

# PROPOSED MINING ON A PORTION OF PORTION 10 OF THE REMAINING EXTENT OF THE FARM SCHAAP PLAATS 5689 GS, KWAZULU-NATAL PROVINCE

## DRAFT BASIC ASSESSMENT REPORT



**MAY 2024**

**REFERENCE NUMBER: KZN30/5/1/3/2/10974MP**

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## EXECUTIVE SUMMARY

The Applicant, Raubex KZN (Pty) Ltd, is applying for environmental authorisation (EA) and a mining permit (MP) over 1 ha of a part of the Remaining Extent of Portion 10 of Schaap Plaats 5689 GS, situated in the Magisterial District of Uthukela of KwaZulu-Natal Province.

The proposed mining footprint will be 1 ha and will be developed over a previously disturbed area of the farm. The area has a history of disturbance due to previous excavation activities and is currently utilized for cattle grazing by the farm owner. Additionally, adjacent to the proposed permit application area lies the approved spoil site for the N11 project, indicating a pre-existing alteration of the landscape. Furthermore, the construction of a new bypass road for the N11 to the east of the site has been completed, utilizing existing excavation resources. These factors underscore the existing land use dynamics and alterations in the vicinity. The mining method will make use of excavation by means of earth moving equipment. The material is then loaded and hauled away from this site where it will be stockpiled and transported to clients via trucks and trailers. The infrastructure will be of temporary nature as a mining permit can only be valid for a maximum of 5 years. The farm track currently in use will undergo periodic improvements to facilitate the movement of vehicles associated with the project. Chemical toilets will be used, and the project will appoint local employees where possible.

The proposed project triggers listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations 2014 (as amended) and therefore requires a Basic assessment process that assess project specific environmental impacts and alternatives, consider public input, and propose mitigation measures, to ultimately culminate in an environmental management programme that informs the competent authority (Department of Mineral Resources and Energy) when considering the environmental authorisation. This report, the Draft Basic Assessment Report, forms part of the departmental requirements, and presents the first report of the EIA process.

Should the MP be issued, and the mining of stone aggregate/ gravel be allowed, the proposed project will comprise of activities that can be divided into three key phases namely the:

- (1) *Site establishment/construction phase* which will involve the demarcation of the permitted mining area. Site establishment will also necessitate the clearing of vegetation, the stripping and stockpiling of topsoil, and the introduction of mining machinery and equipment.

- (2) *Operational phase* that will entail the removal of the gravel with an excavator from the approved footprint area, stockpiling and hauling of the material to clients.
- (3) *Decommissioning phase which entails the rehabilitation of the affected environment prior to the submission of a closure application to the Department of Mineral Resources and Energy (DMRE).*
- *Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required), and weed / alien clearing.*
  - *All infrastructures, equipment, and other items used during the mining period will be removed from the site (section 44 of the MPRDA).*
  - *Waste material of any description, including receptacles, scrap, rubble, and tyres, will be removed entirely from the mining area, and disposed of at a recognised landfill facility. It will not be permitted to be buried or burned on the site.*
  - *Weed / Alien clearing will be done in a sporadic manner during the life of the mining activities. Species categorised as weeds according to the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) [NEMBA] Alien and Invasive Species Regulation GNR 598 and 599 of 2014 Species regarded as need to be eradicated from the site on final closure.*
  - *Final rehabilitation shall be completed within a period specified by the Regional Manager. Once the mining area was rehabilitated, the mining permit holder will submit a closure application to the DMRE in accordance with section 43(4) of the MPRDA, 2002. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).*

### **Identified Alternatives:**

- **The property on which, or location where, it is proposed to undertake the activity.**

Presently, the project proposal entails the mining of 1 ha area over the properties listed in section *b) Description of the Property* and presented in Figures 1 and 2. Applicants can only apply for mining permits within areas where such permits are not yet held by other companies/applicants. Furthermore, the mining activities are dependent upon the presence of the desired minerals which are again dependent upon geological formations. As this site is known/expected to contain presence

of economically viable gravel deposits it was selected. The proposed footprint of the MP application was based on the available geological information which is of interest to gravel.

#### **Site Alternative 1 (Preferred and Only Site Alternative):**

Site Alternative 1, which entails the mining of an area previously used for the mining of gravel from an existing borrow pit, was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team, as the preferred site alternative.

#### **Site Alternative 2 (Not to further assessed in the BAR)**

Site Alternative 2 has been thoroughly investigated but has been deemed unsuitable and will not be further assessed in the BAR (Basic Assessment Report). While it is part of existing excavation, it was planned for the designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project. Additionally, the quantity of material available at this site is insufficient, making it impractical as a potential alternative for future use. These factors collectively contribute to the decision to exclude Site Alternative 2 from further consideration in the assessment process.

#### **■ Type of activity to be undertaken**

The proposed activity entails mining of gravel. The mining method will make use of excavation by means of earth moving equipment. The material is then loaded and hauled away from this site where it will be stockpiled and transported to clients via trucks and trailers.

#### **■ Design and layout of the activity.**

As discussed above Site Alternative 1 and Site Alternative 2 has been thoroughly investigated but the latter has been deemed unsuitable and will not be further assessed in the BAR (Basic Assessment Report). While it is part of existing excavation, it was planned for the designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project. Additionally, the quantity of material available at this site is insufficient, making it impractical as a potential alternative for future use. These factors collectively contribute to the decision to exclude Site Alternative 2 from further consideration in the assessment process.

As the proposed property are actively mined/earmarked for mining, additional design/layout alternatives that take the current land uses into account were considered, discussed, and assessed but even though it was found part of existing excavation, it was planned for the designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project.

Therefore, no additional design/layout alternatives were deemed viable for this project.

### ■ **Technology to be used in the activity.**

The gravel will be dug by excavator, upon which the loosened material will be moved by FEL to the stockpile from where it will be transported off-site by trucks.

Although mining of gravel will require various mechanical equipment to be on site, the process do not require highly specialised technology and no secondary processing will be required. Therefore, no technology alternatives were deemed viable for this project.

### **No-go Alternative:**

The no-go alternative entails no change to the *status quo* and is therefore a real alternative that needs to be considered. The gravel to be mined from the existing borrow pit will be sold to the building, road rehabilitation/maintenance and associated construction industry, if however, the no-go alternative is implemented the Applicant could not utilise the mineral resource on this property and the construction industry in the area will not benefit from diversification of gravel sources which will escalating product costs.

### **Public Participation Process**

English and isiZulu notices were placed at conspicuous points. The project will be advertised in the Ladysmith Gazette. Stakeholders and I&AP's will be informed of the project with notification letters. The commenting period for perusal of the documentation and submission of comments ends 10 June 2024. The comments received on the DBAR will be incorporated into the final BAR to be submitted to DMRE.

### **Basic Assessment Report**

The key findings of the basic assessment report are:

#### **Topography:**

- The natural topography of the area surrounding the proposed gravel mine is best described as slightly undulating bottomland landscape covered with broad valleys supporting tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana* var. *woodii*. (Mucina and Rutherford, 2012).
- Due to the impracticality of importing large volumes of fill material to restore the borrow pit to its original topography, the rehabilitation option (upon closure) is to render the borrow pit safe and leave it as a minor landscape feature, while the areas surrounding the excavation will return to grazing.

### Visual Characteristics:

- The viewshed shows that the proposed visual impact will be of medium concern. Although the proposed mining area will be visible within the above mentioned  $\pm 10$  km radius, it is proposed that as the distance between the development and the observer increases the visual impact will decrease. From this analysis it is proposed that the visual impact of the proposed gravel mining operation will be of low significance as this is an existing excavated area and especially as no permanent structures will be constructed.
- The small scale of the proposed operation, and the mining within an existing excavation area contributes to the low visual significance. Should the Applicant successfully rehabilitate the mining area (upon closure), no additional residual visual impact is expected upon closure of the mine.

### Air and Noise Quality:

- Should the Applicant implement the proposed mitigation measures the impact on the air quality of the surrounding environment is of low-medium significance.
- Although the proposed activity will have a cumulative impact on the ambient noise levels, the development will not take place in a pristine environment, and the impact is therefore deemed compatible with the current operations and of low-medium significance.
- Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative dust nuisance on the receiving environment (after mitigation) is deemed to be of low-medium significance, while the cumulative noise nuisance (after mitigation) will be of medium significance.

### Hydrology:

- Two streams one on the western side ( $\pm 950$  m) and one on the eastern side  $\pm 650$  m was identified but not any within 500 m of the proposed mining area.
- No wetlands or watercourse were identified within the application footprint.
- An existing excavation feature lies to the east of the site, serving as the approved designated spoil site for the N11 project. This excavation occasionally holds water seasonally but will remain unaffected by the planned mining activities. Despite its periodic water accumulation, this feature has been deemed suitable for its designated purpose and will not face any adverse effects from the proposed mining operations.
- The Department of Water and Sanitation (DWS) has approved multiple abstraction points for water usage, specifically for dust suppression purposes. Consequently, the water necessary for dust suppression will be sourced from one of these pre-approved abstraction points.

