreolophus
Wagtail	Cape	Motacilla	capensis
Warbler	African Yellow	Iduna	natalensis
Warbler	Lesser Swamp	Acrocephalus	gracilirostris
Warbler	Little Rush	Bradypterus	baboecala
Waxbill	Blue	Uraeginthus	angolensis
Waxbill	Common	Estrilda	astrild
Waxbill	Orange-breasted	Amandava	subflava
Waxbill	Swee	Coccopygia	melanotis
Weaver	Cape	Ploceus	capensis
Weaver	Southern Masked	Ploceus	velatus
Weaver	Village	Ploceus	cucullatus
White-eye	Cape	Zosterops	virens
Whydah	Pin-tailed	Vidua	macroura
Widowbird	Fan-tailed	Euplectes	axillaris
Widowbird	Long-tailed	Euplectes	progne
Widowbird	Red-collared	Euplectes	ardens
Woodpecker	Golden-tailed	Campethera	abingoni
Woodpecker	Olive	Dendropicos	griseocephalus

Source: SABAP2

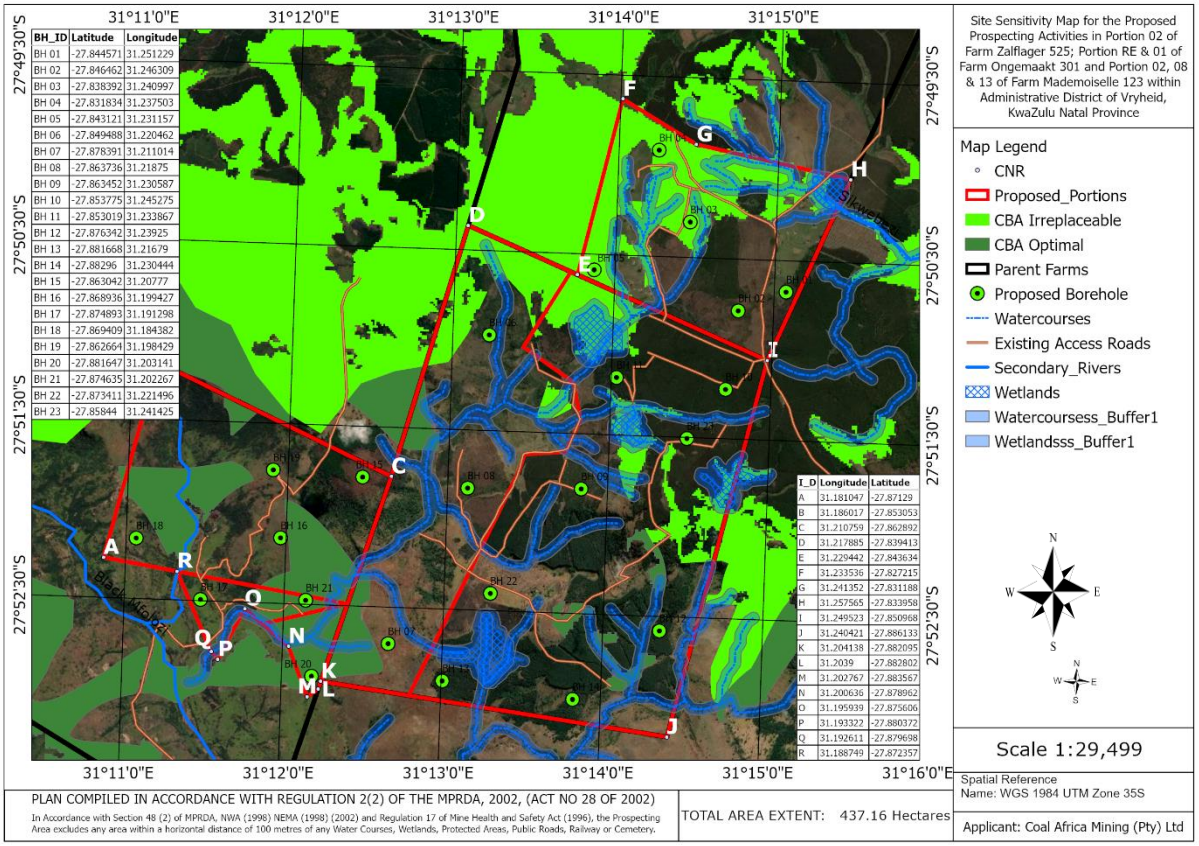
8.6.4 Site Ecological Sensitivity

8.6.4.1 2014 KwaZulu-Natal (KZN) Biodiversity Sector Plans

The site sensitivity was determined from the Ezemvelo KZN wildlife's Terrestrial Critical biodiversity areas in KZN developed 2014 as an update to the 2007 terrestrial C-Plan. According to this conservation plan there are sections of Critical Biodiversity Area (CBA) irreplaceable and Optimal located on the east (***Figure 8-10***).

According to the Ezemvelo KZN Wildlife. Archived KZNSCP: Vegetation Types [vector geospatial dataset] 0. Available from the Biodiversity GIS website, downloaded on 20

December 2021 the proposed site is located within the **vulnerable** Northern Zululand Mistbelt Grassland and Northern KwaZulu-Natal Moist Grassland.



BH_ID	Latitude	Longitude
BH 01	-27.844571	31.251229
BH 02	-27.846462	31.246309
BH 03	-27.838392	31.240997
BH 04	-27.831834	31.237503
BH 05	-27.843121	31.231157
BH 06	-27.849488	31.220462
BH 07	-27.878391	31.211014
BH 08	-27.863736	31.21875
BH 09	-27.863452	31.230587
BH 10	-27.853775	31.245275
BH 11	-27.853019	31.233867
BH 12	-27.876342	31.23925
BH 13	-27.881668	31.21679
BH 14	-27.88296	31.230444
BH 15	-27.863042	31.20777
BH 16	-27.868936	31.199427
BH 17	-27.874893	31.191298
BH 18	-27.869409	31.184382
BH 19	-27.862664	31.198429
BH 20	-27.881647	31.203141
BH 21	-27.874635	31.202267
BH 22	-27.873411	31.221496
BH 23	-27.85844	31.241425

T_ID	Longitude	Latitude
A	31.181047	-27.87129
B	31.186017	-27.853053
C	31.210759	-27.862892
D	31.217885	-27.839413
E	31.229442	-27.843634
F	31.233536	-27.827215
G	31.241352	-27.831188
H	31.257565	-27.833958
I	31.249523	-27.850968
J	31.240421	-27.886133
K	31.204138	-27.882095
L	31.2039	-27.882802
M	31.202767	-27.883567
N	31.200636	-27.878962
O	31.195939	-27.875606
P	31.193322	-27.880372
Q	31.192611	-27.879698
R	31.188749	-27.872357

Figure 8-10: Site ecological sensitivity according to Ezemvelo KZN BSP

(a) Description and management objectives of site BSP Categories

BSP Categories on Site	Management Objectives	Compliance with objectives
Critical Biodiversity Area (CBA) Irreplaceable: Areas considered critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable populations of species and the functionality of ecosystems..	Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated.	The area will be demarcated as no-go zone for the duration of the project. No degradation of the CBA will occur due to the proposed prospecting activities.

8.6.4.2 Mining and Biodiversity Guideline (MBG) 2013

The Purpose of the MBG is to identify and categorize biodiversity priority areas sensitive to the impacts of mining in order to support mainstreaming of biodiversity issues in decision making in the mining

sector. A composite raster layer was developed based on a large number of individual biodiversity spatial datasets held by SANBI.

Table 8-4: Categories of the MBG

Category	Biodiversity priority	Risk for mining	Implications for mining areas
B. Highest biodiversity importance	• Critically endangered and endangered ecosystems • Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans • River and wetland Freshwater • Ecosystem Priority Areas (FEPAs), and a 1km buffer around these FEPAs • Ramsar Sites	Highest risk for mining	• Environmental screening, EIAs and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, and to provide site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision making for mining, water use licenses, and environmental authorizations. • If they are confirmed, the likelihood of a fatal flaw for new mining projects is very high because of the significance of the biodiversity features in these areas and the associated ecosystem services. These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being. • An environmental impact assessment should include the strategic assessment of optimum, sustainable land use for a particular area will determine the significance of the impact on biodiversity. This assessment should fully take into account the environmental sensitivity of the area, the overall environmental and socio-economic costs and benefits of mining, as well as the potential strategic importance of the minerals to the country. • Authorisations may well not be granted. If granted, the authorisation may set limits on allowed activities and impacts, and may specify biodiversity offsets that would be written into licence agreements and/or authorisations.

Source: Mining and Biodiversity Guideline, 2013

According to MBG, there are sections of Highest Biodiversity Importance located on the east, these areas are also considered CBA irreplaceable in terms of the 2014 KwaZulu-Natal (KZN) Biodiversity Sector Plans.

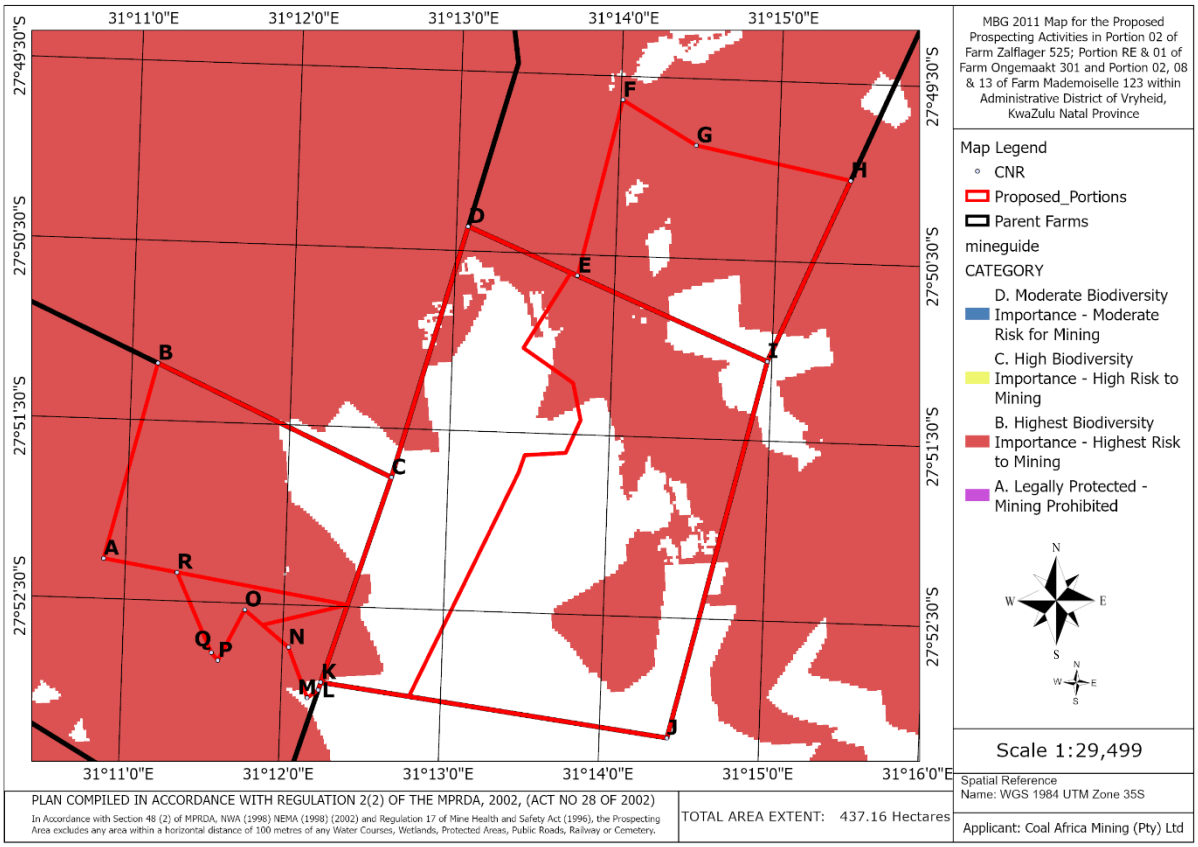


Figure 8-11: Site Mining and Biodiversity Map

8.6.4.3 National Freshwater Ecosystem Priority Areas, 2011

The purpose of the National Freshwater Ecosystem Priority Areas, 2011 is to model river integrity, river types and delineate new sub-quaternary catchments (planning units) and free-flowing rivers. The river types are used by NFEPA to represent river ecosystem types across the country.

8.7 Social Characteristics of the Study Area and Surrounds

The proposed site is within AbaQulusi Local Municipality of the Zululand District Municipality in the Kwa-Zulu Natal Province. The AbaQulusi Local Municipality is the northern part of the Zululand District Municipality.

8.7.1 The AbaQulusi Local Municipality

AbaQulusi Local Municipality is located in the Northern part of KwaZulu-Natal Province and forms part of the Zululand District Municipality. The main towns within the region are Vryheid, Ulundi, Dundee and Paulpietersburg and Pongola. Vryheid is the main commercial, industrial and business centre within the region, and seen as 'The Heart' of the Zululand District. The town itself has a well-developed physical, social and institutional infrastructure and is located at the intersection of the major transportation routes which traverse the region.

The municipality is estimated at 4185 km^2 in extent making it one of the largest in the province with a population of approximately +-243 795 people, according to Community Survey 2016. It at present constitutes approximately 27% of the Zululand District Municipality and is one of the five local municipalities that make up Zululand District Municipality. The 4 other local municipalities that make up the Zululand Family include eDumbe, oPhongolo, Nongoma and Ulundi.

The municipality is also characterised as the main hub for the district and is also very strategically positioned, sharing its border with all of the 4 local municipalities within the district. The AbaQulusi Municipality plays a major role in terms of its geographical location and regional access in Northern KwaZulu Natal, and has developed as a peripheral economy in the Provincial context, due to its distance from the main markets and corridors such as the N2 to Durban and Richards Bay, N3 to Pietermaritzburg and the N11 to Gauteng. However, a secondary corridor, which is a coal line corridor runs from Richards Bay through Ulundi, to Vryheid and Paulpietersburg and into the mining areas of Mpumalanga. This is an important National rail and road network which passes/traverses through the Municipality. The other secondary corridors of National significance is the R 34 and R 69 transportation route. Vryheid is located at the intersection of the secondary corridors. The other major route of significance is the P 700 road that links Richards Bay to Gauteng via Ulundi and Vryheid (Abaqulusi Local Municipality, 2021).

8.7.1.1 Demographics

(a) Total Population

According to the (Abaqulusi Local Municipality, 2021), the total population for AbaQulusi local municipality is estimated at having 243 795 persons as per the Community Survey 2016, a 15.5 percentage change when compared to Census 2011 results. The intercensal growth rate (2011-2016) was found to be 0.03, significantly lower than that of Census 2011 due to the time frame for the two projects (Census 2011 time frame was 10 years while Community Survey 2016 time frame was 5 years).

(b) Spatial Population Distribution and Density

The population is distributed according to three settlement types, i.e. Urban formal, Tradition/Rural and Farms. It can be observed that during the Community Survey 2016, the majority of the population was found to be living in urban formal settlement (38.6%), followed by traditional (35.6%) and lastly farms (25.7%). The same trend in terms of percentage distribution per settlement type was also observed during the Census 2011. The population density over the geographical area has also increased from 2011 which was 50 persons per km2 to 58 persons per km2 in 2016.

(c) Population Composition by Age Category and Dependency Ratio

The results of the Community Survey 2016 shows that more than a third of AbaQulusi population was found to be the young ones (0-14 years) at 37.9%. The majority of the population was amongst those in the working age group (15-64 years) at 57.8%, with the proportion of the elderly people (65+ years) contributing about 4.3% to the AbaQulusi total population. The youth proportion (15-34 years) was found to be almost 40% of the entire population.

The dependency ratio measures the strain deemed to be carried by those within the working age group (15-64 years) “supporting” the dependent age groups, the young (0-14 years) and the elderly (65+ years). For both the Census 2011 and the Community Survey 2016, the dependency ratio was found to be 70.5 and 70.8 respectively.

Table 8-5: Population Composition by Age

Persons proportion	Census 2011	Community Survey 2016
Young (0-14 years)	36.7%	37.9%
Youth (15-34 years)	36.5%	39.8%
Working age (15-64 years)	58.6%	57.8%
Elderly (65 years or older)	4.7%	4.3%

(d) Population Composition by Group

The proportion of Black African comprised the far highest population group within the AbaQulusi local municipality as it was found to be 96.9% during the Community Survey 2016. The combined proportion of the Coloured, White and Indian/Asian population groups makes up just above three percent (3%) of the total population for AbaQulusi local municipality.

Persons proportion	Census 2011	Community Survey 2016
African	95.4%	96.9%
Coloured	0.5%	0.7%
White	3.5%	2.3%
Indian/Asian	0.2%	0.4%

8.7.1.2 Broad Land Uses and Ownership

The Municipality's current land use pattern has evolved in response to the growth of settlement and pattern thereof, the natural environment and regional access routes and reflects the rural nature of the region.

(a) Commercial Agriculture

Agricultural land is the dominant form of land use in the AbaQulusi Municipal area. The major agricultural practices are crop production (occurring mainly in the highveld areas and fertile valleys of the major rivers that runs through the area), cattle farming ranching and game farming. A number of commercial farmlands are subject to land restitution.

(b) Urban Settlements

Urban settlements located within AbaQulusi Municipality include the following:

- ✓ Vryheid Town, which is a regional centre and main economic hub within ZDM and AbaQulusi Municipality.
- ✓ King Bhekuzulu Township, which was developed as an R293 Township and is located to the south-east of Vryheid.
- ✓ Emondlo Township, which was also developed as an R293 Township and located about 30km from Vryheid. It is surrounded to the south and north by expansive and relatively dense rural settlements.
- ✓ Louwsburg, which has declined in significance and degenerated from being a service centre into a simple urban settlement.

Other small urban settlements are located within the areas that were previously dominated by coalmines such as Hlobane, Enyathi and Coronation. Vryheid, in particular is developed with

a range of activities including industrial, commercial, residential and recreational facilities. The level of development in other urban centres also differs with some of the areas characterised by service backlogs and under-development.

The Shoba Settlement is a “densified informal settlement” located approximately 13km from the Vryheid Town Central Business District (CBD). It is situated along R69 linking Vryheid with Hlobane, Coronation and Louwsburg. Shoba falls outside of the Vryheid Town Planning Scheme area but, it represents a logical northwards expansion of the town. It provides an opportunity for the development of middle income residential area close to town and the associated urban opportunities.The settlement developed organically on privately owned land of which the Municipality has acquired and are currently formalising the area to establish a sustainable human settlement neighbourhood. 59

(c) Rural Settlements

There are only two relatively large concentrations of rural settlements within the Abaqulusi Municipal area that is, Hlahlindlela and Khambi. Both settlements are developed on Ingonyama Trust land and land rights in these areas are administered in terms of traditional and customary laws. Hlahlindlela is the larger of the two. A small rural settlement as developed on mission land near Gluckstadt. A number of small isolated rural settlements established in terms of the land reform program are scattered throughout the commercial farmlands, with a large number of them concentrated to the north of the municipal area. This introduces a major challenge, as the expansion of these settlements in areas that are not developed with bulk services (water, sanitation, roads, etc) is neither desirable nor sustainable.

(d) Mining Areas

The Vryheid coalfield stretches from the west of Vryheid in a broad band to the east of Louwsburg and is further divided into the Zuinguin Mountain area, the Hlobane/Matshongololo area, the Thabankulu/Enyathi Mountain area and Ngwini Mountain area.

Coal mining historically provided a major force into the local economy of Northern KwaZulu Natal. However, over the past 15 years a number of mines in the area ceased operation impacting negatively on the regional economy. Abaqulusi Municipality was particularly affected by the closure of the Coronation and Hlobane mines in 1997 and 1998 respectively (Zululand Coordination LED Framework: 2003).

However, recently the Coal Mining sector seems to be gaining momentum and has been identified in the IDP as one of the key economic sectors. This is due to high demand of coal in the country and internationally. The study done by KwaZulu Natal Trade Investments

reflects that there are high volumes of coal available in the coal reserves especially in the former mines of Vryheid. As a result, the applications for coal prospecting have increased in the region. This initiative will boost the Abaqulusi local economic regeneration and strengthen the coal line corridor, which runs from Richards Bay through Ulundi, Vryheid and Paulpietersburg and on to the mining areas of Mpumalanga Province.

8.7.1.3 Land Capability

Agricultural potential for any given land area is generally classified into eight potential ratings as: very high, high, good, moderate, restricted, very restricted, low, and very low potential. Agricultural potential within AbaQulusi Municipality falls into seven of the eight potential ratings namely: High good, relatively good, moderate, restricted, very restricted low, and very low agricultural potential areas. The majority of the municipality has good to moderate agricultural potential. High agricultural land occupies 13% of the total land area of approximately 41 8461 ha. About 30% of the land has minimal agricultural value. The Map below indicates the Land Capability within the AbaQulusi Municipality.

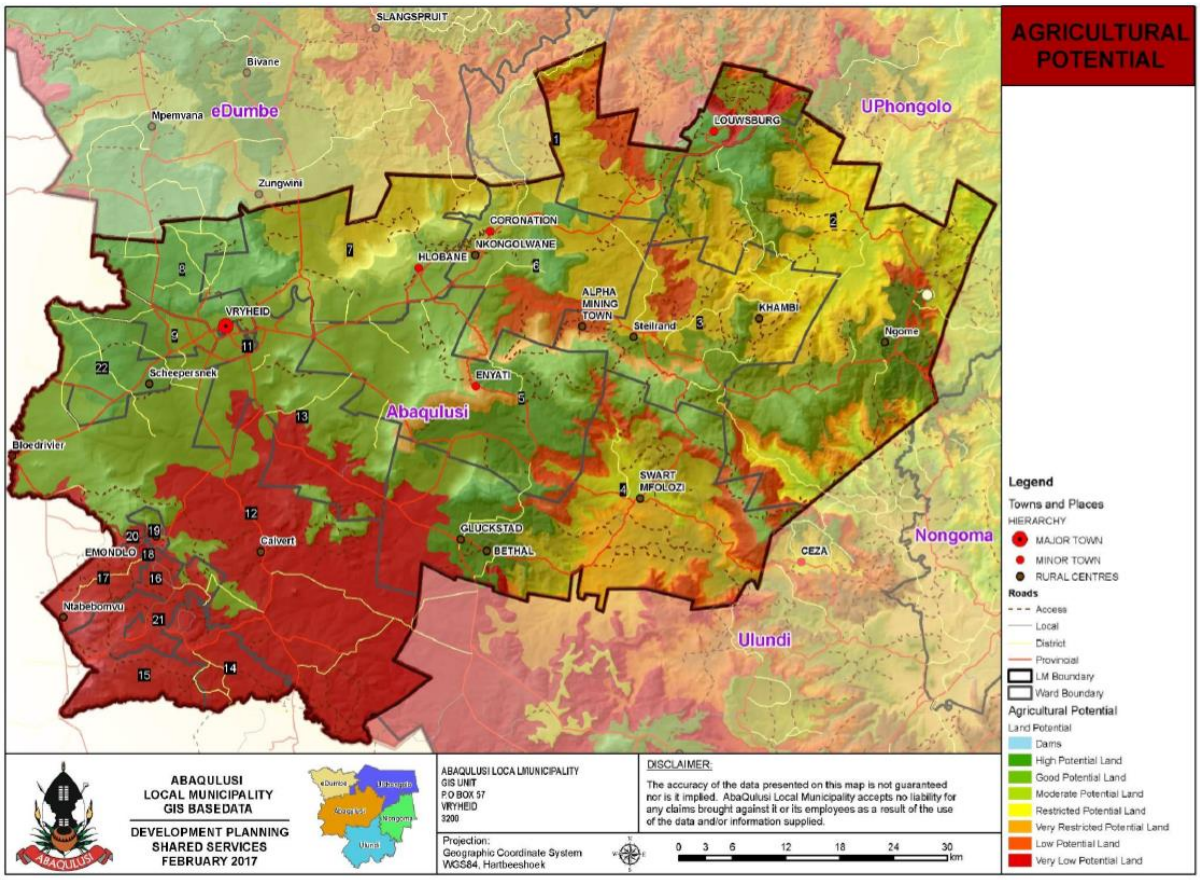


Figure 8-12: Land Use Capability Map AbaQulusi Municipality adopted from the IDP

8.7.1.4 Local Economic and Social Development

(a) 5.1.2 Main Economic Contributors (GVA Sector Share)

Gross value added (GVA) is the measure of the value of goods and services produced in an area, industry or sector of an economy, in economics. There are three main economic drivers in the AbaQulusi include that of Community Services, Mining and Finance Services. Community services contributes just 20% to the economy and is regarded as primary contributor to the economy. The potential to further increase the Mining, Agriculture, Trade and Transport sector of the economy is an opportunity that presents itself to AbaQulusi due to its rich history in Mining activities, large agricultural land and diverse productivity and its favourable location to promote trade and transport.

Table 8-6: Main Economic Activities

Economic Driver	2013	2014	2015
Agriculture	10.3%	10.6%	10.1%
Mining	14.4%	15.4%	15.6%
Manufacturing	7.4%	7.2%	7.1%
Electricity	2.3%	2.2%	2.2%
Construction	3.1%	3.1%	3.1%
Trade	10.8%	10.7%	10.7%
Transport	10.8%	10.8%	10.9%
Finance	11.4%	11.3%	11.4%
Community services	22.8%	22.4%	22.4%

(b) Employment and Income Levels

According to the table below, Youth unemployment was high at about 45% during Census 2011 above the average official unemployment rate for the municipality which was found to be 35.4%. The unemployment rate for females at 38.8% was found to be higher than those of males 32.0% during the Census 2011. Even though the employment figures are still higher than average, overall there was noted improvement in the employment figures when comparing the two censuses, i.e Census 2001 and Census 2011 data sets.

No recent dataset on Employment and Income Levels were available from STATS SA.

8.8 Heritage Resources

A Heritage Impact Assessment was not undertaken for the project, based on desktop review, consultation and available Geographic Information System data, there were no identifiable heritage and cultural sites and features within the prospecting area. However, this does not absolve the contractor from excursing due diligence before undertaking any of the site invasive activities.

8.9 Description of the current land uses.

8.9.1 Human Settlement

There are sparse families residing on the north within the proposed site. The houses within the prospecting area are formal with defined perimeters.

8.9.2 Agriculture

There is small scale agricultural practice within and adjacent to the proposed prospecting site. The local communities are directly involved in the farming practice.

The locals are also involved in livestock farming which mainly involves cattle.

8.9.3 Plantation

Plantations is the major land use on site covering over 40% of the site

8.10 Description of specific environmental features and infrastructure on the site

- ✓ Houses for the local community

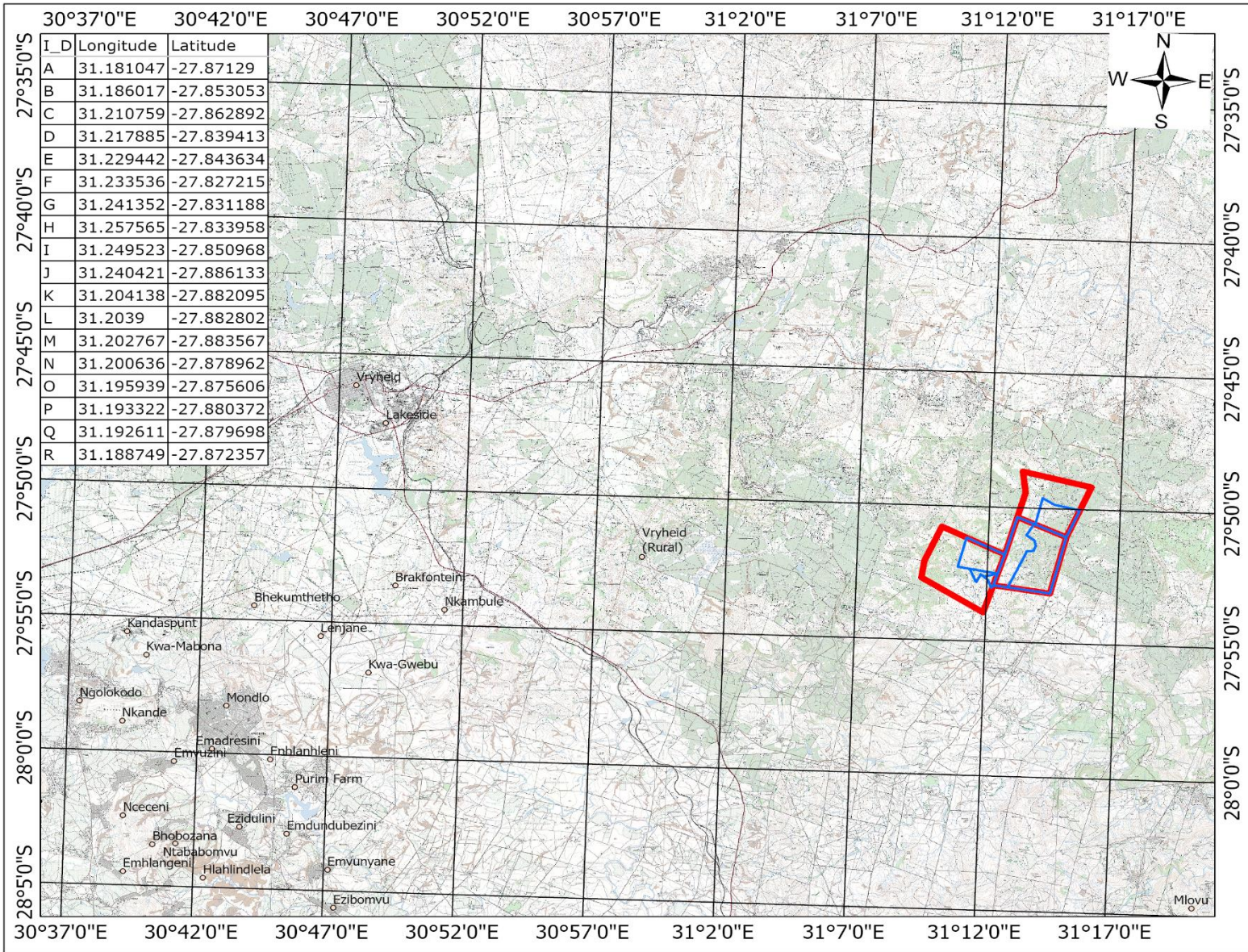
There are few sparsely distributed housing in the proposed site inhibited by members of the local community.

Figure 8-13: Family housing within the proposed properties

Figure 8-14: Distribution of the local community within the proposed site (on the north boundary)

8.11 Environmental and current land use map

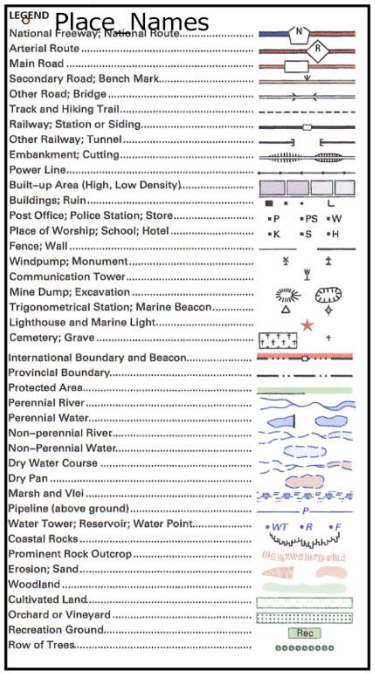
I_D	Longitude	Latitude
A	31.181047	-27.87129
B	31.186017	-27.853053
C	31.210759	-27.862892
D	31.217885	-27.839413
E	31.229442	-27.843634
F	31.233536	-27.827215
G	31.241352	-27.831188
H	31.257565	-27.833958
I	31.249523	-27.850968
J	31.240421	-27.886133
K	31.204138	-27.882095
L	31.2039	-27.882802
M	31.202767	-27.883567
N	31.200636	-27.878962
O	31.195939	-27.875606
P	31.193322	-27.880372
Q	31.192611	-27.879698
R	31.188749	-27.872357



Locality Map for the Proposed Prospecting Activities in Portion 02 of Farm Zalflager 525; Portion RE & 01 of Farm Ongemaakt 301 and Portion 02, 08 & 13 of Farm Mademoiselle 123 within Administrative District of Vryheid, KwaZulu Natal Province

Map Legend

- Parent Farms
- Proposed Portions
- Place_Names



Scale 1:238,419

Spatial Reference
Name: WGS 1984 UTM Zone 35S

Applicant: Coal Africa Mining (Pty) Ltd

In Accordance with Section 48 (2) of MPRDA, NWA (1998) NEMA (1998) (2002) and Regulation 17 of Mine Health and Safety Act (1996), the Prospecting Area excludes any area within a horizontal distance of 100 metres of any Water Courses, Wetlands, Protected Areas, Public Roads, Railway or Cemetery.

TOTAL AREA EXTENT: 3204 Hectares

9 Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed.

Here a list of possible impacts will be provided, a full impact analysis which includes the significance of the impacts, their nature, extent, duration and probability of the impacts, the degree impacts reversibility and irreplaceable loss of resources has been provided in section 11 of Part A on page 92 as per the assessment criteria provided in section 9.1 of Part A on page 80.

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence										
Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**
			E	**D**	**I**	**R**	**L**	**P**	
Legal requirements										
Delayed and/or disrupted prospecting operations	Site Establishment & Operational, & Rehabilitation	✓ Disregarding Environmental Authorisation conditions; ✓ Disregarding access agreement conditions; ✓ Disregarding mining & prospecting legislative requirements; ✓ Partial compliance to EMPr.	2	3	4	4	4	4	**-68 Catastrophic**
Legal liabilities	Site Establishment & Operational, & Rehabilitation	✓ Property owners suing for damages and /or unapproved access into their properties; ✓ Legal penalties for failing to comply with site operational licenses/ authorisations/ permit.	1	3	2	3	3	3	**-36 Critical**
Loss of Private Properties										
Loss of privately owned properties	Site Establishment & Operational, & Rehabilitation	✓ There are livestock within the proposed prospecting area and well built houses.	2	3	3	3	4	3	**-45 Critical**
Impact on local infrastructure										
Degradation of local roads	Site Establishment & Operational	✓ The local roads are gravel and regular driving will degrade the roads	2	3	3	1	1	3	**-30 Moderate**

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence										
Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**
			E	**D**	**I**	**R**	**L**	**P**	
Soil										
Soil Contaminations.	Site Establishment & construction	✓ Leakages of hydrocarbons from site vehicles and operating equipment; ✓ Leakages of diesel during refuelling of the rig truck; ✓ Spillages and leakages of hydraulic lubricants for the drill rig and trucks.	1	3	2	1	1	3	**-24 Moderate**
Soil Compaction & Loss of fertility	Site Establishment & Construction	✓ Compaction of soil by site moving vehicles & trucks reducing soil fertility;	1	2	1	1	1	4	**-24 Moderate**
		✓ Loss pf soil fertility due to contaminations by chemicals and hydrocarbons	2	2	2	1	1	3	**-24 Moderate**
Loss of topsoil	Site Establishment & Construction	✓ Loss of topsoil through erosion and contamination resulting in reduced vegetation rehabilitation potential;	1	3	2	2	2	4	**-40 Critical**
Soil Erosion	Site Establishment, Construction and Post Closure	The disturbed areas will be prone to erosion as vegetation cover is lost as well as soil stability.	1	4	1	1	1	3	**-24 Moderate**
Biodiversity										
Loss of indigenous vegetation	Site Establishment & construction	✓ Clearing of vegetation for establishment of drill area;	1	3	1	2	2	4	**-36 Critical**
		✓ Clearing of vegetation to create access roads where it will not be driveable without clearing;	1	3	1	2	2	4	**-36 Critical**
		✓ Clearing of Vegetation to establish stockpiling area;	1	3	1	2	2	4	**-36 Critical**
		✓ Invasion by alien invasive plants	2	4	2	1	2	2	**-22 Moderate**
		✓ Possible fire breaks from operations and from cigarette smoking.	1	3	1	3	3	2	**-22 Moderate**

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence										
Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**
			E	**D**	**I**	**R**	**L**	**P**	
Loss of fauna	Site Establishment, Construction and Rehabilitation	✓ Loss of habitat when vegetation is cleared and wild environment invaded by prospecting activities;	2	2	2	2	2	4	**-40 Critical**
		✓ Restricted fauna movement and increased health and safety risks to wildlife due to deep excavations and barricades;	2	3	1	1	1	2	**-16 Minor**
		✓ Noise nuisance affecting the wild life;	2	3	2	2	2	3	**-33 Critical**
		✓ Driving over micro and small wild animals;	2	3	2	3	3	3	**-39 Critical**
		✓ Accidents/ collision with wild animals	2	3	1	3	3	2	**-24 Moderate**
		✓ Wild life hunting by the prospecting crews which may include Species of Conservation Concern	3	3	2	3	3	3	**-42 Critical**
		✓ Killing of dangerous wild animals such as snakes and spiders which may even include species of conservation concern	2	3	2	3	3	3	**-36 Critical**
Invasion by invasive alien plants	Site Establishment, Operational & Post Closure	✓ Introduction of invasive alien plants	2	3	2	2	2	4	**-44 Critical**
Surface and Ground water										
High usage of water	Construction	Water demand for machinery and dust suppression during prospecting activities	1	3	2	1	1	3	**-24 Moderate**
Destruction of site watercourses	Site Establishment, Construction & Post-prospecting	✓ There are Non FEPA watercourses (Wetlands and Streams) identified on site, these can be impacted by establishing drill station too close to them and by creation of access roads within the watercourses.	3	3	2	3	3	3	**-42 Critical**
Loss of watercourses ecological integrity and wetland function	Site Establishment, Construction & Rehabilitation	✓ Encroaching into wetlands and their immediate surrounding affecting their functionality which includes loss of aquatic species, wetlands services and functionality.	2	4	2	3	3	3	**-42 Critical**
Surface and ground water contamination	Site Establishment, Construction & Post-prospecting	✓ surface water getting into contact with contaminated soils;	1	3	2	2	2	3	**-30 Moderate**
		✓ Contaminated materials going down drill holes into subsurface water;	2	3	1	2	2	2	**-20 Low**

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence										
Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**
			E	**D**	**I**	**R**	**L**	**P**	
		✓ Flow of storm water from contaminated areas into surface water drainages	2	3	2	2	2	2	**-22 Moderate**
		✓ Dumping of waste material into the watercourses	2	3	2	2	2	3	**-33 Critical**
Enviro-Socioeconomic										
Job creation	Site Establishment & construction	✓ The technical prospecting team will require support services and few workers will be hired for the duration of the site prospecting activities.	2	3	1	0	0	4	**+24 Moderate**
Land owner conflicts	Site Establishment, Construction & Post-prospecting	✓ The proposed site is not idle, it is therefore likely that property owner may be reluctant to grant access into their properties;	1	4	2	2	3	3	**-36 Critical**
		✓ There are livestock, crops and farming infrastructures on site, a property theft potential exists; ✓ There are also well developed family homes on site, criminals may seize the opportunity to access site	2	3	1	2	4	3	**-36 Critical**
		✓ Degraded properties after prospecting activities cease due to off road driving and drill station establishment	1	4	2	2	2	3	**-33 Critical**
Noise Pollution	Site Establishment & construction	✓ Introduction of noisy heavy machinery and vehicles on site to a relatively quiet neighbourhood.	1	3	3	1	1	4	**-36 Critical**
Land Pollution	Site Establishment & Construction	✓ Littering by site team	1	3	2	1	1	3	**-24 Moderate**
Compromised safety and security	Site Establishment & Construction	✓ The site activities will result in influx of people to site creating security risks for workers and property owners'.	1	3	2	3	3	4	**-48 Critical**
Heritage Resources										
Destruction of Heritage, Cultural and paleontology Resources	Site Establishment & Construction	✓ Unearthing of heritage and cultural significance artefacts during drilling activities;	1	3	1	3	3	2	**-22 Moderate**
		✓ Unearthing of fossils deposits	1	3	1	3	3	2	**-22 Moderate**

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence										
Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**
			E	**D**	**I**	**R**	**L**	**P**	
Health and Safety										
Bodily injuries	Site Establishment & Operational	✓ Injuries arising from erratic operations or mechanical failures of site machinery and vehicles;	1	3	1	2	2	3	**-27 Moderate**
		✓ Fall into excavations either by personnel or general public;	1	3	1	2	2	1	**-9 Negligible**
		✓ Chipping of outcrops to obtain outcrop samples;	1	3	2	2	2	2	**-20 Minor**
		✓ Encounter with dangerous wild animals during site survey;	1	3	1	2	2	2	**-18 Minor**