### Terrestrial Biodiversity (including Fauna and Flora):

- Since the mid-1990s, the site has experienced extensive vegetation clearance to enable road development, resulting in significant disturbance and degradation. Unfortunately, proper rehabilitation efforts have not been undertaken to restore its condition.
- The provincially protected plant, *Aloe marlothii* (Mountain Aloe) is present on site within large colonies (to be relocated). No other SCCs were identified on site.
- The proposed mining area covers ±1 ha of Northern KwaZulu-Natal Moist Grassland (Gs 4), and mainly consists of Hilly and rolling landscapes supporting tall tussock grassland usually dominated by *Themeda triandra* and *Hyparrhenia hirta*. Open *Acacia sieberiana* var. *woodii* savannoid woodlands encroach up the valleys, usually on disturbed (strongly eroded) sites.
- Considering the project's relatively small scale and the current land use patterns in the area—characterized by disturbed grasslands utilized for grazing—potential impacts on faunal movement are unlikely to be of significant concern.
- With optimal mitigation measures in place, the project is deemed environmentally acceptable in terms of terrestrial biodiversity. However, strict adherence to mitigation and management recommendations is crucial to ensure its sustainability.

#### Fauna:

- None of the sensitive avifauna or faunal species obtained from SANBI were observed on site.
- Visual observations during the site inspection revealed no significant faunal species of conservation concern (SCC), nor was any evidence found to suggest their probable presence within the project area. Considering the current habitat conditions and level of disturbance, it is improbable that faunal species of conservation concern inhabit the proposed project area. Consequently, the likelihood of impacts on fauna of conservation concern is low, with overall consequences deemed inconsequential.
- There is no evident fatal flaw regarding fauna that would prevent this development from being authorised if the mitigation and monitoring measures proposed by the specialist are implemented by the Applicant.

#### Cultural and Heritage Environment:

- No sites of archaeological or cultural importance were identified during the site inspection, and consultation with the interested and affected parties also did not identify any potential area of concern. The potential impact of the proposed mining activities on the cultural and/or heritage environment is therefore deemed to be insignificant, however the Applicant will implement a chance-find protocol on site for the duration of the site establishment-, operational- and decommissioning phase.
- A Needs and Desirability Application Form will be submitted to AMAFA in May 2024 to inform them of the proposed project and obtain their comments.

#### Existing Infrastructure:

- Should the mitigation measures proposed in this document be implemented the existing infrastructure on the farm/neighbouring properties will not be impaired.

### **Environmental Management Programme (EMPR)**

The EMPR provides a description of the impact management outcomes and closure objectives. It presents the impacts to be mitigated in their respective phases as well as stipulates the mitigation measures to be applied on site.

The financial provision amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum of R 285 633,88.

## LIST OF ABBREVIATIONS

ADLM	Alfred Duma Local Municipality
ADT	Articulated Dump Truck
AMAFA	Heritage Kwazulu-Natal
ASTM	American Standard Test Method
BGIS	Biodiversity GIS
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
CM	Contracts Manager
CPG	Contract Participation Goals
DBAR	Draft Basic Assessment Report
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DFFE	Department of Forestry, Fisheries and Environment
DMRE	Department of Mineral and Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment Regulations, 2014 (as amended)
EIS	Ecological Importance and Sensitivity
EMPR	Environmental Management Programme
ESA	Ecological Support Areas
eWULAAS	Electronic Water Use Licence Application and Authorisation System
EZEMVELO	KZN Wildlife
FBAR	Final Basic Assessment Report
GDP	Gross Domestic Product
GNR	Government Notice
GPS	Global Positioning System
HDSA	Historically Disadvantaged South Africans
HGM	Hydrogeomorphic
HIA	Heritage Impact Assessment
HSA	Hazardous Substances Act, 1973 (Act No. 15 of 1973)
I&AP's	Interested and Affected Parties
IDP	Integrated Development Plan
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)

MP	Mining Permit
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM: AQA	National Environmental Management: Air Quality Control Act, 2004 (Act No. 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEM: PAA	National Environmental Management: Protected Areas Amendment Act, 2014 (Act No. 21 of 2014)
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NFA	National Forest Act, 1998 (Act No. 84 of 1998)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NPAES	Nationals Protected Area Expansion Strategy
NRTA	National Road Traffic Act, 1996 (Act No. 93 of 1996)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
OHSA	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)
OHSAS	Occupational Health and Safety Management Systems
PCB's	Polychlorinated Biphenyl
PCO	Pest Control Officer
PES	Present Ecological State
POC	Species of Conservation Concern Potential Occurrence
PPE	Personal Protective Equipment
PSM	Palaeontological Sensitivity Map
RBX-KZN	Raubex-KZN (Pty) Ltd
REC	Recommended Ecological Category
ROMs	Recommended Management Objectives
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMBF	South African Mining and Biodiversity Forum
SANRAL	South African National Roads Agency SOC Ltd
SANS	South African National Standards
SCA	Systematic Conservation Assessments
SCC	Species of Conservation Concern
SDS	Safety Data Sheet
SWSA	Strategic Water Source Area

TBIA	Terrestrial Biodiversity Impact Assessment
TSCP	Terrestrial Systematic Conservation Plan
USBM	US Bureau of Mines
WMA	Water Management Area
WUL	Water Use Licence
WULA	Water Use Licence Application

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**mineral resources**

Department:  
Mineral Resources  
**REPUBLIC OF SOUTH AFRICA**

**BASIC ASSESSMENT REPORT**  
**And**  
**ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

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

<b>NAME OF APPLICANT:</b>	Raubex KZN (Pty) Ltd
<b>TEL NO:</b>	031 700 6411
<b>FAX NO:</b>	086 236 5670
<b>POSTAL ADDRESS:</b>	PO Box 1211 Hillcrest 3650
<b>PHYSICAL ADDRESS:</b>	12 Sterkspruit Road Cliffdale 3700
<b>FILE REFERENCE NUMBER SAMRAD:</b>	KZN 30/5/1/3/2/10974MP.

## IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 29 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 can 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, signification, 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.

## PART A

### SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

#### 1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

##### a) Details of: Greenmined Environmental

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the proponent must appoint an independent Environmental Assessment Practitioner (EAP) to undertake the environmental impact assessment (EIA) of any activities regulated in terms of the Act. Raubex KZN (Pty) Ltd (hereafter referred to as the "Applicant") appointed Greenmined Environmental (Pty) Ltd (hereafter referred to as "Greenmined") to undertake the study needed. Greenmined has no vested interest in Raubex KZN (Pty) Ltd or the proposed project and declares its independence as required by the Environmental Impact Assessment Regulations, 2014 (as amended) (EIA Regulations).

##### i) Details of the EAP

Name of the Practitioner: Mrs Sonette Smit (Senior Environmental Consultant)  
Tel No.: 021 851 2673  
Fax No.: 086 546 0579  
E-mail address: [sonette.s@greenmined.co.za](mailto:sonette.s@greenmined.co.za)

EAP Registration No: 2020/2467

##### ii) Expertise of the EAP.

###### (1) The qualifications of the EAP

(with evidence).

Mrs. S Smit has sixteen years of experience in environmental legal compliance audits, (GIS) geographic information system, mining right and permit applications and applications for environmental authorisations & Water use applications. Please find full CV attached in Appendix J.

###### (2) Summary of the EAP's past experience.

(In carrying out the Environmental Impact Assessment Procedure)

Sonette Smit is an Environmental Consultant with 17 years' experience in the environmental sector. She specialized in the last 12 years in the mining sector where she conducted the mining related report and programs. She has also been involved in a number of other environmental and water use application projects

where she compiled environmental management plans, environmental impact assessments, environmental audits, IWULA's/IWWMP's.

Mrs. S Smit is a registered Environmental Assessment Practitioner (registration no: 2020/2467) with EAPASA (Environmental Assessment 19 Practitioners Association of South Africa) since 2020. See a list of past projects attached as Appendix J.

**b) Location of the overall Activity.**

*Table 1: Location of the proposed project.*

<b>Farm Name:</b>	The Remaining Extent of Portion 10 of Schaap Plaats 5689 GS, situated in the Magisterial District of Uthukela of KwaZulu-Natal Province
<b>Application area (Ha)</b>	1 ha
<b>Magisterial district:</b>	Alfred Duma Local Municipality uThukela District Municipality
<b>Distance and direction from the nearest town</b>	±15 km northeast of Ladysmith.  Using the N11, head northeast for approximately 15km. The entrance to the proposed mining area is found on the left of the road.
<b>21-digit Surveyor General Code for each farm portion</b>	N0GS00000000568900010

**c) Locality map**

(show nearest town, scale not smaller than 1:250000).