9.1 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;

Duration (D): Indicates what the lifetime of the impact will be;

Intensity (I): Describes whether an impact is destructive or benign;

Impact Reversal (R): The probability and the degree of reversing the activity impact**;**

Irreplaceable Loss (L): Loss of resources that cannot be replaced; and

Probability (P): Describes the likelihood of an impact actually occurring;

Cumulative: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

The significance of each risk/impact will be identified as follows:

Impact Significance = Probability (P) X Consequence (C), where

$$C = E + I + D + R + L$$

Table 9-1: Criteria Used for Rating of Impacts

CRITERIA	DESCRIPTION			
Extent	National (4) The whole of South Africa	Regional (3) Provincial and parts of neighbouring provinces	Local (2) Within a radius of 2 km of the construction site	Site (1) Within the construction site
Duration	**Permanent (4)** Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	**Long-term (3)** The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	**Medium-term (2)** The impact will last for the period of the construction phase, where after it will be entirely negated	**Short-term (1)** The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
Intensity	**Very High (4)** Natural, cultural and social functions and processes are altered to extent that they permanently cease	**High (3)** Natural, cultural and social functions and processes are altered to extent that they temporarily cease	**Moderate (2)** Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	**Low (1)** Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected
Impact Reversal	**Highly Impossible (4)**	**Moderate (3)** Impact can be reversed to some	**Possible (2)** High possibility of impact reversal	**Definite (1)** Impact can be totally reversed

CRITERIA	DESCRIPTION			
	Impact reversal will certainly be impossible	extent with loss of natural resources		
Loss of irreplaceable resources	**Definite (4)** Resources definitely be lost	**Highly Probable (3)** Most likely that resources will be lost	**Possible (2)** Resources may be lost	**Improbable (1)** Loss of resources is highly unlikely
Probability Of Occurrence	**Definite (4)** Impact will certainly occur	**Highly Probable (3)** Most likely that the impact will occur	**Possible (2)** The impact may occur	**Improbable (1)** Likelihood of the impact materialising is very low

Significance is determined through a synthesis of impact characteristics. Significance is also an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Table 9-2: Criteria for Rating of Classified Impacts

		Impact Significance (Consequence * Probability)															
Probability ↑	4	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
	3	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
	2	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
	1	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		Consequence (Extent + Intensity + Duration + Reversibility +Irreplaceable Loss) →															

Table 9-3: Impact consequence class description

Score	Description	Colour Code
Negligible (0 -10 points)	A negligible impact that can be easily managed and avoided.	
Low impact/ Minor (11 -20 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.	
Medium impact/ Moderate (21 - 30 points)	Mitigation is possible with additional design and construction inputs.	
Critical (31 – 50 Points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.	
Catastrophic (51 - 80 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a “very high impact” is likely to be a fatal flaw.	
Status	Denotes the perceived effect of the impact on the affected area.	
Positive (+)	Beneficial impact.	
Negative (-)	Deleterious or adverse impact.	

The suitability and feasibility of all proposed mitigation measures is included in the assessment of significant impacts. This was achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

9.2 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

9.2.1 Positive Impacts

Prospecting activities are precursor activities to mining, they evaluate the possibilities of mine establishment. There are very limited returns from prospecting activities. The returns from prospecting activities can only be realised after a successful prospecting project. It has not been proven that mineral bearing coal deposits are presence on site and if presence whether they can be sustainable be mined. The very limited benefits from the proposed activities are:

Coal reserve quantification: The presence of coal deposits on site will be verified and thereafter the economic value of the ore will be determined which could ultimately lead to the establishment of a mine. The mine itself have significant socioeconomic value. In the event that a viable reserve is confirmed, there would be high degree of positive impacts such as employment of large number of local residents, socio-economic balance of the local community and on the National and Provincial scale mining contribute highly to the Gross Domestic Product (GDP).

Contribution to South African geological data: The practical geological results obtained through this prospecting will be submitted to the South African Council of Geoscience for comprehensive mapping of South Africa based on proven data.

SMME and Street Vendor Support: The prospecting team will require basic services from the local community which would mainly be provided by the small businesses and street vendors.

9.2.2 Negative Impacts

Commencement of listed activities in terms of NEMA, NWA and other Legislations without authorisation: A potential always exist that unauthorised undertaking of listed activities may take place on site in the form of project scope expansion and disregard of Authorisations' conditions. This could for example be increasing the number of authorised boreholes and impacting watercourses without water use license;

Alternative land use conflicts: The proposed site is used as residential and farming area. This will create a parallel demand for land as successful prospecting activities will results in the establishment of a mine;

Degradation of local roads: Driving continuously on the local gravel roads will degrade the roads. Drill rigs and heavy vehicles will impact the road quality.

Loss, contamination and compaction of fertile soil: Access roads and drill station establishment will result in removal/compaction of topsoil resulting in reduced fertility. The driving and parking of vehicles also create potential for hydrocarbon contaminations;

Soil erosion: Establishment of access roads and drill station disturbs soil cohesion increasing the potential for soil erosion, the site is already severely impacted by erosion;

Loss of biodiversity, natural corridors and habitats: There are areas with medium to high sensitivities to mining in terms of the Mining and Biodiversity Guideline of 2013 within the proposed site and a potential exists for disturbances of this areas, with the loss of vegetation, habitats are also lost;

Loss of species of concern: The EIA process did not identify any red listed species within the proposed site. It should be noted that the proposed site is within the areas with high sensitivity to mining in terms of the Mining and Biodiversity Guidelines of 2013. The presence of species of concern cannot be ruled out;

Introduction of alien invasive plants: Invasive plants flourish where there is disturbances and ecological imbalances. The clearing of vegetation to establish drill stations and access roads has the potential to introduce and facilitate spread of invasive alien plants;

Degradation of Wetlands, streams and other water sources: There are numerous intermittent watercourses within the proposed site, there is high potential for impacting the watercourses when crossing to access drilling points, should management measures be ignored;

Contamination of underground water resource: The drill activity has the potential to contaminate the underground water resource, introducing contaminates through the drill hole;

Contamination of surface water: Flow of stormwater from contaminated areas into the local watercourses;

Generation of waste: The prospecting activities will generate both the general and hazardous wastes. The waste will be managed using the “triple R” principle, Reduce, Reuse and Recycle;

Dust Generation: The vehicles and machinery movement on gravel roads will generate dust. The dust generation potential is considered high since the site is located on loose sandy soils;

Fire breakout: There are potentials for fire breakout from the activities sites, smoking is a significant contributor to fire breakouts. A fire breakout will have huge implications in the area burning the CBAs and crops;

Health and safety risks: The operating machinery, equipment and vehicles, and excavations and undertaking activities in the wild create health and safety risks to the prospecting crew and the local community;

Criminal activities: Crime in South Africa is a social challenge faced by almost everyone, the presence of prospecting machinery and equipment on site will attract criminals who would seek to steal and sell such equipment;

Poor housekeeping: The site activities will generate wastes and proper waste management and site cleaning will be required to prevent the “dirty” site visuals;

Disturbance and/or destruction of cultural and heritage resources: The EIA Process did not identify any cultural and heritage significance sites and resources, however the possibility of unearthing heritage and cultural resources is not ruled out;

Noise Generation: The proposed activities will generate noise that will disturb the local environments, mostly the wild life.

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

The mitigation measures have been thoroughly discussed in Part A section 11 and Part B section 4. Below a summative impact/risk management is provided.

Commencement of listed activities in terms of NEMA, NWA and other Legislations without authorisation: It must be ensured that all activities undertaken are authorised in terms of the relevant legislations and the conditions of the authorisations must be upheld at all times;

Alternative land use conflicts: The land owners must be fully engaged including outside the EIA process to outline the land access agreements;

Loss of private property: The applicant must ensure no unauthorised personnel gains access into privately owned property. A designated access control person must be designated for the duration of the prospecting activities. Access control method statement must be developed and communicated with affected land owners before access is granted. Access gates must remain locked at all times or as per the access agreement contract.

Loss, contamination and compaction of fertile soil: The topsoil must be preserved, and no multiple roads must be created to access the same station. The access roads must be ripped to loosen the soil;

Soil erosion: Prospecting activities must be scheduled during the dry season, and storm water must be controlled;

Loss of biodiversity, natural corridors and habitats: The disturbance must be limited to active areas and the site be rehabilitated as soon as the prospecting activities are completed at each station. An access plan must be drawn with input of recommendations by Ecology specialist.

Loss of species of concern: The specialist will identify site species and their conservancy status. The appointed ECO and EO must record all cleared/removed species and indigenous species must be reintroduced to the disturbed sites;

Introduction of alien invasive plants: An alien invasive plants control and management programme must be developed and adhered to;

Degradation of watercourses: All surface water areas are no-go areas and no activity must take place within these areas and their buffers;

Contamination of underground water resource: Drill holes must be rehabilitated and plugged as soon as they are out of use, and a record of ground water monitoring before, during

and after prospecting activities must be kept and any deviation from the pre-activities water condition must be attended to;

Contamination of surface water: Any flow from contaminated areas must be controlled and contained. The wet areas (wetlands and watercourses) are no-go areas;

Generation of waste: The waste will be managed using the "triple R" principle, Reduce, Reuse and Recycle. Waste bins must be provided for storage of wastes separately.

Dust Generation: A minimum speed limit of 40 km/h must be maintained on all internal gravel roads, dust generation must be monitored and controlled;

Fire breakout: Designated smoking areas must be provided, and firefighting equipment must be provided at all drill stations;

Health and safety risks: All operators must have operating competence certificates, handling of wild life must be done by trained personnel, and all openings must be barricaded;

Criminal activities: Access into the properties must be controlled, no hiring must be done on site and the land owners must be informed of the prospecting schedule and the crew;

Poor housekeeping: The site must be kept clean at all times, waste bins must be provided and marked for waste separation;

Disturbance and/or destruction of cultural and heritage resources: Pre-activity construction must be carried out to rule out presence of any heritage resources at the invasive prospecting site. Should any cultural and heritage resources be discovered, the work must be stopped, the SAPS and the Heritage Agency be notified; and

Noise Generation: The operating machinery and vehicles must be kept in good working conditions and the affected communities must be kept abreast of any activity with high noise generation potential.

9.4 Motivation where no alternative sites were considered

The EIA process was dictated to by the acceptance letter. Areas not falling within the accepted properties were not considered. The DMRE considers all applications located outside the proclaimed protected areas. Other motivations for the proposed site are as follows:

- ✓ The proposed prospecting area is targeted as the desktop studies as conducted by Coal Africa Mining (Pty) Ltd, suggest that there is high potential for ore deposits.
- ✓ There is sufficient open area where invasive prospecting activities can be undertaken without encroaching into human settlements that could possibly create conflicts with the land owners and users;

- ✓ Although there are watercourses identified, these can be avoided and prospecting be undertaken on dry areas with 50 metres buffer zones to all surface water areas applied; and
- ✓ There were no historical sites identified within the proposed site.

9.5 Statement motivating the alternative development location within the overall site

The site layout is mainly influenced by the distribution of the targeted coal seams, however the drilling site is also influenced by the accessibility and environmental sensitivity. Thus, the drilling sites are located away from all watercourses area.

The drill pads layout out will largely be dependent on the outcome of the on-site surveys which will determine the possible locations of the ore deposits.

10 Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site

In order to identify the potential impacts associated with the proposed prospecting activities the following steps were undertaken:

10.1 Stakeholder consultation

The stakeholder consultation process will be undertaken in a manner to be interactive, providing landowners and identified stakeholders with the opportunity to provide input into the project. This was a key focus, as the locals are aware of their environment and can provide site specific information, which may not be available in desktop research material. Stakeholders were requested to provide their views on the project and any potential concerns which they had. All comments and concerns were captured and formulated into the impact assessment.

10.2 Desktop study

A detailed desktop investigation was undertaken to determine the environmental setting in which the project is located. Based on the desktop investigations various resources were used to determine the significance and sensitivity of the various environmental considerations. The desktop investigation involved the use of:

- South African National Biodiversity Institute (SANBI) Biodiversity Geographic Database LUDS system; SANBI Plants of South Africa; and SANBI Important Birds Area;
- Ezemvelo KZN Wildlife's various data;
- Geographic Information System base maps and Google Earth;
- Department of Water Affairs and Sanitation's information documents such as the ground water vulnerability report;
- Department of Forestry, Fisheries and Environment (DFFE) land use map;
- Mining and Biodiversity Guidelines, 2013;
- Review of Journals, Books and unpublished papers;
- 2014 KZN Biodiversity Sector Plans;
- Local and District Municipality Integrated Development Plan;
- Local and District Municipality Strategic Development Framework;
- Relevant Provincial, National and International Policies, Regulations & Acts.

10.3 Site Visit

A site visit was conducted to ensure that the information gathered as part of the Desktop investigation reflects the current status of the land. The site visit was conducted on 26 – 28 January 2022.

10.4 Impacts assessment, rating and management

The ratings of the identified impacts were undertaken in a quantitative manner as provided in Impact Assessment Section. The ratings were undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses and rate the outcomes of the calculation to determine whether the outcome reflects the perceived and the actual views; The identification of management measures is done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options.

11 Assessment of each identified potentially significant impact and risk

11.1 Assessment of all identified impacts and risks

Table 11-1: Impact Assessment

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence										Where (E + D + I + R + L) X P = Significance	
Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
Legal requirements											
Delayed and/or disrupted prospecting operations	Site Establishment & Operational, & Rehabilitation	✓ Disregarding Environmental Authorisation conditions; ✓ Disregarding access agreement conditions; ✓ Disregarding mining & prospecting legislative requirements; ✓ Partial compliance to EMPr.	2	3	4	4	4	4	**-68 Catastrophic**	✓ A copy of each operational license/permit must be kept on site; ✓ All site personnel must be inducted on all legislative requirements pertaining to site activities; ✓ The site personnel must be informed and provided with copies of access agreements between Yugaset and land owners; and ✓ In cases where amendments are required the existing conditions are binding until legally amended.	**0 Negligible**
Legal liabilities	Site Establishment & Operational, & Rehabilitation	✓ Property owners suing for damages and /or unapproved access into their properties; ✓ Legal penalties for failing to comply with site operational licenses/ authorisations/ permit.	1	3	2	3	3	3	**-36 Critical**	✓ All permits/ authorisations /licenses must be fully reviewed before work can be undertaken to ensure that required resources are made available; ✓ The site personnel must be informed and provided with copies of access agreements between Yugaset and land owners; ✓ A complaint register must be established to record all complaints from land owners and other affected parties also reflected measures taken to address the complaints and dates.	**-6 Negligible**

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence										Where (E + D + I + R + L) X P = Significance	
Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
Loss of Private Properties											
Loss of privately owned properties	Site Establishment & Operational, & Rehabilitation	✓ There are livestock within the proposed prospecting area and well built houses.	2	3	3	3	4	3	**-45 Critical**	✓ A site access agreement contract must be established and signed by the affected parties and the applicant; ✓ The prospecting activities must be restricted to approved areas; ✓ Prospecting team must be inducted and made fully aware of the site access conditions; ✓ No animal can be captured on site; ✓ Losses incurred due to prospecting activities must be compensated; ✓ An open register must be maintained to register complains from the farmers.	**-6 Negligible**
Impact on local infrastructure											
Degradation of local roads	Site Establishment & Operational	✓ The local roads are gravel and regular driving will degrade the roads	2	3	3	1	1	3	**-30 Moderate**	✓ A site access agreement contract must be established and signed by the affected parties and the applicant; ✓ The prospecting activities must be restricted to approved roads; ✓ Prospecting team must be inducted and made fully aware of the site access conditions; ✓ Prospecting activities must preferably be undertaken during the dry period; ✓ Damaged roads must be maintained by the applicant;; ✓ An open register must be maintained to register complains from the farmers.	**-20 Minor**

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
Soil											
Soil Contaminations.	Site Establishment & construction	✓ Leakages of hydrocarbons from site vehicles and operating equipment; ✓ Leakages of diesel during refuelling of the rig truck; ✓ Spillages and leakages of hydraulic lubricants for the drill rig and trucks.	1	3	2	1	1	3	**-24 Moderate**	✓ All site vehicles and equipment must be properly maintained regularly and daily inspection sheet be kept with each truck; ✓ There must be no storage of fuel on site, ✓ A drip tray must be placed under stationery machineries; ✓ Servicing of vehicles and machinery must be done off site; ✓ Leakages and Spillages must be attended to as soon as they are noticed and the contaminated soil must be placed in designated plastic bags/bins to be cleaned or disposed of at registered appropriate waste site.	**-6 Negligible**
Soil Compaction & Loss of fertility	Site Establishment & Construction	✓ Compaction of soil by site moving vehicles & trucks reducing soil fertility;	1	2	1	1	1	4	**-24 Moderate**	✓ Vehicle and machinery movements must be restricted to approved corridors; ✓ No new access roads must be developed without the approval of site ECO and the consent of land owners; ✓ Access plan must be provided to all affected land owners; ✓ Created access roads no longer in use must be ripped for vegetation regrowth.	-16 Minor
		✓ Loss pf soil fertility due to contaminations by chemicals and hydrocarbons	2	2	2	1	1	3	**-24 Moderate**	✓ All site vehicles and equipment must be properly maintained regularly and daily inspection sheet be kept with each truck; ✓ There must be no storage of fuel on site,	**-10 Negligible**

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
										✓ A drip tray must be placed under stationery machineries; ✓ Servicing of vehicles and machinery must be done off site; ✓ Leakages and Spillages must be attended to as soon as they are noticed and the contaminated soil must be placed in designated plastic bags/bins to be cleaned or disposed of at registered appropriate waste site.	
Loss of topsoil	Site Establishment & Construction	✓ Loss of topsoil through erosion and contamination resulting in reduced vegetation rehabilitation potential;	1	3	2	2	2	4	**-40 Critical**	✓ Topsoil must be stockpiled separately from any other site materials; ✓ The topsoil must be stockpiled away from the drainage lines and outside the 1:100 year floodline but within the approved prospecting area; ✓ Contaminated topsoil must be treated as soon as possible and where treatment is not possible, the soil must be separated and stored in contaminated materials bin; ✓ Storm water diversion channels must be developed around topsoil stockpiles; ✓ Topsoil must not be used for any other activity besides rehabilitation unless there is justifiable excess.	**-22 Moderate**
Soil Erosion	Site Establishment, Construction and Post Closure	The disturbed areas will be prone to erosion as vegetation cover is lost as well as soil stability.	1	4	1	1	1	3	**-24 Moderate**	✓ Storm water diversion channels must be developed around stockpiling area; & ✓ Soil disturbance must be limited to working area.	-12 Minor

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
Biodiversity											
Loss of indigenous vegetation	Site Establishment & construction	✓ Clearing of vegetation for establishment of drill area;	1	3	1	2	2	4	**-36 Critical**	✓ Although no protected or endangered plant species were identified during the EIA Site Assessment process, the absence of such must be confirmed before clearing takes place; ✓ Vegetation clearing must be limited to working area and only in cases were driving and drilling is not possible without clearing; ✓ Vegetation clearance must be done in active areas only and rehabilitated before progressing to the next drill station; ✓ The spread of alien invasive plant species must be controlled and monitored; ✓ Common invaders must be communicated with the site team; ✓ An invaders eradication programme must be developed and implemented; ✓ Plant harvesting for any other purpose is prohibited; ✓ Seedbank for indigenous vegetation may be established to aid during site rehabilitation; ✓ No fires must be allowed on site; ✓ Firefighting equipment must be provided on site and a designated fire fighter designated; and ✓ Activity based risk assessment must be undertaken prior commencing with activities and this must include fire risk.	**-22 Moderate**
		✓ Clearing of vegetation to create access roads where it will not be driveable without clearing;	1	3	1	2	2	4	**-36 Critical**		**-22 Moderate**
		✓ Clearing of Vegetation to establish stockpiling area;	1	3	1	2	2	4	**-36 Critical**		**-18 Minor**
		✓ Invasion by alien invasive plants	2	4	2	1	2	2	**-22 Moderate**		**-10 Negligible**
		✓ Possible fire breaks from operations and from cigarette smoking.	1	3	1	3	3	2	**-22 Moderate**		**-22 Moderate**

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
Loss of fauna	Site Establishment, Construction and Rehabilitation	✓ Loss of habitat when vegetation is cleared and wild environment invaded by prospecting activities;	2	2	2	2	2	4	**-40 Critical**	✓ Disturbance must be limited to approved areas; ✓ No hunting must be allowed on site; ✓ The site must be kept neat at all times to avoid attraction of scavengers; ✓ Where animals are spotted within working areas they must be rescued and moved to adjacent undisturbed areas; ✓ Excavations must be barricaded to prevent animal fall-in; ✓ All excavations must be re-filled once the prospecting at that specific area ceases; ✓ No pets must be brought to site; ✓ Handling of dangerous animals must be done by trained personnel; ✓ A criminal case must be opened against offenders i.e. site team members who engage in hunting activities; ✓ All drivers and operators must be cautious of the site fauna at all times; ✓ A driving speed limit of 20 km/h must be adhered to when driving on the internal roads; ✓ Site activities must be restricted to day time.	**-26 Moderate**
		✓ Restricted fauna movement and increased health and safety risks to wildlife due to deep excavations and barricades;	2	3	1	1	1	2	**-16 Minor**		**-10 Negligible**
		✓ Noise nuisance affecting the wild life;	2	3	2	2	2	3	**-33 Critical**		**-28 Moderate**
		✓ Driving over micro and small wild animals;	2	3	2	3	3	3	**-39 Critical**		**-22 Moderate**
		✓ Accidents/ collision with wild animals	2	3	1	3	3	2	**-24 Moderate**		**-12 Minor**
		✓ Wild life hunting by the prospecting crews which may include Species of Conservation Concern	3	3	2	3	3	3	**-42 Critical**		**-10 Negligible**
		✓ Killing of dangerous wild animals such as snakes and spiders which may even include species of conservation concern	2	3	2	3	3	3	**-36 Critical**		**-18 Minor**
Invasion by invasive alien plants	Site Establishment, Operational & Post Closure	✓ Introduction of invasive alien plants	2	3	2	2	2	4	**-44 Critical**	✓ A poster of all common invasive plants for the area must be developed and employees be inducted on the subject; ✓ All invasive plants must be removed as soon as they are spotted; ✓ An invasive plants monitoring programme must be developed for both operational and post operational phases.	-16 Minor

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
Surface and Ground water											
High usage of water	Construction	Water demand for machinery and dust suppression during prospecting activities	1	3	2	1	1	3	**-24 Moderate**	✓ A poster of all common invasive plants for the area must be developed and employees be inducted on the subject; ✓ All invasive plants must be removed as soon as they are spotted; ✓ An invasive plants monitoring programme must be developed for both operational and post operational phases.	**-16 Minor**
Destruction of site watercourses	Site Establishment, Construction & Post-prospecting	✓ There are Non FEPA watercourses (Wetlands and Streams) identified on site, these can be impacted by establishing drill station too close to them and by creation of access roads within the watercourses.	3	3	2	3	3	3	**-42 Critical**	✓ All wetlands must be demarcated in site plans and marked as a No-go areas; ✓ All watercourses must have a 100 metres buffer applied wherein no invasive activities can be undertaken; ✓ Driving through watercourses is prohibited; ✓ All watercourses crossings must be through existing crossings; ✓ No swimming is allowed on site; ✓ Alien invasive plants control programme must include monitoring of site watercourses close to the prospecting activities invaded areas; ✓ Rehabilitation of disturbed areas must improve ecological integrity and only indigenous plants can be used for rehabilitation.	**-24 Moderate**
Loss of watercourses ecological integrity and wetland function	Site Establishment, Construction & Rehabilitation	✓ Encroaching into wetlands and their immediate surrounding affecting their functionality which includes loss of aquatic species, wetlands services and functionality.	2	4	2	3	3	3	**-42 Critical**		**-18 Minor**
Surface and ground water contamination	Site Establishment, Construction & Post-prospecting	✓ Surface water getting into contact with contaminated soils;	1	3	2	2	2	3	**-30 Moderate**	✓ Storm water must be diverted away from the drill areas; ✓ Contaminated water must be contained, treated and/or disposed of appropriately;	**-20 Minor**

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
		✓ Contaminated materials going down drill holes into subsurface water;	2	3	1	2	2	2	**-20 Low**	✓ All contaminated surfaces must be cleaned as soon as they are noticed; ✓ Temporary storage of contaminants and contaminated materials must be outside drainage lines and watercourses 100 m buffer zones; ✓ Chemical toilets must be provided, these toilets must be made available for all site staff. The construction of "long drop toilets is forbidden; ✓ The watercourses must be buffered as per this report and marked as a no-go area; ✓ Under no circumstances may open areas or the surrounding bush be used as a toilet facility; ✓ Aquifer detection methods should be applied before drilling can be undertaken; ✓ All drill holes must be capped once the prospecting is done at such drill area;	**-18 Minor**
		✓ Flow of storm water from contaminated areas into surface water drainages	2	3	2	2	2	2	**-22 Moderate**		
		✓ Dumping of waste material into the watercourses	2	3	2	2	2	3	**-33 Critical**		
Enviro-Socioeconomic											
Job creation	Site Establishment & construction	✓ The technical prospecting team will require support services and few workers will be hired for the duration of the site prospecting activities.	2	3	1	0	0	4	**+24 Moderate**	✓ The employees should be sourced from the local human resource pool; ✓ No hiring must be done at the proposed site to avoid influx of jobseekers into private properties; ✓ The number of employees required and the employment methods should be communicated.	**+24 Moderate**
Land owner conflicts	Site Establishment, Construction & Post-prospecting	✓ The proposed site is not idle, it is therefore likely that property owner may be reluctant to grant access into their properties;	1	4	2	2	3	3	**-36 Critical**	✓ The land owners must be able to claim for compensation against loss of crops and other private properties;	**-22 Moderate**

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
		✓ There are livestock, crops and farming infrastructures on site, a property theft potential exists; ✓ There are also well developed family homes on site, criminals may seize the opportunity to access site	2	3	1	2	4	3	**-36 Critical**	✓ Access into the site must be controlled as agreed with the land owners; ✓ Land access agreement must be reached between the applicant and the property owners; ✓ Operational times must be communicated with the property owners; ✓ All prospecting activities must be limited to approved areas; ✓ No hunting must be allowed on site; ✓ No camping areas must be established on site; ✓ Access roads establishment must be done in consultation with property owners. ✓ All criminal activities must be reported to SAPS.	**-26 Moderate**
		✓ Degraded properties after prospecting activities cease due to off road driving and drill station establishment	1	4	2	2	2	3	**-33 Critical**	✓ The site must be fully restored on completion of invasive at each drill station; ✓ The ECO must monitor and audit the rehabilitation programme; ✓ Approval of the final site plan must be sought from land users ; ✓ The financial provision as required by the NEMA must be paid in advance; ✓ A closure certificate must be applied for on completion of the prospecting programme including the rehabilitation programme.	**-20 Minor**
Noise Pollution	Site Establishment & construction	✓ Introduction of noisy heavy machinery and vehicles on site to a relatively quiet neighbourhood.	1	3	3	1	1	4	**-36 Critical**	✓ The property owners and other affected parties must be made aware of activity scheduling; ✓ Drilling stations must be established at least 100 metres away from site houses; ✓ The activities must be conducted during the day i.e. from 07:00 to 18:00.	**-30 Moderate**

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
Land Pollution	Site Establishment & Construction	✓ Littering by site team	1	3	2	1	1	4	**-32 Critical**	✓ All site personnel will be inducted on reduce, reuse and recycle concept; ✓ Temporary chemical toilets must be provided. These toilets must be made available for all site staff. The construction of “long drop” toilets is forbidden; ✓ Under no circumstances may open areas or the surrounding bush be used as a toilet facility. ✓ Waste must be separated and stored in marked bins; ✓ Waste disposal certificates must be kept on-site; ✓ A clean-up campaign must be undertaken every Friday;	**-12 Minor**
Loss of livestock	Site Establishment & construction	✓ Loss of livestock due to theft and noise disturbances creating panic of wildlife and livestock;	1	2	2	3	1	4	**-36 Critical**	✓ Drilling activities can only be undertaken during the day; ✓ The affected land owner must be informed of prospecting schedule; ✓ The prospecting crew must have largely visible identification to prevent criminal opportunists; ✓ Hunting is prohibited;	**-28 Moderate**
Compromised safety and security	Site Establishment & Construction	✓ The site activities will result in influx of people to site creating security risks for workers and property owners'.	1	3	2	3	3	4	**-48 Critical**	✓ Land owners must be provided with prospecting schedule; ✓ No hiring must be done on site; ✓ All site personnel must have identification card; ✓ Criminal activities must be reported to SAPS immediately; ✓ Access gates must remain locked and access be authorised; and ✓ All activities must remain within the approved site.	**-26 Moderate**

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
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Heritage Resources											
Destruction of Heritage, Cultural and paleontology Resources	Site Establishment & Construction	✓ Unearthing of heritage and cultural significance artefacts during drilling activities;	1	3	1	3	3	2	**-22 Moderate**	✓ There are no historically or heritage resources known to be on site; ✓ Any grave on site must be buffered with at least 50 metres buffer in which no activity can be undertaken; ✓ Should any paleontological or cultural artefacts be discovered work at the point of discovery must stop, the location be clearly demarcated and SAHRA contacted immediately. Work at the discovery site may only be recommenced on instruction from SAHRA.	**-20 Minor**
		✓ Unearthing of fossils deposits	1	3	1	3	3	2	**-22 Moderate**		**-20 Minor**
Health and Safety											
Bodily injuries	Site Establishment & Operational	✓ Injuries arising from erratic operations or mechanical failures of site machinery and vehicles;	1	3	1	2	2	3	**-27 Moderate**	✓ The site machinery must be kept in good working conditions; ✓ All machinery operators must have permit/license to operate; ✓ Excavations must be demarcated and marked with visible tape; ✓ First aid kits must be made available on site and a trained Safety, Health and Environment Representatives be assigned for each team; ✓ Each chemical on site must have material storage and handling sheet (MSDS); ✓ During prospecting activities all employees must be provided with Protective clothing; ✓ Handling of dangerous animals must only be done by trained personnel; and	**-22 Moderate**
		✓ Fall into excavations either by personnel or general public;	1	3	1	2	2	1	**-9 Negligible**		**-5 Negligible**
		✓ Chipping of outcrops to obtain outcrop samples;	1	3	2	2	2	2	**-20 Minor**		**-18 Minor**

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Potential Impact	**Phase**	**Impact Description**	**Rating Before Mitigation**						**Significance Before Mitigation**	Mitigation Measures	**Significance After Mitigation**
			E	**D**	**I**	**R**	**L**	**P**			
		✓ Encounter with dangerous wild animals during site survey;	1	3	1	2	2	2	**-18 Minor**	✓ All site personnel must have a working cell phone to communicate in case of emergency during survey phase.	**-10 Minor**
Cumulative Impacts											
Loss of habitats	✓ Habitats have been lost to cultivation and settlement areas, more would be lo clearance of vegetation										
Increased water demand	✓ The agricultural activities require input of large volumes of water, prospecting will require water for cooling the drill bit										

11.2 Summary of specialist reports

List of Studies Undertaken	Recommendations of Specialist Reports	Specialist Recommendations that have been included in the EIA Report	Reference to Applicable Section of Report where Specialist Recommendations have been Included.
No specialist studies was undertaken.			

11.2.1 Studies identified by the Screening Tool

Specialist Study	Theme Sensitivity	Comments
No intersection with any sensitive areas found by the Screening Tool. The screening report is appended to this report.		

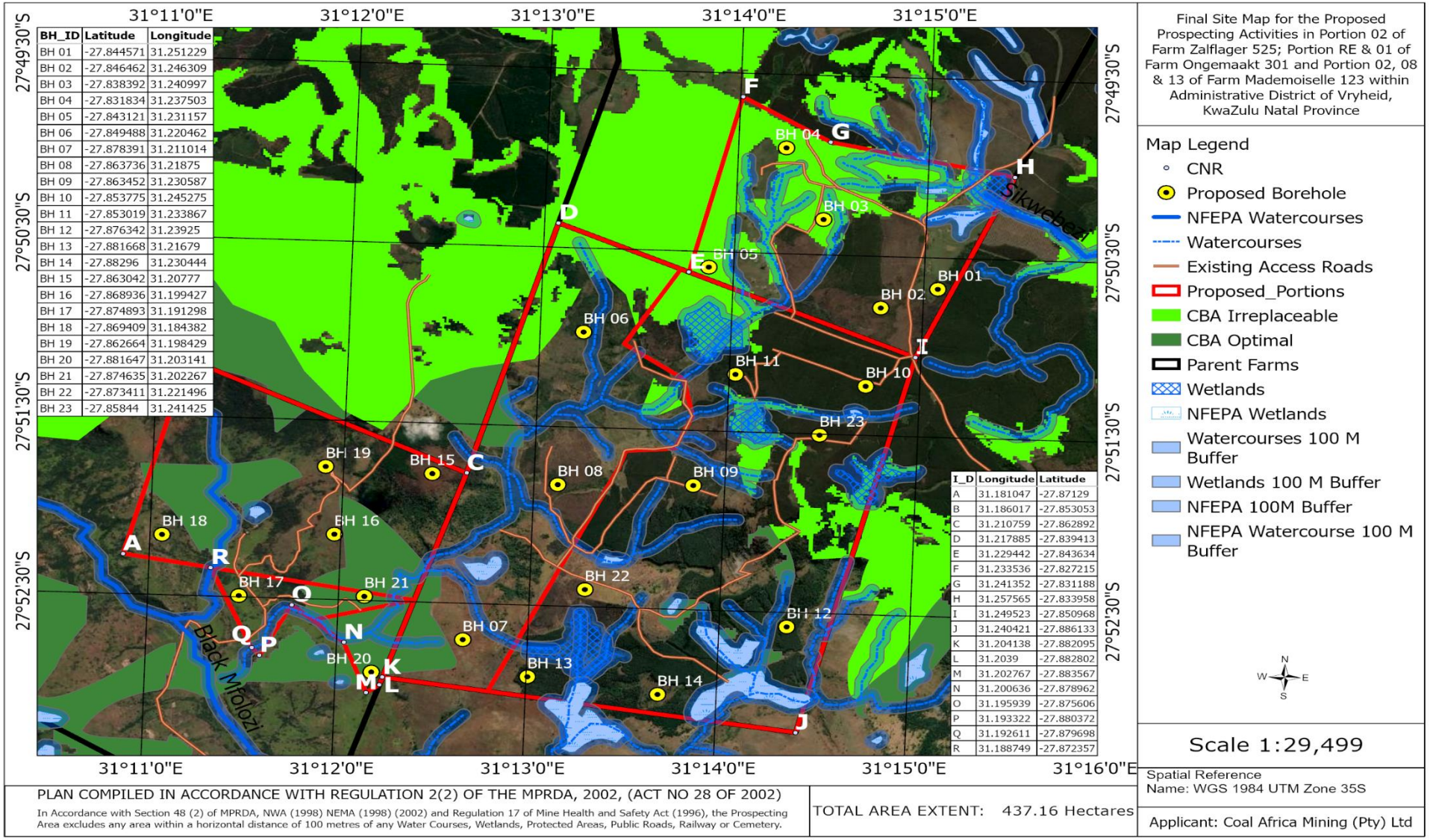
11.3 Environmental impact statement

- ✓ The site lies within the Grassland Biome, and more specifically, Northern Zululand Sourveld, Paulpietersburg Moist Grassland and Northern Zululand Mistbelt Grassland of the Sub-Escarpment Grassland Bioregion which are all considered **vulnerable**;
- ✓ The 2014 KwaZulu-Natal (KZN) Biodiversity Sector Plans locates the proposed properties on **CBA Irreplaceable** and **CBA Optimal**, the CBAs will be directly impacted and rehabilitation must be undertaken immediately on cessation of the prospecting activities;
- ✓ There are sections of areas with **high sensitivities** to mining in terms of the Mining and Biodiversity Guideline of 2013, the guideline since updated in 2013 is slowly becoming less relevant as other invasive activities including forestation has been undertaken within this area marked to have highest sensitivity due to their ecological integrity and sensitivity.
- ✓ There are no protected areas within the proposed site and no species of conservation concern were identified;
- ✓ There are unnamed watercourses within the site which are all non-FEPA in terms of the National Freshwater Priority Areas of 2011. There are FEPA wetlands present on site. The watercourses can be avoided for invasive activities;
- ✓ The main land use on site is agriculture both livestock and crop farming with few houses within the proposed site mainly located on the north, the houses can be avoided and 100 metres buffer applied;
- ✓ The proposed prospecting activities are of short duration and can be completed in a period of a year to a maximum of 5 years;
- ✓ The prospecting activities are non-complex and mostly mechanised requiring skilled professionals, as such less than four people will be hired to provide support to the project team, the proposed project will not have significant impact on the local socioeconomic conditions;
- ✓ The driving and drilling activities are expected to generate noise nuisance affecting the wild life. The Noise nuisance cannot be prevented and will only be managed through limiting the activities to day time;
- ✓ Driving gravel roads and drilling activities will generate dust pollution which can be managed by controlling limiting vehicle speed on gravel road;
- ✓ Accidents may happen between site vehicles and wild life resulting in loss of life and/or mobility of the fauna, the noise generated will also create stress for the local fauna;

- ✓ The proposed activities will have minimal impact on water resource as they will be located on dry lands and water usage is expected to be low at a rate of 6 litres per 40 m drill hole;
- ✓ Prospecting activities are not labour intensive and will therefore not have any significant impact on the socioeconomic status of the local community.

Prospecting activities will affect relatively small area in relation to the application area, approximately less than 5 ha of the application area will be disturbed. The disturbances will be of short duration as the project will not exceed 5 years. The sensitive ecological areas will be avoided and drill stations and access roads will be located on less sensitive areas. The wet areas (Wetlands and streams) are considered a no-go area and no activity will take place within their 100 metres buffer. Overall the proposed project will not have major significant impacts should the EMPr be implemented.

11.4 Final Site Map



BH_ID	Latitude	Longitude
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BH 03	-27.838392	31.240997
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O	31.195939	-27.875606
P	31.193322	-27.880372
Q	31.192611	-27.879698
R	31.188749	-27.872357

Figure 11-1: Final Site Map

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

11.5.1 Positive Impacts

Prospecting activities are precursor activities to mining, they evaluate the possibilities of mine establishment. There are very limited returns from prospecting activities. The returns from prospecting activities can only be realised after a successful prospecting project. It has not been proven that coal deposit are presence on site and if presence whether they can be sustainable be mined. The very limited benefits from the proposed activities are:

Coal reserve quantification: The presence of the ore deposits on site will be verified and thereafter the economic value of the coal seam will be determined which could ultimately lead to the establishment of a mine. The mine itself have significant socioeconomic value. In the event that a viable reserve is confirmed, there would be high degree of positive impacts such as employment of large number of local residents, socio-economic balance of the local community and on the National and Provincial scale mining contribute highly to the Gross Domestic Product (GDP).

Contribution to South African geological data: The practical geological results obtained through this prospecting will be submitted to the South African Council of Geoscience for comprehensive mapping of South Africa based on proven data.

SMME and Street Vendor Support: The prospecting team will require basic services from the local community which would mainly be provided by the small businesses and street vendors.

11.5.2 Negative Impacts

Commencement of listed activities in terms of NEMA, NWA and other Legislations without authorisation: A potential always exist that unauthorised undertaking of listed activities may take place on site in the form of project scope expansion and disregard of Authorisations' conditions. This could for example be increasing the number of authorised boreholes and impacting watercourses without water use license;

Alternative land use conflicts: The proposed site is used as residential and farming area. This will create a parallel demand for land as successful prospecting activities will results in the establishment of a mine;

Degradation of local roads: Driving continuously on the local gravel roads will degrade the roads. Drill rigs and heavy vehicles will impact the road quality.