The requested map is attached as Appendix B.

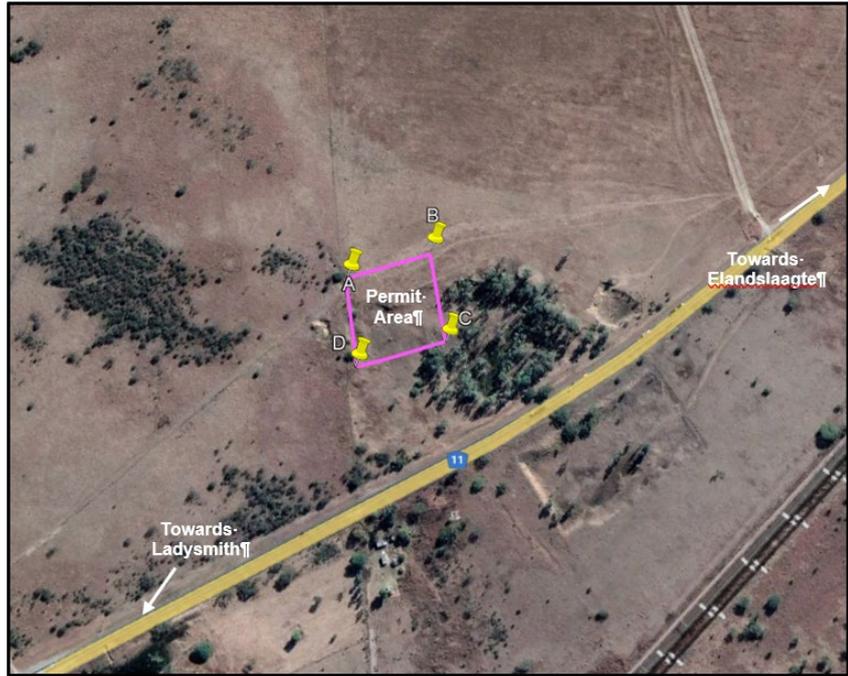


Figure 1: Satellite view of the proposed mining permit area (purple square) submitted by Raubex KZN (Pty) Ltd (image obtained from Google Earth).

**d) Description of the scope of the proposed overall activity.**

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

The Applicant, Raubex KZN (Pty) Ltd, is applying for environmental authorisation (EA) and a mining permit (MP) over 1 ha of a part of the Remaining Extent of Portion 10 of Schaap Plaats 5689 GS, situated in the Magisterial District of Uthukela of KwaZulu-Natal Province.

The proposed mining footprint will be 1 ha and will be developed over a previously disturbed area of the farm. The area has a history of disturbance due to previous excavation activities and is currently utilized for cattle grazing by the farm owner. Additionally, adjacent to the proposed permit application area lies the approved spoil site for the N11 project, indicating a pre-existing alteration of the landscape. Furthermore, the construction of a new bypass road for the N11 to the east of the site has been completed, utilizing existing excavation resources. These factors underscore the existing land use dynamics and alterations in the vicinity. The mining method will make use of excavation by means of earth moving equipment. The material is then loaded and hauled away from this site where it will be stockpiled and transported to clients via trucks and trailers. The infrastructure will be of temporary nature as a mining permit can only be valid for a

maximum of 5 years. The farm track currently in use for the construction activities in the area will undergo periodic improvements to facilitate the movement of vehicles associated with the project. Chemical toilets will be used, and the project will appoint local employees where possible.

Due to the small scale of the operation no permanent infrastructure will be built at the mining area.

The mining activities will consist out of the following:

- Stripping and stockpiling of topsoil.
- Excavating.
- Stockpiling and transporting of material.
- Sloping and landscaping upon closure of the site; and
- Replacing the topsoil and vegetation the disturbed area.

The mining site will contain the following:

- Excavating equipment.
- Earth moving equipment.
- Site vehicles.
- Parking area for visitors and site vehicles.
- Ablution facilities (Chemical toilet).

See attached as Appendix C a copy of the site activities map for the proposed project.

**i) Listed and specified activities**

*Table 2: Listed and specified activities triggered by the associated mining activities.*

<b>NAME OF ACTIVITY</b>	<b>Aerial extent of the activity</b>	<b>LISTED ACTIVITY</b>	<b>APPLICABLE NOTICE</b>	<b>LISTING</b>
(E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc  E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc... etc... etc.)	Ha or m <sup>2</sup>	Mark with an X where applicable or affected	(GNR 324, GNR 325, GNR 326 OR GNR 327)	
Demarcation of site with visible beacons.	1 ha	N/A		Not listed
Site establishment and infrastructure development.	±1 ha	X	GNR 983 LN 1 Activity 21 (as amended)	
Stripping and stockpiling of topsoil and/or overburden.	±1 ha	X		
Excavation, stockpiling, and transporting of material.	±1 ha	X		
Sloping and landscaping upon closure of the mining area.	±1 ha	X		
Replacing the topsoil and vegetating the disturbed area.	±1 ha	X		
<p>GNR 983 Listing Notice 1 Activity 21:</p> <p><i>Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the mining permit.</i></p>				

**ii) Description of the activities to be undertaken**

(Describe Methodology or technology to be employed, including the type of commodity to the prospected/mined and for a linear activity, a description of the rout of the activity)

**Background Information:**

Raubex KZN (Pty) Ltd (hereafter referred to as the “Applicant”) identified the need for a new mining permit on the above mentioned 1 ha area. The aim of the application is

to secure the resource for the SANRAL contract to upgrade the N11 that borders the farm to the south.

Table 3: GPS Coordinates of the proposed mining footprint

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	28°26'7,166"S	29°53'46,021"E	-28,435324°	29,896117°
B	28°26'5,784"S	29°53'49,236"E	-28,43494°	29,89701°
C	28°26'8,920"S	29°53'50,431"E	-28,435811°	29,897342°
D	28°26'10,334"S	29°53'47,105"E	-28,436204 °	29,896418°

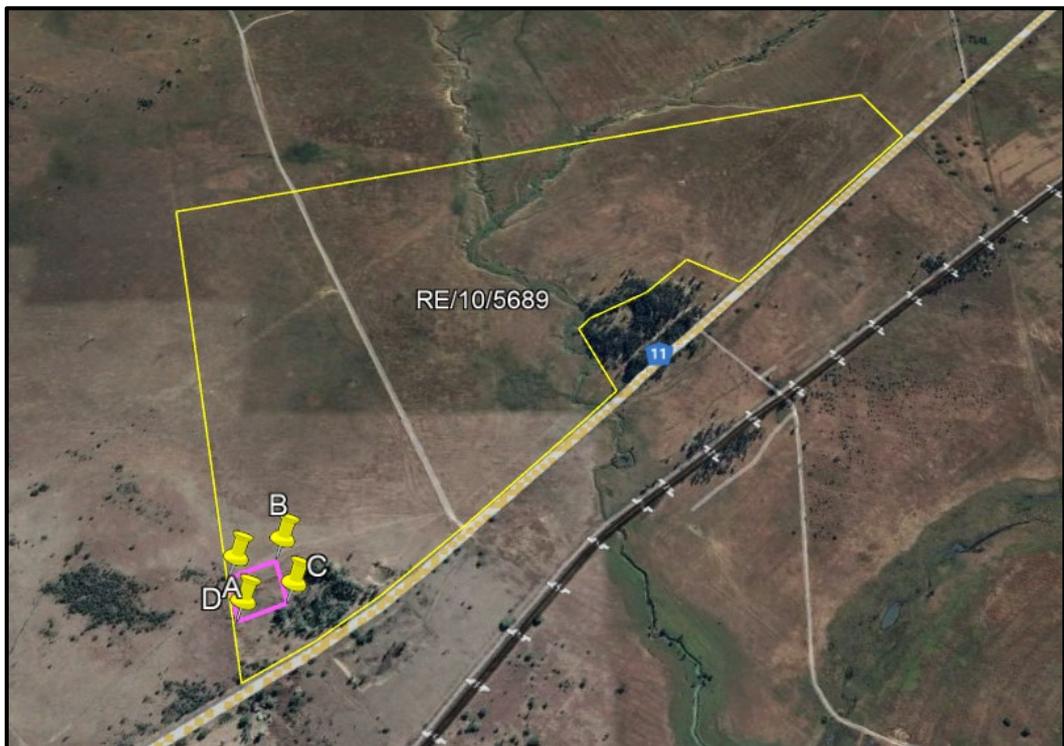


Figure 2: Satellite view showing the location of the MP application area (pink polygon) in relation to the surrounding area where the yellow lines indicate the farm boundaries (image obtained from Google Earth).

Should the MP be issued, and the mining activity be allowed, the proposed project will comprise of activities that can be divided into three key phases (discussed in more detail below) namely the:

- (1) *Site establishment/construction phase* the demarcation of the permitted mining area. Site establishment may necessitate the clearing of vegetation (that established through succession) from the mining area, the stripping and stockpiling

of topsoil at the mining area (if applicable), and the introduction of the mining machinery and equipment.

(2) *Operational phase* that will entail the removal of the gravel with an excavator from the approved footprint area, stockpiling and hauling of the material to clients.

(3) *Decommissioning phase* which entails the rehabilitation of the affected environment prior to the submission of a closure application to the Department of Mineral Resources and Energy (DMRE).

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required), and weed / alien clearing.
- All infrastructures, equipment, and other items used during the mining period will be removed from the site (section 44 of the MPRDA).
- Waste material of any description, including receptacles, scrap, rubble, and tyres, will be removed entirely from the mining area, and disposed of at a recognised landfill facility. It will not be permitted to be buried or burned on the site.
- Weed / Alien clearing will be done in a sporadic manner during the life of the mining activities. Species categorised as weeds according to the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) [NEMBA] Alien and Invasive Species Regulation GNR 598 and 599 of 2014 Species regarded as need to be eradicated from the site on final closure.
- Final rehabilitation shall be completed within a period specified by the Regional Manager. Once the mining area was rehabilitated, the mining permit holder will submit a closure application to the DMRE in accordance with section 43(4) of the MPRDA, 2002. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

## **PHASES OF THE PROJECT**

### *1. Site Establishment Phase:*

Site establishment entails the demarcation of the mining boundaries, clearance of vegetation and stripping and stockpiling of topsoil (if needed) from the mining area, and the introduction of the mining equipment as detailed below:

■ **Demarcation of Mining Boundaries:**

Upon receipt of the Environmental Authorization (EA) and Mining Permit (MP) (if approved), and before site establishment commences, the boundaries of the mining area will be clearly marked with visible beacons.

■ **Access Road:**

The proposed mining area will be reached via the existing farm road. No mining equipment or vehicles will access the N11 directly from the mining area without prior approval from SANRAL. The farm track currently in use will undergo periodic improvements to facilitate the movement of vehicles associated with the project. The Applicant proposes to upgrade the road to allow comfortable movement of mining related equipment and vehicles and to comply with the requirements of the Mine Health and Safety Act, 1996 (Act No 29 of 1996). Haul roads into the excavation will be extended as mining progresses.

The surface of the road will be improved, re-gravelled where needed, and the width increased to  $\pm 10$  m. Upon closure of the site, the upgraded road will be returned to the landowner for future use.



*Figure 3: Satellite view showing the path of the existing access road (red line) to the proposed mining area (pink polygon).*

■ **Clearing of Vegetation:**

(Also refer to Part A(1)(h)(iv)(c) Description of specific environmental features and infrastructures on the site – Site Specific Terrestrial Biodiversity (including fauna and flora)

The proposed activity will require the removal of indigenous vegetation during the site establishment- and operational phases. The vegetation type of the earmarked footprint is classified as Northern KwaZulu-Natal Moist Grassland (Gs 4), and mainly consists of Hilly and rolling landscapes supporting tall tussock grassland usually dominated by *Themeda triandra* and *Hyparrhenia hirta*. Open *Acacia sieberiana* var. *woodii* savannoid woodlands encroach up the valleys, usually on disturbed (strongly eroded) sites. In terms of species of special concern, the provincially protected *Aloe marlothii* (Mountain Aloe) is present on site. The Applicant will strive to conserve as much vegetation within the mining footprint area as possible and will apply for relocation permits for the Mountain Aloes from Ezemvelo/KZN-Wildlife. Bush clearance will only commence upon receipt of the applicable plant permit and relocation of the aloes. The environmental control officer (ECO) will assess the compliance of the permit holder with the conditions of said permits.

#### ■ **Topsoil Stripping:**

It is proposed that topsoil removal will be restricted to the exact footprint of areas required during the operational phase of the activity. The topsoil will be stockpiled at a designated signposted area (>200 m from power lines) within the mining boundary to be replaced during the rehabilitation of the area. It will be part of the obligations of site management to prevent the mixing of topsoil heaps with overburden/other soil heaps. The complete A-horizon (the top 100 – 200 mm of soil which is generally darker coloured due to high organic matter content) will be removed. If it is unclear where the topsoil layer ends the top 300 mm of soil will be stripped. The topsoil berm will measure a maximum of 1.5 m in height to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.

#### ■ **Introduction of Mining Machinery and Site Equipment:**

As mentioned earlier, due to the small scale of the operation no permanent infrastructure will be built at the mining area. As no fixed/permanent infrastructure will be established, the production rate will dictate the layout of the proposed footprint area, however no mining will be nearer than 10 m to the

adjacent power lines. The use of diesel and petrol on site will be below the threshold of the NEMA, 1998 EIA Regulations, 2014 (as amended).

Presently, the mining infrastructure/equipment is expected to consist of at least:

- ADT trucks.
- Chemical ablution facilities.
- Earthmoving- and excavating equipment.
- Weighbridge with control room.
- Generators; and a
- Water truck.

## 2. *Operational Phase:*

The product to be generated at the proposed borrow pit will be used, by the Applicant, as fill material for the SANRAL road works tender to upgrade the N11 in the vicinity of Ladysmith.

The proposed mining footprint will be 1 ha and will be developed over a previously disturbed area of the farm. The earmarked mining area borders an existing borrow pit, and the Applicant therefore wishes to secure the resource and proposes to mine the borrow pit through the open-cast mining method.

The operational phase will involve the recovery of the gravel by means of earth moving equipment. The gravel will be stockpiled and transported to clients via trucks and trailers. All activities will be contained within the boundaries of the site. The mining activities will consist out of the following:

- Stripping and stockpiling of topsoil.
- Excavating.
- Stockpiling and transporting.
- Sloping and landscaping upon closure of the site; and
- Replacing the topsoil and vegetation the disturbed area.

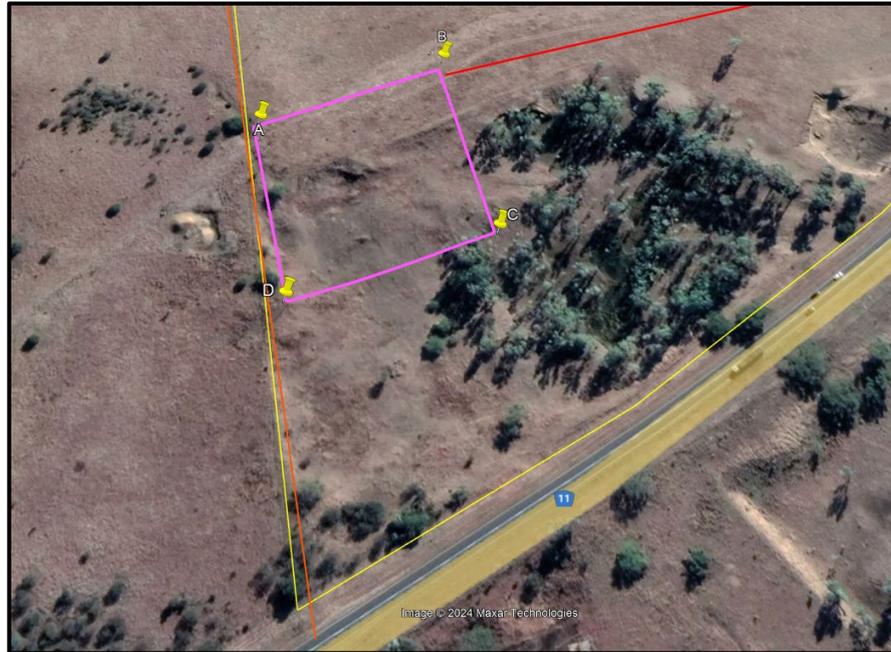


Figure 4: All mining will be >10 m from the adjacent power lines (orange line) (image obtained from Google Earth).

#### Water Use:

The Department of Water and Sanitation (DWS) has approved multiple abstraction points for water usage, specifically for dust suppression purposes. Consequently, the water necessary for dust suppression will be sourced from one of these pre-approved abstraction points. Any water required for the implementation of the project will be bought from a legal source and transported to the mining area (in a truck) where it will be used. Presently, no washing of material is proposed, and the Applicant will therefore mainly use water for dust suppression purposes on denuded areas and access road (when needed).

Dust generation will, as far as possible, be managed through alternative dust suppression methods to restrict water use to the absolute minimum. These measures will include a combination of the following:

- The speed of all mining equipment/vehicles will be restricted to 40 km/h on the internal farm road to minimize dust generation.
- Site management will attempt to lessen denuded areas (dust source) to the absolute minimum.