Loss, contamination and compaction of fertile soil: Access roads and drill station establishment will result in removal/compaction of topsoil resulting in reduced fertility. The driving and parking of vehicles also create potential for hydrocarbon contaminations;

Soil erosion: Establishment of access roads and drill station disturbs soil cohesion increasing the potential for soil erosion, the site located on sandy soil is already impacted by erosion;

Loss of biodiversity, natural corridors and habitats: There are areas with medium to high sensitivities to mining in terms of the Mining and Biodiversity Guideline of 2013 and CBA irreplaceable and Optimal according to the KZN BSP 2014, within the proposed site and a potential exists for disturbances of these areas, with the loss of vegetation, habitats are also lost;

Loss of species of concern: The EIA process did not identify any red listed species within the proposed site. It should be noted that the proposed site is within the areas with high sensitivity to mining in terms of the Mining and Biodiversity Guidelines of 2013 and CBAs in terms of 2014 KZN BSP. The presence of species of concern cannot be ruled out;

Introduction of alien invasive plants: Invasive plants flourish where there is disturbances and ecological imbalances. The clearing of vegetation to establish drill stations and access roads has the potential to introduce and facilitate spread of invasive alien plants;

Degradation of Wetlands, streams and other water sources: There is a network of seasonal streams within the proposed site. There is high potential for impacting the watercourses when crossing to access drilling points, should management measures be ignored;

Contamination of underground water resource: The drill activity has the potential to contaminate the underground water resource, introducing contaminates through the drill hole;

Contamination of surface water: Flow of stormwater from contaminated areas into the local watercourses;

Generation of waste: The prospecting activities will generate both the general and hazardous wastes. The waste will be managed using the “triple R” principle, Reduce, Reuse and Recycle;

Dust Generation: The vehicles and machinery movement on gravel roads will generate dust. The dust generation potential is considered high since the site is located on loose sandy soils;

Fire breakout: There are potentials for fire breakout from the activities sites, smoking is a significant contributor to fire breakouts. A fire breakout will have huge implications in the area burning the CBAs and crops;

Health and safety risks: The operating machinery, equipment and vehicles, and excavations and undertaking activities in the wild create health and safety risks to the prospecting crew and the local community;

Criminal activities: Crime in South Africa is a social challenge faced by almost everyone, the presence of prospecting machinery and equipment on site will attract criminals who would seek to steal and sell such equipment;

Poor housekeeping: The site activities will generate wastes and proper waste management and site cleaning will be required to prevent the “dirty” site visuals;

Disturbance and/or destruction of cultural and heritage resources: The EIA Process did not identify any cultural and heritage significance sites and resources, however the possibility of unearthing heritage and cultural resources is not ruled out;

Noise Generation: The proposed activities will generate noise that will disturb the local environments, mostly the wild life.

11.6 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Impact management objectives are described in terms of the Mitigation Hierarchy of the ERM Impact Assessment Standard. The mitigation hierarchy is as follows:

Avoid at Source: Reduce at Source: avoiding or reducing at source through the design of the Project (e.g., avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).

Abate on Site: add something to the design to abate the impact (e.g., pollution control equipment, traffic controls, perimeter screening and landscaping).

Abate at Receptor: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site).

Repair or Remedy: some impacts involve unavoidable damage to a resource (e.g. agricultural land and forestry due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures.

Compensate in Kind; Compensate Through Other Means: where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of fisheries access, recreation and amenity space).

11.6.1 Impact management objectives:

- ✓ Provide sufficient information to strategically plan the prospecting activities as to avoid unnecessary social and environmental impacts
- ✓ Provide sufficient information and guidance to plan the prospecting activities in a manner that would reduce impacts (both social and Environmental) as far as practicable.
- ✓ Ensure an approach that will provide the necessary confidence in terms of environmental compliance.
- ✓ Provide a management plan that is effective and practical for implementation.
- ✓ Ensure that all disturbed areas are fully rehabilitated;
- ✓ Ensure that all foreign materials are removed from site;
- ✓ Annual performance audits are conducted;

- ✓ Closure certificates applied for.

11.6.2 Impact management Outcome

- ✓ Risk assessment must be conducted before any site activity is undertaken and management measures are available and understood by everyone involved;
- ✓ Site access agreements between the affected parties and Coal Africa Mining (Pty) Ltd must be signed before any work is conducted;
- ✓ No invasive activity must be undertaken within 100 metres buffer of surface water (Streams and water bodies);
- ✓ The activities are restricted to approved area;
- ✓ Soil erosion must be prevented and monitored;
- ✓ Vegetation clearance must be restricted to active areas;
- ✓ Invasion by alien invasive plants must controlled and monitored;
- ✓ Wastes must be disposed at registered facilities and disposal certificates be kept on site;
- ✓ The site activities must be restricted to day time;
- ✓ No new stream crossing must be created and water contamination must be prevented

11.7 Aspects for inclusion as conditions of Authorisation

- ✓ EA final site layout map detailing the drilling locations should be submitted to the relevant landowners to prior to the commencement of these activities;
- ✓ The land owners must be notified about the project scheduling;
- ✓ Environmental Control Officer appointment,
- ✓ Storm water management;
- ✓ Provision of PPE;
- ✓ Total number of boreholes to be drilled;
- ✓ Opening and maintenance of complaints register;
- ✓ Access control into the prospecting property;
- ✓ Activity based environmental risk assessment;
- ✓ Daily toolbox talks;
- ✓ Emergency preparedness plan
- ✓ Impact monitoring programme;

- ✓ Project environmental auditing;
- ✓ Annual review of financial provision; and
- ✓ Closure certificate.

11.8 Description of any assumptions, uncertainties and gaps in knowledge

- ✓ The confidence for presence of coal deposits is based on desktop studies;
- ✓ The entire site was not traversed for protected species identification, the identification was aided by desktop studies and as such care should be exercised when removing vegetation; and
- ✓ The absence of Heritage significance areas and artefacts was based on desktop studies using pre-existing literature and GIS Software Programs;

11.9 Reasoned opinion as to whether the proposed activity should or should not be authorised

It is the opinion of the EAP that the activity be authorised.

- ✓ Based on the desktop studies the site lies within the coalfield of Vryheid with high potential for coal deposits; prospecting activities must be undertaken to confirm the coal deposits;
- ✓ The disturbance on water resources will be very minimal as prospecting activities will be undertaken on dry lands;
- ✓ The disturbance on biodiversity can be full reversed once the prospecting activities ceases;
- ✓ There are no protected ecosystems within the proposed site;
- ✓ The available literature in the absence of proven data (through prospecting) will always attract mining interest companies, should this prospecting be approved, the evidence based geological data will become available in support or against mining establishment in the area; and
- ✓ The acquired geological knowledge will contribute significantly to the academic world towards mapping of South African geology based on drilling results.

11.10 Conditions that must be included in the authorisation

- ✓ The applicant (Coal Africa Mining) must engage with the affected parties upon issuing of the Prospecting Right, the two parties must develop a legally binding resolute and exhaustive access agreement contracts which will detail the following (inter alia):
  - The duration of the prospecting crew on site and operation times;
  - The number of personnel to access the site at any given time;
  - Compensation for losses resulting from prospecting;
  - Activity scheduling in respect to site activities such as game hunting; and
  - Any matter deemed necessary during the access consultation process.
- ✓ No activities can take place within the 100 metre buffers of any water source;
- ✓ All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be kept on site; the site temporary storage skips and beans must be closed at all times to prevent scavenging and smell nuisance;
- ✓ An annual performance must be undertaken throughout the duration of the prospecting activities;
- ✓ The financial provision must be reviewed annually to determine if it's still appropriate to site activities;
- ✓ Ground water monitoring must be conducted using existing boreholes on site;
- ✓ A complaints register must be kept on site, recording each complaint and how it was addressed;
- ✓ The EA does not negate the responsibility of the holder to comply with any other statutory requirements that may be applicable to undertaking of the prospecting activities;
- ✓ The EA does not grant authorisation to National Water Act Section 21, any water listed water use in terms of this Act must be applied for with the Department of Water Affairs and Sanitation (DWS);
- ✓ The EA will only be effective in the event that the corresponding prospecting right is issued in terms of the MPRDA and none of the listed activities commence without the corresponding prospecting right;
- ✓ The impact management and mitigation measures as described in this report are mandatory.

- ✓ A person is guilty if that person fails to comply or contravene a condition of the EA;
- ✓ A copy of the EA must be kept on site where the activity will be undertaken;
- ✓ The conditions of the EA and the EMPr must be made known to all personnel to be directly involved in the prospecting activities;
- ✓ The applicant must provide site personnel with personal protective equipment (PPE);
- ✓ The applicant must appoint an independent Environmental Control Officer who will also conduct annual environmental audits for submission to the department;
- ✓ Activity based environmental risks must be conducted before any site activity is undertaken;
- ✓ A monitoring programme must be budget for and implemented for the duration of the impact as directed by the EMPr;
- ✓ Storm water must be effectively managed to prevent contamination and erosion;
- ✓ A closure certificate must be applied for in terms of the MPRDA within 180 days of the occurrence of lapsing, cancellation, cessation, relinquishment and completion of prospecting activities; and
- ✓ Only indigenous plants can be used for rehabilitation.

11.11 Period for which the Environmental Authorisation is required

The Prospecting Right has been applied for a period of five years. The Environmental Authorisation should therefore allow for the five years of prospecting and one year for decommissioning and rehabilitation.

12 Undertaking

An undertaken by the EAP and the client is provided for in Section 2 of the EMPr.

13 Financial Provision

A rehabilitation fee will be calculated to be **R 324,440.35;**

13.1 Explain how the aforesaid amount was derived.

The rehabilitation fee was calculated using the Department of Mineral Resource and Energy guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine.

13.2 Confirm that this amount can be provided for from operating expenditure

It is hereby undertaken that the calculated amount will be provided to DMRE in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P (1) of the NEMA, will be provided to the DMR upon granting of the requested prospecting right.

14 Specific Information required by the competent Authority

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

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

The directly impacted person are the land owners and/or occupiers within the proposed site. The site is used as grazing pasture for the local livestock and since prospecting only affect a relatively smaller area the grazing area will be continuously available.

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

It is presumed that there are no artefacts or sites of heritage importance on site. The screening tool has identified the site to have low heritage and cultural sensitivities

14.2 Other matters required in terms of sections 24(4) (a) and (b) of the Act.

The requirements of the Act in terms of section 24(4) (b) (i) – (vii) as guided by section 24(4A) are provided below with sections in which they have been addressed:

(i) Investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity:

- ✓ ***Part A section 9:*** *impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts;*
- ✓ ***Part A section 9.2:*** *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;*
- ✓ ***Part A section 11:*** *Assessment of each identified potentially significant impact and risk**;***
- ✓ ***Part B section 4:*** *Impacts to be mitigated in their respective phases**.***

(ii) Investigation of mitigation measures to keep adverse consequences or impacts to a minimum:

- ✓ **Part A section 11**: Assessment of each identified potentially significant impact and risk;

- ✓ **Part A section 11.5**: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;
- ✓ **Part B section 4**: Impacts to be mitigated in their respective phases.

(iii) Investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act;

- ✓ **Part A section 8.9**: *Heritage Resources.*

(iv) Reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information:

- ✓ **Part A section 11.8:** Description of any assumptions, uncertainties and gaps in knowledge

(v) Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;

- ✓ ***Part B section 5.2:*** *Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including, Monitoring of Impact Management Actions, Monitoring and reporting frequency, Responsible persons, Time period for implementing impact management actions, Mechanism for monitoring compliance**.***

(vi) Consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3);

- ✓ **Part A section 8:** *The Environmental attributes associated with the alternatives.*

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1 Details of the EAP

Names of Practitioners:	Khuliso V Ramulondi (Pr.Sci.Nat; REG. EAP)
Qualifiations	Bachelor of Earth Sciences in Mining and Environmental Geology
Tel	012 012 5580
Cell No.:	081 312 3951
Fax No. :	086 560 5316
e-mail address:	khuliso@mielelani.co.za / ramufhi@outlook.com / consultations@mielelani.co.za

2 Description of the Aspects of the Activity

2.1 Project Locality

2.1.1 Location of the overall activity

Farm Name:	Portion 01 of Farm Zalflager No 525 HU; Portion 01 and the Remainder Portion of Farm Ongemaakt 301 HU and Portion 02; 08 and 13 of Farm Mademoiselle 123 HU
Application area (Ha)	Approximately 3,203.93 Hectares
Magisterial district:	Zululand District
Distance and direction from nearest town	Approximately 40 km east of Vryheid
21 digit Surveyor General Code for each farm portion	N0HU00000000052500002; N0HU00000000030100000; N0HU00000000030100001; N0HU00000000012300002; N0HU00000000012300008; N0HU00000000012300013.

2.2 Description of the activities to be undertaken

Coal Africa Mining Pty Ltd proposes to undertake prospecting activities for coal in Portion 01 of Farm Zalflager No 525 HU; Portion 01 and the Remainder Portion of Farm Ongemaakt 301 HU and Portion 02; 08 and 13 of Farm Mademoiselle 123 HU in the Zululand District. The application was accepted by the Department of Mineral Resources on November 22, 2021.

What is coal prospecting?

Prospecting is the search of clues that indicates that there are coal deposits beneath the surface. It is generally the search of coal seams to determine if they are mineable at a profit.

The confidence of coal seams deposit is gained through using maps and historical data, geophysics, ground truthing, geochemistry which are considered non-invasive activities.

When the local geology is understood, siting for drilling can then be undertaken. Drilling is done with fairly large machinery that use diamond-tipped, hollow drill 'bits' which produce varying amounts of 'core' depending on the extensiveness of the drill program. Diamond-tipped bits are used because they can go through the hardest of rock, and the core produced is cylindrical and not typically more than a couple inches in diameter. The details of each drill hole (including direction and depth) are recorded in much detail, each meter of core is marked with the depth that it came from and which hole, if there's been multiple drilled.

Once core has been obtained, samples are then sent to a laboratory facility to be 'assayed', which is essentially assessing the coal's physical and chemical properties in the rock. Using this data from the assaying, along with the records of where the assayed drill core came from, the data is re-interpreted to determine subsequent phases of follow-up drilling. If drilling continues, different drilling techniques are used to build confidence in the deposit by determining the size and grade of the 'strike' and 'dip'.

The objective will be to produce a 3D resource model of where and how the coal seam is located underground. All this information is used to complete an 'official resource estimate', which is a non-biased report that is required to have been developed by a 'Qualified Person' (QP). The 'Official Resource Estimate' will outline the categories of mineral resources (inferred, indicated, and measured) as well as the quantity and grade of each resource category.

Prospecting activities will be undertaken in seven (7) different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

2.2.1 The description of the proposed prospecting activities

Prospecting activities will be undertaken in different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

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Q	31.192611	-27.879698
R	31.188749	-27.872357

Provisional Layout Map for the Proposed Prospecting Activities in Portion 02 of Farm Zalflager 525; Portion RE & 01 of Farm Ongemaakt 301 and Portion 02, 08 & 13 of Farm Mademoiselle 123 within Administrative District of Vryheid, KwaZulu Natal Province

Map Legend

- CNR
- Proposed Borehole
- NFEPA Watercourses
- Watercourses
- Existing Access Roads
- Proposed_Portions
- CBA Irreplaceable
- CBA Optimal
- Parent Farms
- Wetlands
- NFEPA Wetlands
- Watercourses 100 M Buffer
- Wetlands 100 M Buffer
- NFEPA 100M Buffer
- NFEPA Watercourse 100 M Buffer

Scale 1:29,499

Spatial Reference
Name: WGS 1984 UTM Zone 35S

Applicant: Coal Africa Mining (Pty) Ltd

PLAN COMPILED IN ACCORDANCE WITH REGULATION 2(2) OF THE MPRDA, 2002, (ACT NO 28 OF 2002)

In Accordance with Section 48 (2) of MPRDA, NWA (1998) NEMA (1998) (2002) and Regulation 17 of Mine Health and Safety Act (1996), the Prospecting Area excludes any area within a horizontal distance of 100 metres of any Water Courses, Wetlands, Protected Areas, Public Roads, Railway or Cemetery.

TOTAL AREA EXTENT: 437.16 Hectares

Figure 2-1: Provisional Site Layout Plan

2.2.1.1 Phase 1: Literature review and Field Mapping

(c) Literature Review

Phase 1 will include the collection and interpretation of all available data and the compilation of a Geographic Information Systems (GIS) database. The information to be collected will include aerial photos, Orthophoto, Aeromagnetic data, Topo-cadastral maps, and Geological maps, results of historic exploration programmes and any other published literature and maps. The desktop study will aid in compiling a preliminary geological model of the area to be utilized in the planning of site geological mapping and sighting of drill holes. It also includes accruing results from the companies that has already worked on the area. This provides information such as geological setting, biodiversity as well as water management.

(d) Mapping

Generally mapping involves the geologist walking the area and making observations which are then recorded on a map. To enhance the quality and reliability of geological maps data obtained during geophysical surveys will be used. Mapping is completed that meaningful structural and geological data may be derived from it and to confirm that the desktop study is accurate.

2.2.1.2 Phase 2: Geophysical Survey

The applicant will undertake aeromagnetic surveys to map the subsurface lithology without undertaking invasive prospecting activities. The aeromagnetic survey is critical for locating geological anomalies which are indicative of coal seam locations. Once the position of the deposits is known the drilling sites can then be sited.

2.2.1.3 Phase 3: Discovery Drilling and Sampling

The results of the Phase 1 and 2 will be used to assist in the ideal location ten (10) discovery drill holes at maximum depth of 250 m. Cores will be sampled and prepared for laboratory analysis. This phase is aimed at establishing if there are coal deposits within the proposed site. A provisional drill plan has been provided based on available literature. The provisional plan will be updated based on the outcome of the findings of the above phases.

2.2.1.4 Phase 4: Sample analysis/ Assaying

The assaying will be conducted to determine the coal content for each core at a South African National Accreditation System (SANAS) accredited laboratory. Sample analysis will inform if there are mineral deposits within the proposed site. Should there be coal deposits on site, preliminary economic assessment will be conducted.

2.2.1.5 Phase 5: Preliminary economic assessment

A preliminary economic assessment is a study conducted to determine whether a project has the potential to be viable. At this stage, the mineralization, regardless of its quantity and quality, is always considered to be a resource. This study is generally based on industry standards rather than derived from detailed site-specific data.

2.2.1.6 Phase 6: Resource drilling and sampling

Subsequent to Phase 3 drilling, the results will be used to design a systematic drill holes to define the site resource. This drilling programme will be more focussed on parts on which the coal deposits were intersected. At this point the position of the systematic drill holes is provisional and subjected to change based on outcomes of various phases. A total of thirteen (13) boreholes are proposed for resource definition taking the project total proposed boreholes to maximum of twenty three (23).

2.2.1.7 Phase 7: Pre-feasibility study

The pre-feasibility and feasibility studies are more detailed. By the time a decision is made to proceed with a pre-feasibility study, a preliminary mineral resource report has been finalized and the coal seam model demonstrating its shape, tonnes, and grade is available. A resource cannot be converted to a reserve unless it backed up by at least a pre-feasibility study. Their results will show with more certainty whether the project is viable. At this point, the mineral resource, or a portion thereof, becomes a mineral reserve. The pre-feasibility study will amongst others assess the following:

- ✓ Resource definition – estimation of resource quantity on site;
- ✓ Geological Modelling – Modelling of the site resource and its distribution;
- ✓ Initial conceptual Mine Plan;
- ✓ Determination of infrastructure requirements;
- ✓ Environmental management requirements;
- ✓ Financial modelling;
- ✓ Market analysis; and
- ✓ Assessment of socio-economic factors.

2.2.2 Activities associated with the proposed prospecting

2.2.2.1 Site Access

The undertaking of prospecting activities will require access into privately owned properties. Access into these properties must be through access agreements contracts signed between property owners and Coal Africa Mining (Pty) Ltd. The access agreements will be a legal

document effective from the date of signing until the exit contract is signed off. The access agreement contracts will detail specific conditions relevant to the property owner.

2.2.2.2 Access roads

There is an existing gravel road through the site, the same road will be primary access road into the prospecting area. New access roads will be created to reach the drilling stations. The created roads will avoid crossing site watercourses. The watercourses are dry for most period of the year and the proposed activities must therefore be scheduled for the dry period.

2.2.2.3 Temporary Camp site

The applicant will not establish camp site on site. Activities will be undertaken from one drill station to the other.

2.2.2.4 Drill station establishment

The establishment of the drill stations will chiefly be dictated to by the underlying geology, however sensitive features must be protected at all times. The provided drill stations layout map is provisional and subjected to change based on outcomes of other preceding phases.

2.2.2.5 Core Drilling

The primary objective is to obtain drill cores for assaying. The affected parties must be consulted and informed of the drilling programme which details the duration of the proposed activities and their input be incorporated into the programme.

2.2.2.6 Waste Management

The proposed prospecting activities are expected to generate both hazardous and general waste which includes sewage waste. Domestic waste will be generated by the site crew which will include food containers and left overs and any general waste generated by day to day site activities.

The drilling activities and site preparation will generate waste rock. The waste rock will be managed on site provided it’s not contaminated by hazardous substances.

Hazardous waste will be generated from hydrocarbons storage cans and containers. No refuelling and/or maintenance of major equipment, vehicles and machineries will be allowed on site and no maintenance facility will be established on site.

The operating vehicles and machinery also have the potential to leak and contaminate soils with hydrocarbons. The hazardous waste will be placed in closed bin for disposal off site at a registered hazardous waste management facility.

2.2.2.7 Water Usage

Prospecting activities are relatively dry activities requiring minimum input of water into the operation. Water will be required for cooling the drill bit, for dust control at the drill station and for human consumption. The water usage will not trigger water uses Listed in terms of Section 21 of the National Water Act No 36 of 1998. It is estimated that 100 litres of water will be used per day per drilling site.

2.2.2.8 Water Supply

The applicant will import water to the site. A water bowser will be used to import water to site sourced from legal connections such as boreholes and municipal connection.

2.2.2.9 Storage of Dangerous Goods (hydrocarbon)

There will be no storage of dangerous goods on site, however refuelling of the drill rig will be done on site. Hydrocarbons will be shipped to site whenever needed. Drip trays will be placed under refuelling points to prevent soil contaminations from spillages. The quantity of hydrocarbon to be shipped to site will be less than 1 000 litres (1 m^3) at a time. The transportation of the diesel does not trigger water use license application.

2.2.2.10 Material Storage

No storage camp will be established on site. The required materials will be brought to site whenever needed. Refuelling of the rig truck will be done on site, a dip tray will be placed under the refuelling point during refuelling.

2.2.2.11 Accommodation

No accommodation for staff and workers will be provided on-site and all people will be accommodated in nearby towns. Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established on site.

2.2.2.12 Sanitation

The applicant, Coal Africa Mining Pty Ltd will provide chemical toilets for the prospecting crew. Should different genders be on site, two separate toilets will be provided. The toilets will be cleaned weekly by a service provider. The toilets will be placed 100 metres away from water sources including dry ones.

2.2.2.13 Rehabilitation

It is proposed that prospecting be undertaken from one drill station to the other. When work is completed at one station, rehabilitation can immediately commence. Rehabilitation plan must

be communicated with the land owners for post closure land uses which may include borehole after use and continued use of access roads. Rehabilitation will be overseen by an ECO.

2.3 Project scheduling

The department of Mineral Resources and Energy allows for a maximum of five (5) years to conduct prospecting activities. The five years' period will include project planning and sourcing of the required materials and equipment. At least 5 working days will be required at each drill station and a maximum of twenty three (23) boreholes are proposed.

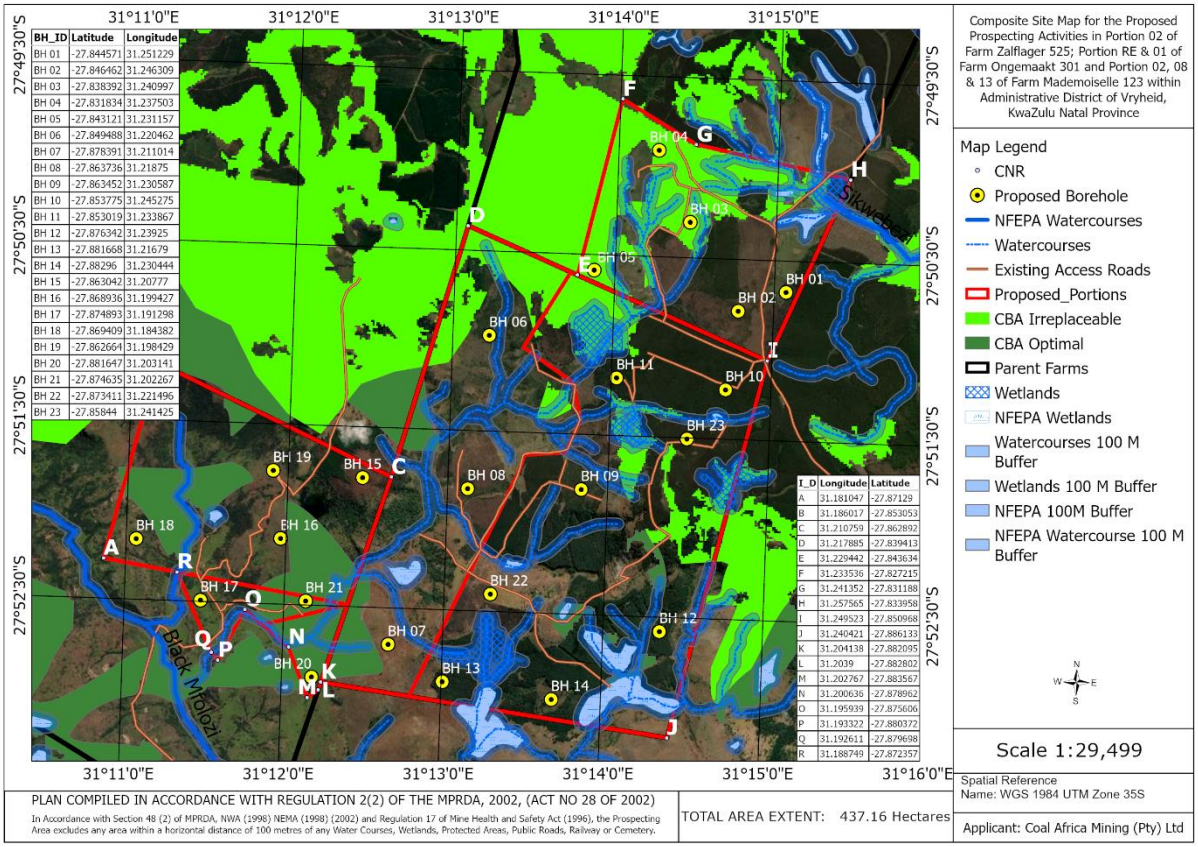
The drilling programme will be comprised of two programmes the discovery drilling and the resources definition programme. Once the first discovery drilling is completed, the drilling programme will be paused awaiting SANAS laboratory analysis results in order to discover if there are coal reserves on site and if the provisional drill plan is still appropriate.

It is recommended to undertake the proposed prospecting activities during the dry periods after harvest to reduce impact on crops and water resource.

2.4 Equipment and/or Technology to be used

- ✓ 1 drill rig mounted on a 10-tonne truck or trailer;
- ✓ 1 X 2 200 Litres water tanker;
- ✓ 1 X 1 000 litres diesel tank and
- ✓ 2X (4X2) Bakkie.

2.5 Composite Map



BH_ID	Latitude	Longitude
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BH 02	-27.846462	31.246309
BH 03	-27.838392	31.240997
BH 04	-27.831834	31.237503
BH 05	-27.843121	31.231157
BH 06	-27.849488	31.220462
BH 07	-27.878391	31.211014
BH 08	-27.863736	31.21875
BH 09	-27.863452	31.230587
BH 10	-27.853775	31.245275
BH 11	-27.853019	31.233867
BH 12	-27.876342	31.23925
BH 13	-27.881668	31.21679
BH 14	-27.88296	31.230444
BH 15	-27.863042	31.20777
BH 16	-27.868936	31.199427
BH 17	-27.874893	31.191298
BH 18	-27.869409	31.184382
BH 19	-27.862664	31.198429
BH 20	-27.881647	31.203141
BH 21	-27.874635	31.202267
BH 22	-27.873411	31.221496
BH 23	-27.85844	31.241425

T_D	Longitude	Latitude
A	31.181047	-27.87129
B	31.186017	-27.853053
C	31.210759	-27.862892
D	31.217885	-27.839413
E	31.229442	-27.843634
F	31.233536	-27.827215
G	31.241352	-27.831188
H	31.257565	-27.833958
I	31.249523	-27.850968
J	31.240421	-27.886133
K	31.204138	-27.882095
L	31.2039	-27.882802
M	31.202767	-27.883567
N	31.200636	-27.878962
O	31.195939	-27.875606
P	31.193322	-27.880372
Q	31.192611	-27.879698
R	31.188749	-27.872357

Figure 2-2: Site Composite

3 Description of Impact management objectives including management statements

3.1 Determination of closure objectives

The closure objectives thus are as follows:

- Eliminate any safety risk associated with drill holes and sumps through adequate drill hole capping and backfilling.
- Remove and / or rehabilitate all pollution and pollution sources such as waste materials and spills;
- To loosen the hardened surfaces which were used temporary site camp or access roads and re-vegetate with indigenous species.
- Establish rehabilitated area which is not subjected to soil erosion which may result in the loss of soil, degradation of the environment and cause pollution of surface water resources;
- Restore disturbed area and re-vegetate these areas with indigenous vegetation to restore the ecological function of such areas as far as is practicable.

3.2 Volumes and rate of water use required for the operation.

The operational machinery and equipment is expected to use less than 60 litres of water per day for cooling and dust suppression. The water usage will not trigger the National Water Act (36;1998) listed water uses. Water for the human consumption will also be supplied to site by the applicant or the prospecting contractor.

3.2.1 Has a water use licence has been applied for?

A water use licence is not required for this project but should any NWA water uses be triggered a water use license will be applied for. The Government Notice (GN) 704 will be adhered to throughout the prospecting duration.

The provision of GN 704 of 1999 which regulates mining and related activities will be applicable to this project, as regulated a 100 metres buffer will be maintained for all watercourses wherein no invasive activity will be undertaken.

The Government Notice (GN) 704 of 2016 which regulates water uses in section 21(c) and 21(i) will not be applicable to this proposed project, no activities concerning water uses in section 21(c) and 21(i) will be triggered. The proposed activities will not impede or divert watercourses; and the proposed activities will not alter beds and characteristics of watercourses.

4 Impacts to be mitigated in their respective phases, the Impact Management Outcomes and Management Actions

Measures to rehabilitate the environment affected by the undertaking of any listed activity and the description of impact management outcomes, identifying the standard of impact management required for the aspects, and description of impact management actions, identifying the manner in which the impact management objectives and outcomes will be achieved.

Table 4-1: Probable Impacts & Mitigation

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	**Phase**	**Disturbance Scale**	**Aspects Affected**	**Mitigation Type**	**Mitigation Measures**	**Standard to be Achieved**	**Compliance with Standards**	**Time Period for Implementation**
Desktop Study								
No Impact	Planning	None	None	None	None	Protect sensitive site	Locate sensitive and protected areas such as rivers)	N/A
Creation of access roads (Access to drill points)								
Creation of access roads within streams/rivers and alteration of river beds	Construction	0.5 ha	Hydrology	✓ Control through planning and design; ✓ Control through avoidance	✓ Stream crossings must be through existing tracks; ✓ Altering of riverbed and changing characteristics of a watercourse is a regulated water use in terms of Section 21(c) and 21(i) and can only be undertaken with a Water Use License issued in terms of the National Water Act; ✓ Access roads must be located outside 100 metres radius of site watercourses; ✓ All the transgressions must be reported to the DWS and DMRE; ✓ A resident ECO must be appointed to monitor and enforce compliance to site operational conditions.	✓ Maintain a 100 metres radius off the site watercourses; ✓ Apply for water use where listed water uses are triggered; ✓ Annual performance assessment conducted; ✓ ECO appointed	✓ Roads established outside the 100 metres radius of the watercourses; ✓ Water use license applied for listed water uses triggered; ✓ Compliance assessment report compiled	Project Duration
Introduction of Alien invasive species	Construction	5 ha	Biodiversity	✓ Control through rehabilitation; ✓ Control through monitoring;	✓ All possible alien invasive plants must be identified and be communicated with site management team for control; ✓ Alien invasive plants must be removed as soon as they are identified; ✓ A post closure monitoring programme must be established.	✓ Control listed invasive plants; ✓ Annual performance assessment.	✓ Me mechanically remove all invasive plants and monitor regrowth; ✓ ECO appointed; ✓ Annual audits compiled	Project Duration
Loss of agricultural land	Construction	1.5 ha	Socioeconomic	✓ Control through consultation with property owners; ✓ Control through avoidance	✓ Locate the access roads outside the cultivated areas; ✓ Where access roads are located within the agricultural area, the impact disturbance must be limited to approved areas, the width of the roads must not exceed 04 metres; ✓ Disturbed areas must be rehabilitated as soon as drilling activities are completed at that particular drill pad; ✓ The drilling activities must be scheduled during the dry season after harvesting;	✓ Preserve economic agricultural area; ✓ Limit the impact area to the approved area; ✓ Land owners and users consulted about final site plans; ✓ Disturbed areas rehabilitated;	✓ Land owners will be consulted and compensated for loss of developed agricultural land. Closure certificates applied and issued; ✓ Land owners sign off on completion of prospecting activities and site exit	Project duration

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	**Phase**	**Disturbance Scale**	**Aspects Affected**	**Mitigation Type**	**Mitigation Measures**	**Standard to be Achieved**	**Compliance with Standards**	**Time Period for Implementation**
					✓ All affected property owners must be fully consulted and access agreement be established and signed by both parties; ✓ Losses of crops and livestock due to the prospecting activities must be compensated.	✓ Apply for closure certificates; ✓ Annual performance assessment.		
Loss of vegetation and associated habitats	Construction	0.32 ha	Biodiversity	✓ Prevent through planning; ✓ Manage by limiting impact area; ✓ Control through remediation	✓ Vegetation clearing process must be monitored by the ECO who must keep the before and after pictures; ✓ Monthly compliance report must be compiled by the ECO; ✓ Annual performance assessment must be undertaken; ✓ All the areas to be impacted must be clearly indicated on the site plan. No access road must be created outside the approved area; ✓ Vegetation clearance must only be undertaken where it is impossible to drive without clearing; ✓ Access roads must only be created to access active drilling areas; ✓ No plant harvesting must be allowed on site for any purposed other than clearing for approved site activities; ✓ Search and rescue must be conducted before off road driving and creation of access roads through the vegetated areas; ✓ Where feasible access roads must be created from one drill station to the other to prevent creation of multiple roads; ✓ A record of site species must be kept; ✓ A site walk must be conducted before any clearing or driving is undertaken in order to identify any possible species of conservation concern that may have been missed during the EIA process; ✓ No fires must be allowed on site; ✓ Disturbed areas must be rehabilitated as soon as they are out of use.	✓ Conservation of red listed Plants (Species of Conservation Concern); ✓ Preservation of ecological functionality and integrity	✓ ECO appointed to monitor the prospecting activities; ✓ Annual compliance audits conducted by an external professional; ✓ Land owners sign off	Project duration
Degradation of existing access roads	Construction	± 1 ha	Infrastructure	Control through planning; & Manage through rehabilitation	✓ The ECO must take and keep the before, during and after site pictures; ✓ Driving must be restricted to approved access roads; ✓ Trips must be planned accordingly to reduce number of trips (preferably two trips a day);	✓ Protection of local infrastructure; ✓ Conduct annual performance assessment;	✓ Local roads will be rehabilitated soon after prospecting; ✓ ECO appointed to monitor the prospecting activities;	Project Duration

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	**Phase**	**Disturbance Scale**	**Aspects Affected**	**Mitigation Type**	**Mitigation Measures**	**Standard to be Achieved**	**Compliance with Standards**	**Time Period for Implementation**
					✓ Consent must be given where private roads are to be used; ✓ The access roads must be rehabilitated as soon as the prospecting activities are concluded.	✓ Apply for Closure Certificate.	✓ Annual compliance audits conducted by an external professional; ✓ Land owners sign off.	
Establishment and preparation of drill pads/area								
Unauthorised access into private property	Construction	437.16 ha	Private Property	Control through consultation with property owners. Manage though EA, PR and relevant legislations.	✓ Access agreements must be signed by the land owners; ✓ The prospecting activities must be undertaken according to the issued right, authorization, this EMPr and land owners access agreement conditions; ✓ The conditions of the access agreements are binding; ✓ All site personnel must have identification cards.	✓ Protection of private properties.	✓ Consult all land owners	Project duration
Clearing of vegetation to establish drill pads area	Construction Phase	1.55 ha	✓ Biodiversity; ✓ Soil; ✓ Humans; and ✓ Water.	✓ Remedy through rehabilitation; ✓ Conduct site walks; ✓ Limiting disturbance areas; and ✓ Control through implementing activity methods statement.	✓ Vegetation clearing process must be monitored by the ECO who must keep the before and after pictures; ✓ Monthly compliance report must be compiled by the ECO; ✓ Annual performance assessment must be undertaken; ✓ All the areas to be impacted must be clearly indicated on the site plan. No activities must be undertaken outside the approved area; ✓ Vegetation clearance must only be undertaken where it is impossible to setup the drill rig; ✓ Establishment of drill pads must be done progressively, i.e. drilling activities completed, site rehabilitated before moving to the next drilling station; ✓ No plant harvesting must be allowed on site for any purposed other than clearing for approved site activities; ✓ A record of site species must be kept; ✓ A site walk must be conducted before any clearing or driving is undertaken in order to identify any possible species of conservation concern that may have been missed during the EIA process; ✓ No fires must be allowed on site; ✓ Disturbed areas must be rehabilitated as soon as they are out of use.	✓ Biodiversity conservation	✓ Species will be identified before clearing; ✓ Disturbed area rehabilitated; ✓ Prospecting activities monitored; ✓ ECO appointed to oversee the prospecting project; ✓ Rehabilitation funds provided;	Project duration
Destruction of habitats when clearing vegetation and loss of fauna	Construction	±1 ha	Fauna	✓ Control through search and rescue; and	✓ Before vegetation is cleared in each drill station, search and rescue must be ensured that there is no fauna;	Biodiversity conservation	✓ ECO appointed to oversee the prospecting project; ✓ Rehabilitation funds provided;	Throughput the Prospecting Period

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	**Phase**	**Disturbance Scale**	**Aspects Affected**	**Mitigation Type**	**Mitigation Measures**	**Standard to be Achieved**	**Compliance with Standards**	**Time Period for Implementation**
				✓ Control through limiting disturbance area; ✓ Control through Implementation of environmental management conditions of the EA and the EMPr;	✓ Where fauna are present they must be moved to undisturbed adjacent areas; ✓ Prospecting activities must be conducted during the day to avoid the noise and light nuisance during the night; ✓ Hunting must be prohibited and offenders must be criminally charged; ✓ Killing of dangerous animals such as snakes is prohibited; ✓ Dangerous animals handling must be done by trained professionals; ✓ No fires must be allowed on site; ✓ Smoking areas must be clearly demarcated on site; ✓ A driving speed limit of 20 km/h must be maintained on all internal roads; ✓ Firefighting equipment must be provided on site and a trained firefighter must be present on site at all times; ✓ All disturbed areas must be rehabilitated; ✓ A post closure monitoring programme must be developed and financed		✓ Site rehabilitated on completion of drilling activities; ✓ Land owners sign off	
Contamination and erosion of topsoil and stockpiles before, during removal and stockpiling	Construction	± 0.8 ha	Soil	✓ Control through storm water diversion beams; ✓ Control through implementing activity methods statement;	✓ Contamination of soil from any leaks, spillages of hydrocarbons and any other hazardous substances must be cleaned as soon as they occur; ✓ Topsoil stockpiles must be located away from any chemical substance storage; ✓ Site vehicles, machinery and equipment must always be in good working conditions and daily inspections be conducted before they are used and a checklist be kept onsite; ✓ The site vehicles and hydraulic equipment must each have drip trays to be placed under stationery vehicle. ✓ Faulty vehicles and equipment must be removed from site immediately; ✓ No vehicles and equipment maintenance must be done on site and faulty equipment must be taken off site. ✓ Topsoil stockpiles must be located away from drainage lines to prevent erosion;	✓ Prevent soil contamination; ✓ Preserve topsoil quality and characteristics	✓ Topsoil preserved and rehabilitation undertaken; ✓ Contaminated soils removed from site;	Throughput the Prospecting Period