Under very windy/dusty conditions the permit holder might have to substitute the above-mentioned dust suppression methods with the spraying of water, in which case a water truck will moisten the problem areas. The water truck

driver will receive proper training to ensure effective use of the water on problem areas preventing water wastage. It is proposed that approximately 20 000 litres of water will be needed per day during the dry months (amount to decrease during the rainy season).

■ **Electricity Use:**

As mentioned earlier, due to the small scale of the operation no permanent infrastructure will be built at the mining area therefore only should the proposed project need electricity will they make use of diesel generators to power the mining infrastructure. All generators will have secondary containment in the form of a bund wall/drip tray that can contain 110% of the generator's maximum capacity. The petrol needed to power the generators will not be stored on site, but brought to site when needed. As mentioned earlier, the use of dangerous goods (such as diesel and petrol) on site will not trigger the NEMA, 1998 EIA Regulations, 2014 (as amended). Drip trays will be used when refuelling is required.

■ **Servicing and Maintenance:**

No workshop will be established in the proposed mining area and therefore servicing and/or routine maintenance of the equipment will take place off site. If emergency repairs are needed on equipment not able to move off site, drip trays will be used under the machinery and all waste will be contained and removed from the emergency service area to an off-site workshop to ensure proper disposal.

There will be no bulk storage of fuel and very little (if any) chemicals will be needed on site. Any chemicals/hazardous substances needed will be kept in the control room of the weighbridge, alternatively the products will be contained in the vehicles and removed from the site at the end of each day.

■ **Waste Handling:**

Due to the nature of the project, the small scale of the proposed operation, and the fact that no infrastructure will be established, or maintenance work done within the earmarked footprint, very little to no general waste will be generated as a direct result of the mining activities. Any waste generated

during the operational phase, will be contained in a sealable refuse bin that will be removed from site and incorporated in the existing waste disposal system at the workshop of the Applicant.

Likewise, very little (if any) generation of hazardous waste is expected. Hazardous waste will mainly be the result of accidental spillages or breakdowns. Such contaminated areas will be cleaned up immediately (within two hours of the occurrence) and contaminated soil will be contained in designated hazardous waste containers to be removed daily to the hazardous waste storage area at the Applicant's workshop where it will be disposed of as part of the hazardous waste by a registered hazardous waste handling contractor.

The chemical toilet, to be placed on site, will be serviced by a registered contractor.

***Decommissioning Phase:***

The decommissioning phase will entail the reinstatement of the mining area by removing the stockpiled material, and site equipment and landscaping the disturbed footprints. Due to the impracticality of importing large volumes of fill to restore the borrow pit area to its original topography, the rehabilitation option is to develop the borrow pit into a minor landscape feature. This will entail creating slopes thereby reducing the overall angle. The slopes will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil (see Appendix K for the Closure Plan).

The decommissioning activities will therefore consist of the following:

- Sloping and landscaping the borrow pit.
- Removing all stockpiled material.
- Removing all mining machinery and equipment from site.
- Landscaping all disturbed areas and replacing the topsoil.
- Vegetating the reinstated area; and
- Controlling/monitoring the invasive plant species.

The area has a history of disturbance due to previous excavation activities and is currently utilized for cattle grazing by the farm owner. Upon rehabilitation, the area around the excavation will once again be available for grazing purposes.

The Applicant will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

■ Rehabilitation of the excavated area:

The excavated area must serve as a final depositing area for the placement of overburden. Rocks and coarse material removed from the excavation must be dumped into the excavation.

No waste may be permitted to be deposited in the excavations.

Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.

The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from closure of the site.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.

Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.

On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):

- Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

Photographs of the site, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the DMRE Regional Manager.

On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200 mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.

The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the DMRE Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

■ Final rehabilitation:

Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required) and maintenance, and invasive plant species clearing.

All mining equipment, and other items used during the mining period must be removed from the site (section 44 of the MPRDA).

Waste material of any description, including receptacles, scrap, rubble, and tyres, must be removed entirely from the mining area, and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.

The management of invasive plant species must be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) will be eradicated from the site.

Final rehabilitation shall be completed within a period specified by the Regional Manager.

Once the mining area was rehabilitated the permit holder is required to submit a closure application to the Department of Mineral Resources and Energy in accordance with section 43(4) of the MPRDA, 2002 that states: *“An application for a closure certificate must be made to the Regional Manager in whose region the land in question is situated within 180 days of the occurrence of the lapsing, abandonment, cancellation, cessation, relinquishment or completion contemplated in subsection (3) and must be accompanied by the prescribed environmental risk report”*. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

## e) Policy and Legislative Context

Table 4: Policy and Legislative Context.

<b>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</b>  (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	<b>REFERENCE WHERE APPLIED</b>	<b>HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.</b>  (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity: <i>Physical Environment – Geology and Soil.</i>  Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of invader plant species.</i>	The mitigation measures proposed for the site includes specifications of the CARA, 1983.
Electricity Act, 1987 (Act No 41 of 1987) as amended.	Part A(1)(h)(iv)(c) Description of specific environmental features and infrastructure on the site.	The mining activities will be conducted in accordance with the said act.
Integrated Environmental Management Guideline: Guideline on Need and Desirability (2017).	Part A(1)(f) Need and desirability of the proposed activity.	The need and desirability of the proposed project was assessed in terms of this guideline.
KwaZulu-Natal AMAFA and Research Institute Act, 2018 (Act No 05 of 2018)	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Human Environment.</i>  Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Archaeological, Heritage and Palaeontological Aspects.</i>	An application in terms of Section 41 of the said act will be submitted to AMAFA in May 2024 to inform them of the proposed project and obtain their comments.
KwaZulu-Natal Nature Conservation Ordinance No 15 of 1974	Part A(1)(h)(iv)(1)(a) Type of environment affected by the	The Applicant will apply for relocation permits from Ezemvelo

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
	<p>proposed activity - <i>Biological Environment</i></p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of Vegetation Removal &amp; Management of invader plant species.</i></p>	for the Mountain Aloes on site prior to bush clearance.
<p>Mine Health and Safety Act, 1996 (Act No 29 of 1996) read together with applicable amendments and regulations thereto including relevant OHSA regulations.</p>	<p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of Health and Safety Risks.</i></p>	The mitigation measures proposed for the site includes specifications of the MHSA, 1996
<p>Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002) read together with applicable amendments and regulations thereto.</p> <p>■ Section 27</p>	<p>Part A(1)(d) Description of the scope of the proposed overall activity</p>	<p>Application for a mining permit submitted to DMRE-KZN.</p> <p>Ref No: KZN30/5/1/3/2/10974MP</p>
<p>National Environmental Management Act,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended)</p> <p>■ GNR 983 Listing Notice 1 Activity 21</p>	<p>Part A(1)(d)(i) Listed and specified activities.</p>	<p>Application for environmental authorisation submitted to DMRE-KZN.</p> <p>Ref No: KZN30/5/1/3/2/10974MP</p>
<p>National Environmental Management: Air Quality Control Act, 2004 (Act No 39 of 2004) read together with applicable amendments and regulations thereto specifically the National Dust Control Regulations, GN No R827</p>	<p>Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Air and Noise Quality.</i></p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Fugitive Dust Emission Mitigation Measures.</i></p>	The mitigation measures proposed for the site consider the NEM: AQA, 2004 and the National Dust Control Regulations.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) read together with applicable amendments and regulations thereto.	<p>Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity - <i>Biological Environment</i></p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of Vegetation Removal &amp; Management of invader plant species.</i></p>	The mitigation measures proposed for the site includes specifications of the NEM:BA, 2004.
<p>National Environmental Management: Waste Act, 2008 (Act No 59 of 2008) read together with applicable amendments and regulations thereto.</p> <p>NEM: WA, 2008: National norms and standards for the storage of waste (GN 926)</p>	<p>Part A(1)(d)(ii) Description of the activities to be undertaken.</p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Waste Management.</i></p>	The mitigation measures proposed for the site consider the NEM: WA.
National Forest Act, 1998 (Act No 84 of 1998)	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of Vegetation Removal.</i>	The mitigation measures proposed for the site includes specifications of the NFA, 1998.
National Heritage Resources Act. 1999 (Act No 25 of 1999).	<p>Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Human Environment.</i></p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Archaeological, Heritage and Palaeontological Aspects.</i></p>	<p>The mitigation measures proposed for the site includes specifications of the NHRA, 1999.</p> <p>A Needs and Desirability Application Form will be submitted to AMAFA in May 2024 to inform them of the proposed project and obtain their comments</p>
National Water Act, 1998 (Act No 36 of 1998) read together with applicable amendments and regulations thereto.	<p>Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Hydrology.</i></p> <p>Part A(1)(h)(viii) The possible mitigation measures that could</p>	The mitigation measures proposed for the site includes specifications of the NWA, 1998.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
	be applied on the level of risk – <i>Mitigating the potential impact on the aquatic environment.</i>  Part B(1)(d)(iii) Has a water use licence been applied for?	
Electrical Machinery Regulations, 2011 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993)	Part A(1)(h)(iv)(c) Description of specific environmental features and infrastructure on the site.	The mining activities will be conducted in accordance with the said regulations.
Public Participation Guideline in terms of the NEMA EIA Regulations	Part A(1)(h)(ii) Details of the Public Participation Process Followed	Public participation was conducted in accordance with the guidelines published in terms of the NEMA EIA Regulations.
Alfred Duma Local Municipality Final Integrated Development Plan 2022/2023 (IDP).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Socio-economic Environment.</i>	The description of the study area's socio-economic status is in accordance with that of the IDP.

**f) Need and desirability of the proposed activities.**

(Describe Methodology or technology to be employed, including the type of commodity to the prospected/mined and for a linear activity, a description of the rout of the activity)

The mining of the resource from the proposed site will benefit the general society in that it will contribute to the upgrading of road infrastructure of the region, thereby enabling road users to safely travel through the district. The upgrading and maintenance of roads is of high priority and contributes to the improvement of the infrastructure network of South Africa.

The need and desirability of the proposed project was assessed in terms of the National Department of Environmental Affairs' Guideline on Need and Desirability (first version published in terms of section 24J of the NEMA in 2014, and second version in 2017)). The following table shows the questions that were considered in this regard.

The increasing building, construction, and road maintenance activities surrounding the property underscore the urgency for the Applicant to access gravel from an authorized area. This necessitates the approval of the proposed gravel mining operation, which

involves extracting gravel from an existing disturbed area with convenient mineral access. Recognizing the economic potential, this venture promises to diversify property activities, transitioning from idle agricultural land to include small-scale mining. Approval of this project is crucial as it not only directly contributes to the local economy but also triggers a multiplier effect by stimulating job creation and income generation through local purchases and spending. Raubex KZN (Pty) Ltd, renowned for earthworks and road surfacing expertise, has secured a significant SANRAL road works tender to upgrade the N11 near Ladysmith in January 2023, underscoring the strategic importance of the proposed mining site in supplying essential fill material for the project. The extraction of resources from this site is paramount for enhancing regional road infrastructure, ensuring safer travel for all road users. Given the high priority of road upgrading and maintenance, approving this project aligns with the imperative of reinforcing South Africa's infrastructure network. The thorough assessment of the project's necessity and desirability, as outlined in the National Department of Environmental Affairs' Guideline on Need and Desirability, underscores its compatibility with regulatory standards and its potential to address critical regional needs.

Table 5: Need and desirability determination.

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	Response	Level of Desirability
How were ecological integrity considerations taken into account?	<p>As discussed under Part A(1)(g)(iv)(1)(a) <i>Type of environment affected by the proposed activity</i>, the Mining and Biodiversity Map shows that the proposed footprint extends over an area o as shown in the figure below, it does not fall over and area of biodiversity importance with a corresponding risk rating for mining. The guideline notes that environmental screening, the EIA, and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.</p> <ul style="list-style-type: none"> <li>■ Since the mid-1990s, the site has experienced extensive vegetation clearance to enable road development, resulting in significant disturbance and degradation. Unfortunately, proper rehabilitation efforts have not been undertaken to restore its condition.</li> <li>■ The provincially protected plant, <i>Aloe marlothii</i> (Mountain Aloe) is present on site within large colonies (to be relocated). No other SCCs were identified on site.</li> <li>■ The proposed mining area covers ±1 ha of Northern KwaZulu-Natal Moist Grassland (Gs 4), and mainly consists of Hilly and rolling landscapes supporting tall tussock grassland usually dominated by <i>Themeda triandra</i> and <i>Hyparrhenia hirta</i>. Open <i>Acacia sieberiana</i> var. <i>woodii</i> savannoid woodlands encroach up the valleys, usually on disturbed (strongly eroded) sites.</li> <li>■ Considering the project's relatively small scale and the current land use patterns in the area—characterized by disturbed grasslands utilized for grazing—potential impacts on faunal movement are unlikely to be of significant concern.</li> </ul> <p>With optimal mitigation measures in place, the project is deemed environmentally acceptable in terms of terrestrial biodiversity. However, strict adherence to mitigation and management recommendations is crucial to ensure its sustainability.</p>	Desirable
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?		

**1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES**

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
	<p>Also refer to:</p> <ul style="list-style-type: none"> <li>■ Part A(1)(d)(ii) Description of the activities to be undertaken – Clearing of Vegetation.</li> <li>■ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Mining and Biodiversity.</li> <li>■ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Biodiversity Conservation Areas.</li> <li>■ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Groundcover.</li> <li>■ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity (including fauna and flora),</li> <li>■ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.</li> </ul>	
<p>How will this development pollute and/or degrade the biophysical environment?</p>	<p>Due of the nature of the proposed activity, it is inevitable that the present vegetation cover of the earmarked footprint will eventually be removed to allow access to the Stone Aggregate / Gravel resource, only to be replaced (to some extend) during the rehabilitation phase. Taking the above mentioned into consideration and should the permit holder adhere to the conditions of the EA and provided that the mitigation measures are implemented it is believed that the impact on the biophysical environment is of acceptable significance.</p>	<p>Desirable</p>
<p>What waste will be generated by this development?</p>	<p>The general waste to be generated at the mine will mainly consist of paper, plastic, tin, and/or glass from the daily operations of the employees. All general waste will be contained in sealable refuse bins until it is transported to a registered general waste landfill site. A registered contractor will service the chemical toilets and be responsible for the removal of the sewerage to a registered sewerage handling facility.</p> <p>As mentioned earlier, hazardous waste may result from accidental spillages/breakdowns. Such contaminated areas will immediately (within two hours of occurrence) be cleaned, and the contaminated soil will be contained in a designated hazardous waste container that will be kept in a bunded area with impermeable surface until it is removed from site by a registered</p>	<p>Highly Desirable</p>

**1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES**

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
	hazardous waste handling contractor to an approved facility. No waste will be disposed of, buried, burned, or treated on the site.	
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	<p>No sites of archaeological or cultural importance were identified during the site inspection, and consultation with the interested and affected parties also did not identify any potential area of concern. The potential impact of the proposed mining activities on the cultural and/or heritage environment is therefore deemed to be insignificant, however the Applicant will implement a chance-find protocol on site for the duration of the site establishment-, operational- and decommissioning phase.</p> <p>A Needs and Desirability Application Form will be submitted to AMAFA in May 2024 to inform them of the proposed project and obtain their comments.</p>	Highly Desirable
How will this development use and/or impact on non-renewable natural resources?	If approved the Applicant will mine the resource identified on a part of the Remaining Extent of Portion 10 of Schaap Plaats 5689 GS, situated in the Magisterial District of Uthukela of KwaZulu-Natal Province. Presently, it is believed that the mineable area (1 ha) may have an inferred Stone Aggregate / Gravel reserve of >350 000 tons. Based on the proposed production rate, the Stone Aggregate / Gravel resource shows a potential life of mine of >6 years. Considering this, the permit holder will responsibly consume the resource on the property.	Highly Desirable
How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part?	It is proposed that approximately 20 000 litres of water will be needed per day during the dry months (amount to decrease during the rainy season) to manage dust emissions from the proposed operation. As mentioned earlier, the contractor will strive to manage dust generation through alternative suppression methods to restrict water use to the absolute minimum. Presently, it is proposed that water will be bought from a legal source and transported to site. The contractor will be encouraged to consider the use of non-potable water for mining related activities.	Desirable

## 1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
How were a risk-averse and cautious approach applied in terms of ecological impacts?	The Applicant will apply for a relocation permit of the aloes from KZN-Wildlife (Ezemvelo) prior to bush clearance. Bush clearance will only commence upon receipt of the applicable plant permit and relocation of the aloes. The environmental control officer (ECO) will assess the compliance of the permit holder with the conditions of the said permit.	Highly Desirable
How will the ecological impacts be resulting from this development impact on people's environmental right?	The mine will be managed in accordance with the specifications of the lease agreement with the landowner and should the mitigation measures proposed in this document be implemented the potential visual-, dust-, and noise impacts associated with the mining operation will be of medium - low significance. If the monitoring programs, proposed in this document, is implemented it is believed that no environmental rights of the surrounding residents/public will be affected by ecological impacts associated with the proposed activity.	Highly Desirable
Describe the linkages and dependencies between human wellbeing, livelihoods, and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts.	If approved, the borrow pit will create new work opportunities to residents and will also contribute an additional source of income (compensation) to the landowner. It is proposed that the borrow pit will contribute to the local economy of the area, both directly and through the multiplier effect that its presence will create. Equipment and supplies will be purchased locally, and wages will be spent at local businesses, generating both jobs and income in the area. The mining of the resource from the proposed site will benefit the general society in that it will contribute to the upgrading of road infrastructure of the region, thereby enabling road users to safely travel through the district. The upgrading and maintenance of roads is of high priority and contributes to the improvement of the infrastructure network of South Africa.	Highly Desirable
Based on all the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	If the mitigation measures proposed in this document are adhered to, the project entails the mining of the 1 ha area without influencing the status of the ecosystem type, red data species or the conservation targets set out for the area.  Also refer to:	Desirable