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	**Phase**	**Disturbance Scale**	**Aspects Affected**	**Mitigation Type**	**Mitigation Measures**	**Standard to be Achieved**	**Compliance with Standards**	**Time Period for Implementation**
Core drilling								
Water contamination emanating from site soil contaminations, and drainage lines crossings.	Construction	1000 m^2	Water; and soil	✓ Control through environmental awareness training; ✓ Control through implementing activity methods statement; ✓ Control through daily inspection of site machinery and equipment;	✓ No activity including off road driving must be undertaken within 100 metres of site watercourses; ✓ The watercourses 100 metres buffer must be indicated on all site plans and communicated to the site team; ✓ No listed water uses in terms of the NWA can be undertaken without the Water Use License. The prospecting activities will not trigger listed water uses, however should this happen a Water Use License must be applied for; ✓ Littering must be controlled on site; ✓ Soil contamination from hazardous substances must be attended to as soon as they occur; ✓ All major water contamination must be reported to the Department of Water Affairs; ✓ Site vehicles, machinery and equipment must always be in good working conditions and daily inspections be conducted before they are used and a checklist be kept onsite; ✓ No vehicles and equipment maintenance must be done on site and faulty equipment must be taken off site.	Protection of water sources and water quality	✓ Contaminations will be prevented and when they occur they will be reported to DWS; ✓ Daily inspections will be conducted.	Project period
Disturbance, contamination of aquifers' in both quality and quantity	Construction	± 1 ha	Water	✓ Control through implementing activity methods statement; ✓ Control through daily inspection of site machinery	✓ A full hydrocensus must be undertaken for all site boreholes which must include water quality and depth ✓ Drilling holes must be capped overnight to prevent dirt and any impurities to get underground; ✓ The drilling machineries must be kept in good working conditions to prevent leakages of hydrocarbons; ✓ Water interceptions must be reported to DWS, the report must include depth of interception, water quality & coordinates.	✓ Protection of water sources and water quality; ✓ Hydrocensus must be undertaken	✓ Hydrocensus undertaken; ✓ Prospecting activities monitored by the ECO and Annual Audits undertaken; ✓ Reporting mechanism defined	Project period
Unearthing of heritage significance artefacts	Construction	± 1 ha	Heritage Artefacts	Conduct site walks	✓ The site walk conducted during the EIA and the history of site land uses ruled out the possibility of heritage artefacts on site; ✓ However, should any heritage significance artefacts be unearthed work at that area must be stopped immediately and the Police as well as SAHRA be notified immediately.	✓ Preservation of heritage sites and objects; ✓ 50 metres buffer applied to graves	✓ Prospecting activities monitored by the ECO and Annual Audits undertaken; ✓ Reporting mechanism defined; ✓ Graves buffered by 50 m	Project duration

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	**Phase**	**Disturbance Scale**	**Aspects Affected**	**Mitigation Type**	**Mitigation Measures**	**Standard to be Achieved**	**Compliance with Standards**	**Time Period for Implementation**
Generation of dust	Construction	+/- 2 ha	Air Quality	Control through dust suppression	✓ Organic dust suppressants and water must applied on gravel road in cases where excessive dust is generated	✓ Air Quality standards; ✓ Health and Safety	✓ Dust suppression	Project duration
Generation of noise	Construction	+-5 Ha	Noise	✓ Maintain through servicing of site equipment; and ✓ Consultation with affected parties.	✓ The prospecting activities must be undertaken during the day; ✓ All site machineries must be kept in good working conditions; ✓ Faulty machineries must be taken off site for service	✓ Noise standards	✓ Consult affected parties; ✓ Operate during the day	During prospecting activities
Health and safety risks arising from machinery operations and human errors.	Construction	+/- 5 ha	Health and safety	Control through implementation of activity based methods statements;	✓ Each machine operator must have a certificate of competence for that specific machinery; ✓ All site machineries must be kept in good working conditions; ✓ All excavations must be clearly marked with a reflective tape and barricaded overnight;	✓ Health and safety standards	✓ Machinery kept in good working conditions; ✓ Operators trained and their competency certificates kept on site	Project duration
Site Rehabilitation								
Soil Erosion	Post Closure	1.5 ha	Soil; Water; and Biodiversity	Control through storm water control beams;	✓ Where necessary storm water control beams must be used to control erosion along rehabilitated access roads; ✓ Rehabilitation materials including topsoil must be free of contaminates such as hydrocarbons; ✓ Topsoil must not be compacted but care should be given to prevent erosion;	Erosion prevention	Control erosion	During and after prospecting period
Invasion by Alien invasive plants	Post Closure	1 ha	Biodiversity	Control through monitoring and removal.	✓ Invasive alien plants must be monitored during and after prospecting activities; ✓ All invasive plants must be removed once identified and a follow-up be developed.	Preserving biodiversity	Invasive species will be monitored and cleared.	During and after prospecting period
Other Impacts								
Failing to meet local community expectations especially job creation	Construction	-	Social	Control through consultation	✓ Consultations must be done with local leaders and the number of people to be employed and how they will be employed be communicated; ✓ No unauthorised personnel must be allowed into prospecting site	Engage local community	Community will be engaged through its elected leaders	Before undertaking prospecting activities
Property theft for both the land owners/users and applicant	Planning and Construction	-	Social and Security	Implement a working security system to control site access and personnel identification.	✓ All authorised personnel must have identification card; ✓ No unauthorised personnel must be allowed on site.	Safety and Security	Ensure safety of site personnel	During prospecting activities.

5 Financial Provision

5.1 Determination of the amount of Financial Provision

5.1.1 Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The baseline environment as described in Section 8 of Part A of this report is mainly an agricultural area with sections of Critical Biodiversity Areas and Wetlands. The closure objectives will ensure that the disturbed natural environment (which was established to be sensitive) is restored. The objectives will also ensure that the soil erosion is prevented and soil fertility in disturbed agricultural areas is restored. The closure objectives are as follows:

a) The facilitation of the re-establishment of agricultural activities and soil capability in disturbed areas;

b) Removal of all infrastructure and material introduced to site;

c) Removal of all wastes and their disposal;

d) Promotion of the rapid re-establishment of the natural vegetation and the restoration of the site ecology. The disturbed areas shall be rehabilitated to ensure that:

- ❖ The biodiversity habitat restored after prospecting;
- ❖ Eliminate any safety risk associated with drill holes and sumps through adequate drill hole plugging and backfilling;
- ❖ Environment and resources are not subjected to physical and chemical deterioration;
- ❖ The site is reversed to almost its original state;
- ❖ The after-use of the site is beneficial and sustainable in a long term;

e) Removal, control and monitoring of alien invasive plants; and

f) Monitoring of rehabilitation progress

5.1.2 Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

This Basic Assessment Report and Environmental Management Programme was made available to each registered stakeholder for review and comment from February 01, 2022. This included the closure objectives as outlined in this report.

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

Due to the nature of the activities, the impacts will be very limited and of short duration. The management plan is provided in such a manner as to ensure concurrent rehabilitation. The drill stations areas and access roads will be the main area experiencing impacts. In this event the activities will be temporary in nature, and a detailed management plan has been provided to address potential impacts associated with these activities**.** The main only rehabilitation activities will be required is borehole capping, rehabilitation of access roads and drill stations, and restoration of soil fertility in disturbed agricultural areas:

5.1.3.1 Borehole capping

Drill holes must be permanently capped as soon as is prospecting activities are completed at that particular borehole. Figure below provides the prepared procedure for the secure plugging of exploration drill holes.

It will be crucial to ensure that the boreholes are free from all obstructions that may interfere with the sealing of the hole. All foreign materials must be removed, together with any other infrastructure (dip tubes etc). The condition of any borehole casing and grout must be examined to ascertain whether its retention in the hole would prejudice any of the objectives of the abandonment.

The ground will be restored as closely as possible to its pre-drilled condition. The borehole will be backfilled with clean (washed), uncontaminated, or excavated materials so that the permeability of the selected materials are similar to the properties of the geological strata against which they are placed. The backfilled borehole will then mimic the surrounding natural strata and groundwater flow and quality will be protected.

The materials used to backfill must be clean, inert and non-polluting. Suitable materials include pea gravel, sand, shingle, concrete, bentonite, cement grout and uncontaminated rock.

N.B. UNDER NO CIRCUMSTANCES SHOULD MATERIALS WHICH ARE LIKELY TO CAUSE POLLUTION BE USED AS INFILL.

For artesian boreholes, the rehabilitation process will aim to confine the groundwater to the aquifer from which it came – in order to prevent loss of confining pressure and the loss of water resources to the surface or other formations. The first step is to control the artesian flow through

- Extending the casing above ground level beyond the elevation to which water will rise in the borehole (the potentiometric surface).
- Introducing a pre-cast plug at an appropriate level within the hole.

In order to prevent potentially contaminated surface run-off or other liquids entering the backfilled borehole, it is necessary to complete the backfilling of all boreholes with an impermeable plug and cap. The top two metres (or two meters below plough depth in agricultural areas) should be filled with cement, concrete or bentonite grout. A concrete cap of suitable strength, with a diameter at least one metre greater than the width of the backfilled borehole (see Fig. 1), should then be installed.

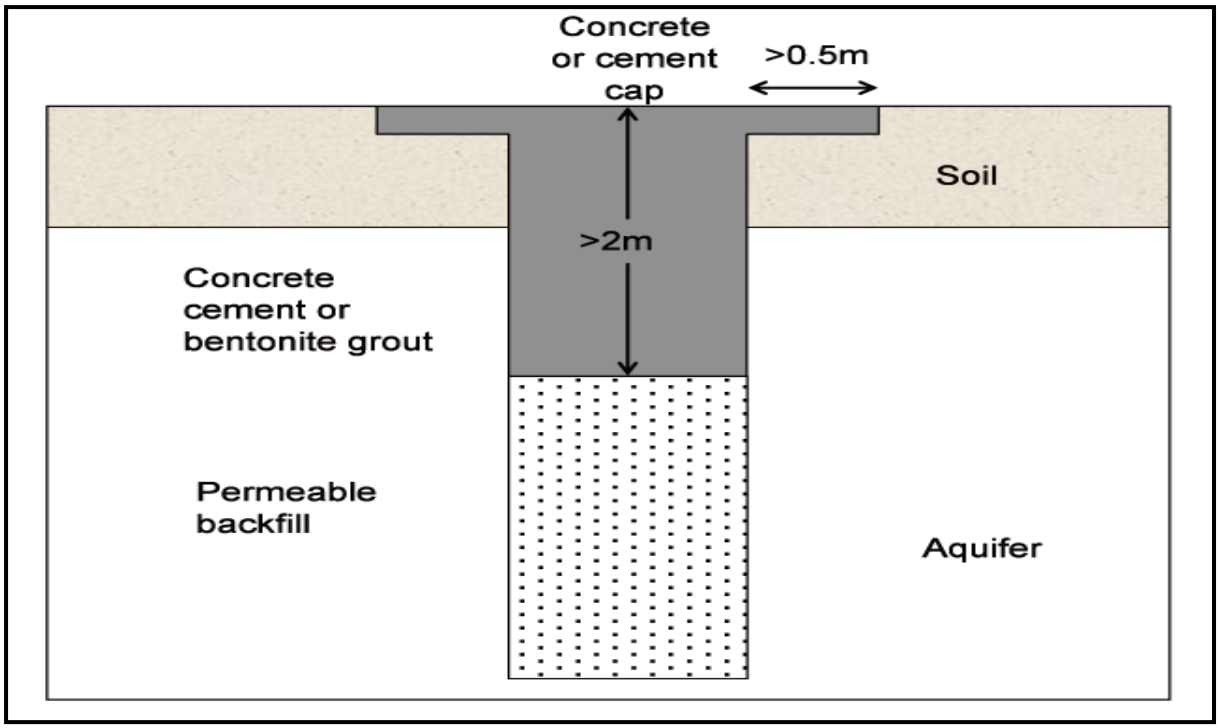


Figure 5-1: *Capping of Boreholes*

5.1.3.2 Rehabilitation of created internal access roads

The internal access roads that were created solely for prospecting activities will be ripped to facilitate vegetation regrowth. The rehabilitation of access roads will be done in consultation with the land owners and the roads will not be ripped should they want to continue using the access roads. This will be done within the limitations of all the relevant Legislations.

5.1.3.3 Re-vegetation

It is recommended that a standard commercial fertilizer high in the standard elements is added to the soil before re-vegetation, at a rate of 10 -20 kg/ha (application rate to be confirmed based on input from a suitably qualified specialist). The fertilizer should be added to the soil in a slow release granular form. A suitably qualified ecologist will be appointed to determine the appropriate veld grass mix for hand seeding.

Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. An effective vegetation cover of 45% must be achieved. Re-seeding will be undertaken if this cover has not been achieved after six months.

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

The closure objectives aim at restoring the site to its original state, i.e. conditions that were existing before the prospecting activities were undertaken. The rehabilitation measures will achieve the object, the created access roads will be ripped, boreholes capped and vegetation regrowth will be facilitated where necessary. Once all the rehabilitation activities are completed the site will be fully restored to its original state thus the closure objectives will be met.

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

CALCULATION OF THE QUANTUM

Applicant: Coal Africa Mining Pty Ltd
Evaluators: Khuliso V Ramulondi

Ref No.: KZN 30/5/1/2/3/11180 PR
Saturday, 29 January 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	17.4	1	1	R0.00
2 (A)	Demolition of steel buildings and structures	m2	0	238.71	1	1	R0.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	351.79	1	1	R0.00
3	Rehabilitation of access roads	m2	800	42.72	1	1	R34,176.00
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	414.61	1	1	R0.00
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	226.15	1	1	R0.00
5	Demolition of housing and/or administration facilities	m2	0	477.42	1	1	R0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	242984.15	1	1	R0.00
7	Sealing of shafts adits and inclines	m3	0	128.15	1	1	R0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0.02	166847.44	1	1	R3,336.95
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	207805.47	1	1	R0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	603565.59	1	1	R0.00
9	Rehabilitation of subsided areas	ha	0	139709.6	1	1	R0.00
10	General surface rehabilitation	ha	1	132171.31	1	1	R132,171.31
11	River diversions	ha	0	132171.31	1	1	R0.00
12	Fencing	m	150	150.77	1	1	R22,615.50
13	Water management	ha	0.6	50255.25	1	1	R30,153.15
14	2 to 3 years of maintenance and aftercare	ha	0.5	17589.34	1	1	R8,794.67
15 (A)	Specialist study	Sum	0	0	1	1	R0.00
15 (B)	Specialist study	Sum	0	0	1	1	R0.00
					Sub Total 1		**R 231,247.58**

1	Preliminary and General	27749.70946	**weighting factor 2** 1	**R 27,749.71**
2	Contingencies	23124.75788		**R 23,124.76**
			Subtotal 2	**R 282,122.05**
			VAT (15%)	**R 42,318.31**
			Grand Total	**R 324,440.35**

5.1.6 Confirm that the financial provision will be provided as determined.

It is hereby undertaken that the amount of R 324,440.35 will be paid to DMRE in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P (1) of the NEMA, will be provided to the DMRE upon granting of the requested prospecting right.

5.2 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including, Monitoring of Impact Management Actions, Monitoring and reporting frequency, Responsible persons, Time period for implementing impact management actions, Mechanism for monitoring compliance

Table 5-1: Compliance Monitoring and Frequency

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Site establishment	Legal transgression; Accidents and Incidents	✓ Prospecting Right; ✓ Environmental Authorisation ✓ Acts, Regulations and any other site permits; and ✓ Access agreements ✓ Emergency Preparedness and Response Plan	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE
Creation of access roads	Soil Erosion; Vegetation Clearing; Introduction of alien invasive plants.	✓ Existing roads are used as far as practicable; ✓ No multiple tracks are created; ✓ Erosion control beams effectiveness; ✓ Vegetation clearing limited to working area; ✓ Site walk to identify absence/ presence of threatened and/or protected species; ✓ Control of alien invasive plants;	Applicant/ Site EO/ ECO	After creation of each access road; Monitoring reports must be submitted quarterly.

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Drill pads establishment and Core drilling	Clearing of vegetation; Contamination of ground water; House keeping	✓ Vegetation clearing limited to working area; ✓ Site walk to identify absence/ presence of threatened and/or protected species; ✓ Control of alien invasive plants; ✓ Monitoring of water table depth; ✓ Reducing and reusing of waste on site; ✓ Waste separation and disposal; and ✓ Openings barricades and drill hole capping.	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE
Topsoil stockpiling	Stockpiling erosion; Stockpiling contamination;	Erosion & contamination prevention.	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE
Operation of site machinery	✓ Noise generation; ✓ Soil contamination; ✓ Dust generation	✓ Dust suppression; ✓ Machinery operational standards; ✓ IAPs consultation.	Applicant/ Site EO/ ECO	Daily inspection of equipment; Monitoring reports must be submitted quarterly to DMRE
Site Personnel	Security breach	✓ Site employees' identification; ✓ Land owners' complaints; ✓ Access restriction to private properties (beyond prospecting area).	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Ablution facility	Soil and water contamination	✓ Provision of portable chemical toilets; ✓ Disposal of sewage wastes	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE
Water requirements	Over extraction of water	✓ Water usage	Applicant/ Site EO/ ECO	Water usage must be recorded on a daily basis and monthly reports must be submitted quarterly to DMRE
Rehabilitation	Erosion;	✓ Rehabilitation rate and success ✓ Vegetation regrowth	Applicant/ Site EO/ ECO	Post closure and findings submitted to DMRE

5.2.1 Indicate the frequency of the submission of the performance assessment/environmental audit report.

Annual performance assessments must be undertaken on the EMPr. These reports must also include the assessment of the financial provision. The reports should be submitted to the DMRE as per the requirement of section 24P(3) of NEMA (107;1998).

5.3 Environmental Awareness Plan

5.3.1 Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work

All the employees including visitors will undergo and environmental induction to ensure that all potential impacts, best practice guidelines and policies are communicated. The induction process will be conducted as per the attached Awareness Program (**Appendix 03**). The induction will cover amongst others the following:

- Legal requirements for the site i.e. EA and EMPr;
- Waste management;
- Incident and accident Management; and
- Emergency Response Procedure.

5.3.2 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment

The following steps will be undertaken to ensure that risks are identified at the earliest and ensure that they are avoided:

5.3.2.1 Delegation of a Project Environmental Officer

An Environmental Officer (EO) must be appointed before any activity can be undertaken on site. The officer must be a qualified environmental Practitioner.

5.3.2.2 Notice of Commencement

Kwa-Zulu Natal Province Department of Mineral Resource and Energy must be notified in writing 2 weeks before the prospecting activities are undertaken.

5.3.2.3 Environmental Documents

Prior to commencement of work on site, the EO is to ensure that the following documents are available on site:

- The Environmental Authorisation;
- The final approved Environmental Management Programme (EMPr); and
- Method statements for different site activities

5.3.2.4 Environmental Monitoring

The EO is to undertake monthly internal environmental compliance audits and prepare monthly environmental audit reports during the construction period. The internal environmental audit must include the following information:

(i) An assessment of the Contractor's compliance with:

- ❖ The relevant conditions of all permits: EA, WUL, etc.;
- ❖ The approved Environmental Management Programme;
- ❖ The approved Construction Site Plan.
- ❖ The approved Construction Method Statements.

(ii) Provide feedback on:

- ❖ Environmental training undertaken;
- ❖ Any environmental incidents or complaints;
- ❖ Waste type quantities recycled and disposed;
- ❖ Any environmental issues identified;
- ❖ The results of any environmental investigations;
- ❖ Actions undertaken from previous audits; and
- ❖ Recommended actions to be undertaken.

5.3.2.5 Environmental Training

Prior to working on site, every person that will be undertaking any retrofit activities must receive training on the relevant environmental management requirements. The EO is to ensure that the environmental training includes the relevant requirements from:

- ❖ All site authorisations; and
- ❖ The final approved Environmental Management Programme.

5.3.2.6 Development of procedures and checklists

The following procedures will be developed and all staff and workers will be adequately trained on the content and implementation thereof.