## 1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified, resulted in the selection of the “best practicable environmental option” in terms of ecological considerations	<ul style="list-style-type: none"> <li>▶ Part A(1)(d)(ii) Description of the activities to be undertaken – Clearing of Vegetation.</li> <li>▶ Part A(1)(h)(i) Details of the development footprint alternatives considered.</li> <li>▶ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Mining and Biodiversity.</li> <li>▶ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Biodiversity Conservation Areas.</li> <li>▶ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Groundcover.</li> <li>▶ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity (including fauna and flora).</li> </ul>	

## 2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
What is the socio-economic context of the area?	Please refer to Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Socio-Economic Environment.	Highly Desirable
Considering the socio-economic context, what will the socio-economic impacts be of the development, and specifically also on the socio-economic objectives of the area?	If approved, the borrow pit will create new work opportunities to residents and will also contribute an additional source of income (compensation) to the landowner. It is proposed that the borrow pit will contribute to the local economy of the area, both directly and through the multiplier effect that its presence will create. Equipment and supplies will be purchased locally, and wages will be spent at local businesses, generating both jobs and income in the area. The mining of the resource from	

## 2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
How will this development address the specific physical, psychological, developmental, cultural, and social needs and interests of the relevant communities?	the proposed site will benefit the general society in that it will contribute to the upgrading of road infrastructure of the region, thereby enabling road users to safely travel through the district. The upgrading and maintenance of roads is of high priority and contributes to the improvement of the infrastructure network of South Africa.	
Will the development result in equitable impact distribution, in the short- and long-term?	The proposed mine will be operated in a socially and economically sustainable manner during both the short- and long term. Raubex KZN (Pty) Ltd is focused on Historically Disadvantaged South Africans, especially women, empowerment. The procurement progression plan of the Applicant entails the support of local enterprises, of which preference will be given to HDSA & women owned local suppliers. The applicant's employment equity is also in line with the provisions of the Employment Equity Act, 1998 (as amended).	Highly Desirable
In terms of location, describe how the placement of the proposed development will contribute to the area.	<p>Mining the resource on the property will contribute to the area in that the landowner will receive compensation, the project will create employment opportunities, and the use of the material will directly and indirectly promote the economy of the area as mentioned earlier.</p> <p>As mentioned earlier, the material to be mined at the borrow pit will be used at the SANRAL N11 roadworks project. It is known that there is a need for development and job creation in the region. Although the proposed mine will only appoint a small workforce, the proposed operation forms part of the larger N11 upgrade that presents significant opportunities to SMME's and the unemployed as the contract stipulates that at least 6% of the project value must be spend on local labour. Further to this the CPG target of the project is 30% of the project value.</p>	Highly Desirable
How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	No negative socio-economic impacts could, at this stage, be identified that cannot be managed through the implementation of mitigation measures included in this report.	Highly Desirable

## 2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
How will the socio-economic impacts be resulting from this development impact on people's environmental right?	As mentioned in Part A(1)(t)(i)(1) <i>Impact on the socio-economic conditions of any directly affected person</i> , the activity may have an impact on the visual characteristics of the surrounding environment and may affect air quality and the noise ambiance of the study area. However, the mine will be managed in accordance with the specifications of the lease agreement with the landowner and should the mitigation measures proposed in this document be implemented the potential visual-, dust-, and noise impacts associated with the mining operation will be of low significance. If the monitoring programs, proposed in this document, is implemented it is believed that no environmental rights of the surrounding residents/public will be affected by the ecological impacts associated with the proposed activity.	Highly Desirable
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?	If approved, the borrow pit will create new work opportunities to residents and will also contribute an additional source of income (compensation) to the landowner. It is proposed that the borrow pit will contribute to the local economy of the area, both directly and through the multiplier effect that its presence will create. Equipment and supplies will be purchased locally, and wages will be spent at local businesses, generating both jobs and income in the area. The mining of the resource from the proposed site will benefit the general society in that it will contribute to the upgrading of road infrastructure of the region, thereby enabling road users to safely travel through the district. The upgrading and maintenance of roads is of high priority and contributes to the improvement of the infrastructure network of South Africa.	Highly Desirable
What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	If the mitigation measures proposed in this document are adhered to, the project entails the mining of the 1 ha area without influencing the status of the ecosystem type, red data species or the conservation targets set out for a CBA area. Should the permit application be approved, the project will directly contribute to the socio-economic status of the receiving environment through the employment of residents, support of the local economy, and development brought to the region as part of the N11 road upgrade.  Also refer to:	Highly Desirable
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		

## 2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
any person, particularly vulnerable and disadvantaged persons?	<ul style="list-style-type: none"> <li>■ Part A(1)(h)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.</li> </ul>	
<p>What measures were taken to pursue equitable access to environmental resources, benefits, and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?</p> <p>What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?</p>	<p>The mine will operate in accordance with, amongst others, the following:</p> <ul style="list-style-type: none"> <li>■ CARA, 1983 – to ensure agriculture related compliance.</li> <li>■ Financial Provision Regulations, 2015 – to ensure compliance in terms of rehabilitation.</li> <li>■ Mine Health and Safety Act, 1996 (as amended) – to ensure employee safety.</li> <li>■ MPRDA, 2002 (as amended) – to ensure mining related compliance.</li> <li>■ NEM: AQA, 2004 – to ensure air quality related compliance.</li> <li>■ NEM:BA, 2004 – to ensure biodiversity related compliance.</li> <li>■ NEM: WA, 2008 – to ensure waste related compliance.</li> <li>■ NEMA, 1998 (as amended) – to ensure environmental related compliance.</li> </ul> <p>As mentioned earlier, the Applicant is focussed on Historically Disadvantaged South Africans, especially women, empowerment. The procurement progression plan of the Applicant entails the support of local enterprises, of which preference will be given to HDSA &amp; women owned local suppliers. The applicant's employment equity is also in line with the provisions of the Employment Equity Act, 1998 (as amended).</p>	Highly Desirable
Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community that is consistent with the priority needs of the local area.	Presently, it is proposed that the mine will create employment opportunities to residents. In a municipal area with an unemployment rate of 38%, new job opportunities are of high significance. Further to this, and as mentioned earlier, the procurement progression plan of the applicant supports local enterprises, of which preferences are given to HDSA & women owned local suppliers (where possible).	Highly Desirable

## 2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
	As mentioned earlier, the proposed operation forms part of the larger N11 upgrade that presents significant opportunities to SMME's and the unemployed as the contract stipulates that at least 6% of the project value must be spend on local labour. Further to this the CPG target of the project is 30% of the project value.	
What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected.	The mine will operate in accordance with the specifications of the Mine Health and Safety Act, 1996 as well as the Occupational Health and Safety Act, 1993. Site management will arrange regular toolbox talks with the site personnel regarding the work to be performed and the environment in which the work will take place. Grievances/concerns can be lodged during the toolbox sessions and site meetings.	Highly Desirable
Describe how the development will impact on job creation in terms of, amongst other aspects?	As mentioned earlier, the proposed borrow pit will appoint employees of which will be from the surrounding area.	Highly Desirable
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 proposed mine will operate under a valid environmental authorisation and mining permit to be issued by the DMRE-KZN. Compliance of the site with the approved EMPR, EA- conditions will be reported on as per departmental specifications. Considering this, the proposed activity will take place in an environmentally sustainable manner with the least possible impact on the receiving environment.	Highly Desirable

## 2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left.	It is believed that the mitigation measures proposed in this document is realistic and can be implemented (when applicable) by the mine. As mentioned earlier, due to the impracticality of importing large volumes of fill to restore the borrow pit to its original topography, the rehabilitation option is to develop the borrow pit into a minor landscape feature that will be rendered safe upon final site closure. The slopes will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix and the area will be returned to grazing. If the disturbed areas are successfully rehabilitated no long-term management burden will be left behind.	Highly Desirable
What measures were taken to ensure that the costs of remedying pollution, environmental degradation, and consequent adverse health effects and of preventing, controlling, or minimising further pollution environmental damage or adverse health effects will be paid for by those responsible for harming the environment.	In terms of Section 41 of the MPRDA, 2002 a mining permit holder must submit a financial provision to the DMRE that is sufficient to rehabilitate or manage the negative environmental impacts related to the mining activity. Upon approval of this application, the Applicant will lodge a financial guarantee with the DMRE that will be deemed sufficient to cover the financial provision amount needed to rehabilitate the mining footprint. The environmental liability of the operation will annually be reviewed and if a shortfall is indicated, the guarantee will be accordingly adjusted.	Highly Desirable
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified, resulted in the selection of the best practicable environmental option in terms of socio-economic considerations	If the mitigation measures proposed in this document are adhered to, the project entails the mining of the 1 ha area without influencing the status of the ecosystem type, red data species or the conservation targets set out for the area.  Also refer to: <ul style="list-style-type: none"> <li>■ Part A(1)(h)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.</li> </ul>	Highly Desirable
Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope, and nature of the project in relation to	The surrounding landscape is mainly used for agricultural purposes. The proposed project will be developed in co-operation with the landowner employment opportunities to residents of the area. The project will be of temporary nature (5 years maximum) and although it will add visual-, air- and noise impacts to the surroundings it is believed that these impacts can be	Highly Desirable

**2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT**

What is the socio-economic context of the area?