Emergency Preparedness and Response: The procedure will be developed to specifically include risk identification, preparedness, response measures and reporting. The procedure will specifically include spill and fire risk, preparedness and response measures. The appropriate emergency control centres (fire department, hospitals) will be identified and the contact numbers obtained and made available on site. The procedure must be developed in consultation with all potentially affected land owners. In the event that risks are identified which may affect adjacent landowners (or other persons), the procedure will include the appropriate

communication strategy to inform such persons and provide response measures to minimize the impact.

Incident Reporting Procedure: Incident reporting will be undertaken in accordance with an established incident reporting procedure to (including but not limited to):

- ✓ Provide details of the responsible person including any person who: (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident; or (iii) was in control when the incident occurred;
- ✓ Provide details of the incident (time, date, location);
- ✓ The details of the cause of the incident;
- ✓ Identify the aspects of the environment impacted;
- ✓ The details corrective action taken, and
- ✓ The identification of any potential residual or secondary risks that must be monitored and corrected or managed.

Environmental and Social Audit Checklist: An environmental audit checklist will be established to include the environmental and social mitigation and management measures as developed and approved as part of the Environmental Management Plan. Non- conformances will be identified and corrective action taken where required.

6 Addressing Emergency Events

Emergency event	Mitigation	Responsible parties
Spillage of oil, fuel or solvents on concrete slabs or on soil surfaces or other hydrocarbons. This also includes the leaking and/or spillage of the contents of chemical toilet systems. It includes spill events causing pollution of any surface water.	✓ Prompt placement of suitable absorbent material e.g. wood shavings or fine sand. Mopping up of the surface. In case of significant spillage on open soil surface of grassy areas, the contaminated soil cover must be removed to a depth of 20 cm and disposed of at the nearest hazardous waste disposal site. ✓ In the unlikely event of any type of spillage or soil contamination within 20 m from the drainage courses or lines, sandbags must be placed between the stream course and the area of spill while cleaning up is taking place. ✓ If a spill event occur and pollutes surface drainage, such contaminated surface water must be pumped into containers and removed from the site to be disposed of at the nearest hazardous waste disposal site. The name and contact details of such a contractor must be kept in the site office at all times. ✓ Major contamination incidents must be reported to the Matzikama Municipality emergency services and the Western Cape Government Department of Environmental Affairs and Development Planning Directorate: Pollution and Chemicals Management. ✓ Incident management and reporting must be thoroughly discussed during Induction.	The project manager and the contractor responsible of that particular part of the site actions.
Fire occurrences	✓ In the event of fire of the open veldt or at any other place on the terrain, the Fire Department must be called in. It is also important that local firefighting equipment be ready and available at the site office. Such equipment includes a water cart and booster pipe and hose to fight minor veldt fires of fires at equipment or buildings. The contact details of the local fire brigade and emergency services will be kept available at the site office at all times.	Project manager and Site manager

Emergency event	Mitigation	Responsible parties
Spillage events of sewage	✓ Spill events will be cleaned-up by pumping sewage into bin or drum containers, preferably plastic containers to be removed from the site to the closest municipal water treatment works, The Health Department of the local authority must be notified of the event. ✓ Arrangement must be made for the use of emergency clean up equipment and assistance in the disposal of spill at their facility. The necessary technical steps such as the closing of valves must be conducted in an event of a spill.	**Project manager and site manager.**

During the undertaking of the prospecting activities more incidents may be identified. The activity based risk assessment must be undertaken prior undertaking of any activity.

7 Specific information required by the Competent Authority

No specific information was required by the Competent Authority.

8 UNDERTAKING

The EAP herewith confirms

a. The correctness of the information provided in the reports ☒

b. The inclusion of comments and inputs from stakeholders and I&APs;☒

c. The inclusion of inputs and recommendations from the specialist reports where relevant;☒ and

d. That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.☒

Khuliso V Ramulondi (Pr.Sci.Nat; Reg. EAP)

Signature of the environmental assessment practitioner:

Mielelani Consultancy

Name of company:

01 February 2022

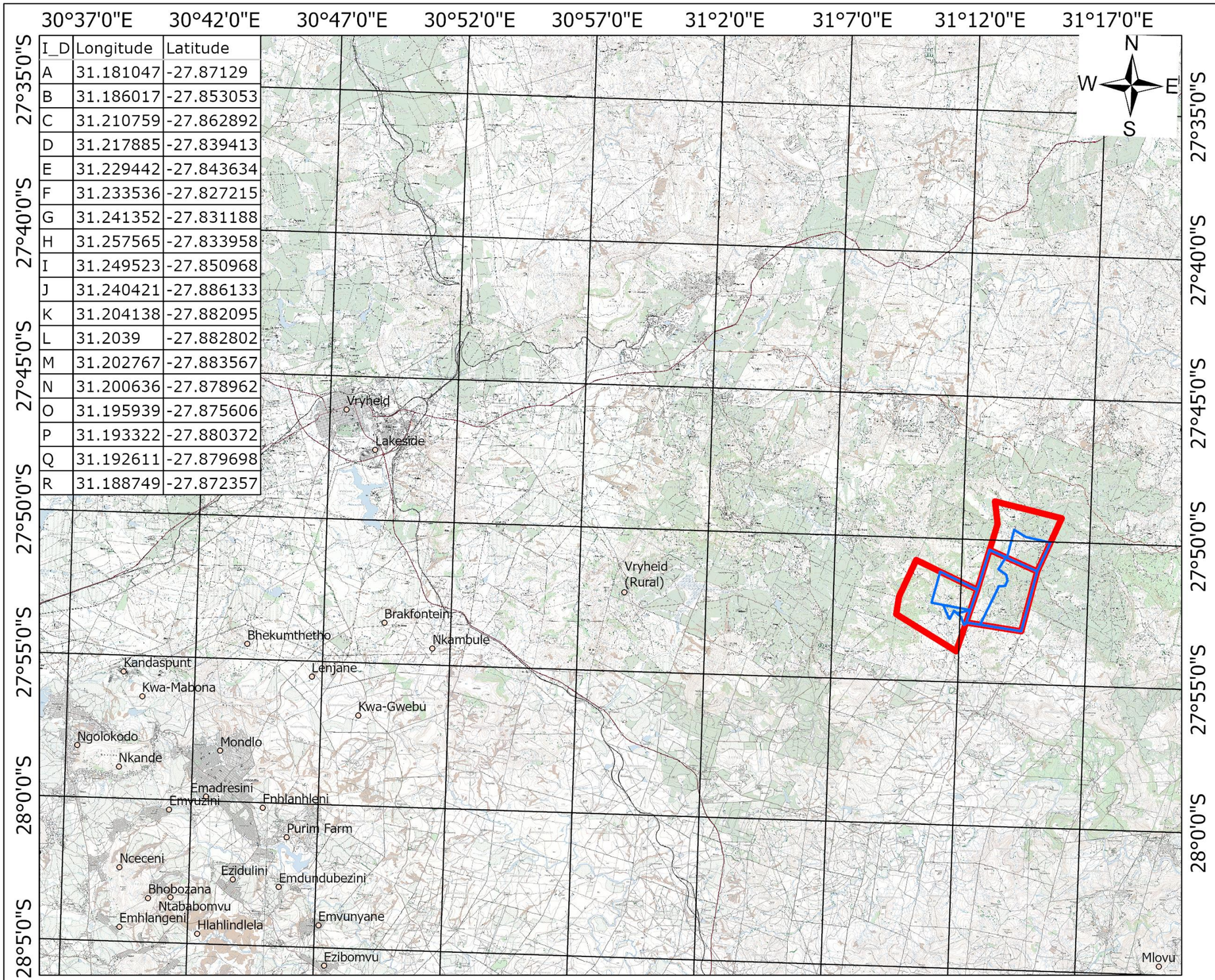
Date:

-END-

APPENDICES

APPENDIX 01: Locality Map

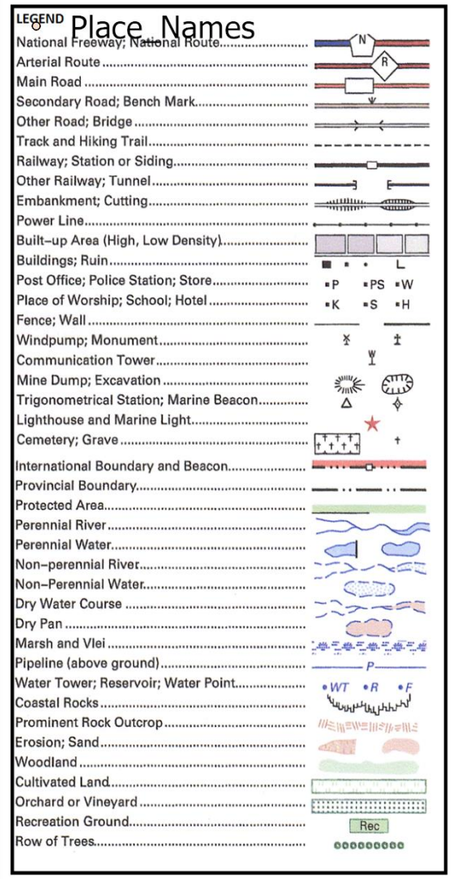
I_D	Longitude	Latitude
A	31.181047	-27.87129
B	31.186017	-27.853053
C	31.210759	-27.862892
D	31.217885	-27.839413
E	31.229442	-27.843634
F	31.233536	-27.827215
G	31.241352	-27.831188
H	31.257565	-27.833958
I	31.249523	-27.850968
J	31.240421	-27.886133
K	31.204138	-27.882095
L	31.2039	-27.882802
M	31.202767	-27.883567
N	31.200636	-27.878962
O	31.195939	-27.875606
P	31.193322	-27.880372
Q	31.192611	-27.879698
R	31.188749	-27.872357



Locality Map for the Proposed Prospecting Activities in Portion 02 of Farm Zalflager 525; Portion RE & 01 of Farm Ongemaakt 301 and Portion 02, 08 & 13 of Farm Mademoiselle 123 within Administrative District of Vryheid, KwaZulu Natal Province

Map Legend

- Parent Farms
- Proposed Portions



Scale 1:238,419

Spatial Reference
Name: WGS 1984 UTM Zone 35S

In Accordance with Section 48 (2) of MPRDA, NWA (1998) NEMA (1998) (2002) and Regulation 17 of Mine Health and Safety Act (1996), the Prospecting Area excludes any area within a horizontal distance of 100 metres of any Water Courses, Wetlands, Protected Areas, Public Roads, Railway or Cemetery.

TOTAL AREA EXTENT: 3204 Hectares

Applicant: Coal Africa Mining (Pty) Ltd

APPENDIX 02: EAP CV

APPENDIX 03: ENVIRONMENTAL AWARENESS PLAN

1. Introduction

Legislation requires that a prospecting company who prepares an environmental management program must develop an environmental awareness plan describing the manner in which the company intends to inform his or her employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. In recognition of the need to protect our environment, environmental management should not only be seen as a legal obligation but also as a moral obligation.

1.1. The Environmental Awareness Plan (EAP)

The EAP forms part of the EMPr and is intended to create the required awareness and culture with personnel and contractors/service providers on environmental safety and health issues associated with the prospecting activities.

1.2. The applicant's policy on environmental awareness

This Environmental Awareness Plan (EAP) will serve as the basis for the induction of all new employees (as well as contractors pending the nature of their work on site) on matters as described herein and read in conjunction with the EMPr. The Plan will also be used to hone awareness of all employees on a continuous basis. Specific environmental awareness performance criteria will also form part of the job descriptions of employees, to ensure diligence and full responsibility at all levels of the organisational work force.

1.3. Fostering environmental awareness

General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensure that environmental accidents are minimized and environmental compliance maximized.

Environmental awareness will be fostered in the following manner:

a) Induction course for all workers on site, before commencing work on site.

b) Refresher courses as and when required

c) Daily toolbox talks at the start of each day with all workers coming on site, where workers can be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working.

d) Taking part in national and international environmental campaigns like National Marine Week, National arbour day, National Wetlands day exacta.

e) Displaying of information posters and other environmental awareness material in the general assembly points.

1.4. Training and environmental awareness

The company accepts that environmental awareness training is critical for the workforce to understand how they can play a role in achieving the objectives specified in the EMPr and ensure that the actions specified in the EMPr are implemented effectively and efficiently. It is vital that all personnel are adequately trained to perform their designated tasks to an acceptable standard.

2. The environmental awareness training course

All employees should attend the course, regardless of position, status or level of responsibility. With a background of basic environmental awareness and an understanding of basic environmental issues and sensitivities, personnel may be motivated and empowered to do their share in helping to maintain the integrity of the environment on the prospecting site through environmental impact management.

The goal of this course is therefore to enable a shared understanding and common vision of the environment, the impact of a prospecting operation on the environment (and why this is important) and the role of prospecting personnel in terms of environmental management and compliance.

The induction course will compose of the following steps:

- The first step will include background discussion of the environment concept: of what it comprises and how we interact with it.
- The second step will be a description of the components and phases of the specific Prospecting operation.
- The third step will be a general account of how the Prospecting operation and its associated activities can affect the environment, giving rise to what we call Environmental Impacts.
- The fourth and most important step will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading our environment. This is known as Environmental Impact Management.

3. Course content

The following can be seen as draft course content as it will be building on as specific needs arrases and will be supplemented with the handout of reading material and extracts of the EMPr on which the course will be based.

3.1. The environment

The environment consists essentially of the living environment, the non-living environment and the man-made environment. The living environment consists of our plant and animal resources. The non-living environment includes the soil, water and geological resources. The man-made environment comprises our infrastructure, social, cultural and archaeological resources.

These environments depend on one another, and man depends on them all for his survival. Damage to one will be felt by so we must fry to protect the as well as their interactions with one another as they occur in nature.

When undertaking a Prospecting operation or any other form of development this concept must be kept in mind. Development must be implemented in such a way that we benefit today without compromising the ability of future generations to benefit as well. Employees should understand this concept of sustainability and sustainable development.

3.2. Description of the components and phases of the operation

The project description should be explained as part of induction together with the main components or activities that can affect the environment, giving rise to what we call environmental impacts. The Prospecting operation consists of a number of different components

3.3. Description of Environmental Impacts

A general account of how the Prospecting operation and associated activities can affect the environment must be explained. This is basically a description of concept of environmental impacts.

a) What is an Environmental Impact?

An environmental impact is the result, either good or bad, of man's actions on the natural environment This results in one or many changes in the environment may also affect the availability of resources and the environment's capacity to function.

Impacts can occur either as a result of:

- The use of a resource;
- Or the pollution of a resource.

In addition, impacts can be categorised as the following:

- Foreseen, such as the necessary clearing of the vegetation before Prospecting begins, or Unforeseen, such as the flooding of an area following heavy rains;

- **Avoidable**, such as the unnecessary spillage of diesel during refuelling- or **Unavoidable**, such as the disturbance created during drilling; **Simple**- such as litter untidying the prospecting site, or **Cumulative** which is a collective impact from different existing activities.

b) Environmental Impacts

Typical environmental impacts anticipated on a Prospecting site include the following:

The loss of plants; The loss of animals; Soil pollution; Dust liberation; Soil compaction and erosion; and Water pollution;

c) Causes of environmental impacts

These environmental are caused primarily by inadequate planning & not adhering to the EMPr Specifications'.

- The inadequate planning & preparation of the Prospecting site;
- The uncontrolled expansion of the Prospecting site footprint;
- The uncontrolled activity of Prospecting staff;
- The injudicious removal / disturbance of vegetation and habitat;
- The unnecessary loss of soil;
- Uncontrolled vehicular movement & circulation;
- The haphazard storage of vehicles, equipment and material;
- The uncontrolled servicing, repair and refuelling of vehicles;
- Unclear policy on solid waste management;
- Unclear policy on waste water;
- The uninformed use, storage and disposal of hazardous material;
- The erosive power of storm water and runoff;
- Unintentional fires;

3.4. Description of Environmental Impacts Mitigation

The fourth and most important step of an induction course will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading their environment. This is known as Environmental Impact Management and is also described in the Environmental Management Programme. The coarse discussion should also include general environmental code of conduct practices such as:

Impact management: Prospecting site establishment (general):

- Do not cross any site fences;
- Do not walk, drive or store material in rehabilitating areas;
- Report any access into fenced off areas to the foreman environmental manager;

- Use only areas designated for certain construction activities;
- Do not access any stream or water body without permission;
- Report any headstones, graves or human remains you may find to the foreman environmental manager;

Impact management: Construction phase (general):

- Only eat, cook, sleep and recreate in the areas designated on site;
- Do not bathe anywhere except in the designated areas on site;
- Always use the toilet facilities provided;
- Only use the water provided on site- do not collect water from or dispose water into a natural water course;
- Always make use of the specified Prospecting site safety measures;
- Do not hunt, kill or injure any animals anywhere on site;
- Inform the foreman environmental of any dangerous or problem
- Do not leave any food or rubbish where scavengers can get at it. Impact management: Health and safety (general):
- Always use the toilet & hand washing facilities provided.
- Only use the water provided on site - do not collect water from or dispose water into a natural water course.
- Make use of the specified protective gear for noisy and dusty conditions.
- Always wear proper protective head and foot gear while on site.
- Know where to find a list of emergency numbers in the event of one.
- Report accidents, injuries and unsafe site conditions to the Safety Officer.

Impact management: Vegetation clearing (general):

- Do not damage, destroy or remove any significant tree that has been marked:
- No firewood may be harvested without permission;
- Newly planted trees may not be disturbed in any way;
- Do not excavate beneath the crown of any tree that has been marked;
- No conserved tree may be used to support or hang anything in;
- Report to the foreman environmental manager any damage to any significant tree that has been marked.

Impact management: Top Soil removal and storage (general):

- Only excavate soil, gavel, rock etc. from designated areas;
- Stockpile soil only as instructed and at the time it is instructed;

- Do not make new stockpiles without permission;
- Do not use soil or remove soil from any stockpile without permission;
- Do not walk. drive or store any equipment. machinery or material on any stockpile.

Impact management: Access and transport (general):

- Only drive on designated roads and tracks;
- Move obstacles out of the way rather than drive around them;
- Only cross drainage lines at designated points;
- Always drive within the specified speed limit.

Impact management: Storage of vehicles, equipment and material (general):

- Do not leave machinery and equipment standing around if not in use;
- Only park vehicles in designated areas;
- Do not park heavy vehicles or store equipment under or near trees
- Do not store machinery, vehicles or materials in undisturbed or rehabilitating areas.

Impact management Servicing. repair and refuelling of vehicles (general).

- Only service machinery and vehicles in designated areas;
- Regularly check your vehicle for fuel and oil leaks;
- Inform the foreman environmental manager of leaking vehicles and machinery so that he can schedule repairs;
- Only refuel by means of a pump and on the bund created for that purpose;
- Immediately clean any accidental fuel and oil spills - do not hose spills into the natural environment;
- Dispose of contaminated soil as hazardous waste in the correct location on site.

Impact management: Solid waste management (general):

- Do not litter - make use of refuse bins provided;
- Concrete may only be mixed in designated areas and not directly on the ground;
- Do not hose spills into the natural environment - inform the foreman environmental manager of spills you are unable to clean yourself;
- Dispose of construction rubble only in specified storage areas - if in doubt, ask;
- Do not bury, hide or burn any waste of any nature;
- Inform the foreman of any illegal litter or dumping site that you encounter.
- Impact management: Waste water management (general):
- Do not use any natural water course to wash machinery, vehicles or equipment;
- Only wash machinery, vehicles or equipment in designated areas;
- Conserve water and report any leaks and overflow to the foreman,

Impact management: Management of hazardous material (General):

- Make sure that you know how to handle all hazardous substances;
- Do not access stores for hazardous substances without permission;
- Immediately clean any minor accidental spills and leaks;
- Do not hose any leaks or spills into the natural environment;
- Dispose of all hazardous waste in specified storage areas - if in doubt, ask;
- Immediately report any major leaks and spills to the foreman environmental manager.

Impact management: Fire management (General)

- Do not make open fires except in permitted areas and at permitted times;
- Do not leave any fires unattended. Extinguish these before you leave the area;
- All cooking is to be done on gas / electric stoves and only in the areas provided;
- Ensure that you know where firefighting equipment is located.

APPENDIX 04: SCREENING REPORT

APPENDIX 05: PUBLIC PARTICIPATION REPORT