Question	Response	Level of Desirability
its location and other planned developments in the area.	mitigated to an acceptable level. The socio-economic benefit of mining the existing borrow pit as a material source for the upgrade of the N11 is however of substantial importance. Upon closure the borrow pit will be rehabilitated, and the area left in an acceptable manner for the landowner to continue agricultural activities.	

**g) Motivation for the overall preferred site, activities, and technology alternative.**

**Site Alternative 1 (Preferred and Only Site Alternative):**

Site Alternative 1, which entails the mining of an area previously used for the mining of gravel from an existing borrow pit, was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team, as the preferred site alternative.

**Site Alternative 2 (Not to further assessed in the BAR)**

Site Alternative 2 has been thoroughly investigated but has been deemed unsuitable and will not be further assessed in the BAR (Basic Assessment Report). While it is part of existing excavation, it was planned for the designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project. Additionally, the quantity of material available at this site is insufficient, making it impractical as a potential alternative for future use. These factors collectively contribute to the decision to exclude Site Alternative 2 from further consideration in the assessment process.

**No-go Alternative:**

The no-go alternative entails no change to the *status quo* and is therefore a real alternative that needs to be considered. The gravel to be mined from the existing borrow pit will be sold to the building, road rehabilitation/maintenance and associated construction industry, if however, the no-go alternative is implemented the Applicant could not utilise the mineral resource on this property and the construction industry in the area will not benefit from diversification of gravel sources which will escalating product costs.

These factors collectively contribute to the decision to exclude Site Alternative 2 from further consideration in the assessment process.

**h) Full description of the process followed to reach the proposed preferred alternatives within the site.**

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

**i) Details of the development footprint alternatives considered.**

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

- (a) the property on which or location where it is proposed to undertake the activity.
- (b) the type of activity to be undertaken.

- (c) the design or layout of the activity.
- (d) the technology to be used in the activity.
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

**Site Alternative 1 (S1) (Preferred Site Alternative):** Site Alternative 1 entails the expansion of the existing borrow pit within the GPS coordinates as listed in the table below and depicted in Figure 2 above.

*Table 6: GPS Coordinates of Site Alternative 1 (preferred site alternative)*

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	28°22'05.174"	29°56'23.636"	-28.368104°	29.939899°
B	28°22'01.211"	29°56'24.968"	-28.367003°	29.940269°
C	28°22'03.551"	29°56'37.694"	-28.367653°	29.943804°
D	28°22'07.241"	29°56'37.288"	-28.368678°	29.943691°

**Identified Alternatives:**

- **The property on which, or location where, it is proposed to undertake the activity.**

Presently, the project proposal entails the mining of 1 ha area over the properties listed in section *b) Description of the Property* and presented in Figures 1 and 2. Applicants can only apply for mining permits within areas where such permits are not yet held by other companies/applicants. Furthermore, the mining activities are dependent upon the presence of the desired minerals which are again dependent upon geological formations. As this site is known/expected to contain presence of economically viable gravel deposits it was selected. The proposed footprint of the MP application was based on the available geological information which is of interest to gravel.

**Site Alternative 1 (Preferred and Only Site Alternative):**

Site Alternative 1, which entails the mining of an area previously used for the mining of gravel from an existing borrow pit, was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team, as the preferred site alternative.

**Site Alternative 2 (Not to further assessed in the BAR)**

Site Alternative 2 has been thoroughly investigated but has been deemed unsuitable and will not be further assessed in the BAR (Basic Assessment Report). While it is part

of existing excavation, it was planned for the designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project. Additionally, the quantity of material available at this site is insufficient, making it impractical as a potential alternative for future use. These factors collectively contribute to the decision to exclude Site Alternative 2 from further consideration in the assessment process.

▀ **Type of activity to be undertaken**

The proposed activity entails mining of gravel. The mining method will make use of excavation by means of earth moving equipment. The material is then loaded and hauled away from this site where it will be stockpiled and transported to clients via trucks and trailers.

▀ **Design and layout of the activity.**

The proposed mining site will be an extension of the existing borrow pit previously mined for gravel. The mining method will make use of excavation by means of earth moving equipment. The material is then loaded and hauled to clients.

As the proposed property are actively mined/earmarked for mining, additional design/layout alternatives that take the current land uses into account were considered, discussed, and assessed but even though it was found part of existing excavation, it was planned for the designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project.

Therefore, no additional design/layout alternatives were deemed viable for this project.

▀ **Technology to be used in the activity.**

The gravel will be dug by excavator, upon which the loosened material will be moved by FEL to the stockpile from where it will be transported off-site by trucks.

Although mining of gravel will require various mechanical equipment to be on site, the process do not require highly specialised technology no secondary processing will be required. Therefore, no technology alternatives were deemed viable for this project.

**No-go Alternative:**

The no-go alternative entails no change to the *status quo* and is therefore a real alternative that needs to be considered. The gravel to be mined from the existing borrow pit will be sold to the building, road rehabilitation/maintenance and associated

construction industry, if however, the no-go alternative is implemented the Applicant could not utilise the mineral resource on this property and the construction industry in the area will not benefit from diversification of gravel sources which will escalating product costs.

The no-go alternative was not deemed to be the preferred alternative as:

- the Applicant will not be able to utilize the resource deposit available within the proposed mining area and will need to acquire fill material for the N11 national road upgrade from other commercial sources, which will increase the building cost.
- the existing borrow pit on the property will not be rehabilitated as a requirement of this project.
- the landowner will not receive compensation from the Applicant, and in so doing diversity the income generated from the property.
- the proposed job opportunities, associated with the development of the borrow pit, will be lost to the surrounding community.

These factors collectively contribute to the decision to exclude Site Alternative 2 from further consideration in the assessment process.

## **ii) Details of the Public Participation Process Followed**

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

English and isiZulu site notices that invited comments on the project and the DBAR were placed at the site entrance, as well as the Ladysmith Library on 10 May 2024.

The project was advertised in the Ladysmith Gazette (10 May 2024). Stakeholders and I&APs were informed of the project with notification letters. The newspaper advertisement and notification letters all invited comments on the project as well as the DBAR. The commenting period for perusal of the documents (listed above as well as the DBAR) and submission of comments ended 10 June 2024.

Any comments received on the DBAR will be incorporated into the final BAR to be submitted to the DMRE for approval.

The following I&AP's and stakeholders were thus far consulted with regarding the project:

Table 7: List of the I&AP's and stakeholders that were consulted with during the application.

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
<p><b><u>Landowner:</u></b></p> <ul style="list-style-type: none"> <li>■ Mr Pieter Albert Steyn The Remaining Extent of Portion 10 of Schaap Plaats 5689 GS, situated in the Magisterial District of Uthukela of KwaZulu-Natal Province.</li> </ul> <p><b><u>Surrounding landowners &amp; lawful occupiers:</u></b></p> <ul style="list-style-type: none"> <li>■ Pieter Albert Steyn adjacent landowner of: Schaap Plaats 5689 Portion 1</li> <li>■ Pieter Albert Steyn adjacent landowner of: Schaap Plaats 5689 Portion 3</li> <li>■ Sharp Sharp Fresh Foods Pty Ltd adjacent landowner of: Schaap Plaats 5689 Portion 4</li> <li>■ Mark Prinsloo adjacent landowner of: Schaap Plaats 5689 Portion 15</li> <li>■ Wiseman Njabulo Maunze &amp; Nompumelelo Nokulunga Maunze adjacent landowner of: Schaap Plaats 5689 Portion 19</li> <li>■ Dubai Prop Pty Ltd adjacent landowner of Schaap Plaats 5689 Portion 20</li> </ul>	<ul style="list-style-type: none"> <li>■ Alfred Duma Local Municipality.</li> <li>■ Alfred Duma Municipal Ward Councillor (Ward 14).</li> <li>■ AMAFA / Heritage KZN.</li> <li>■ Department of Agriculture and Rural Development.</li> <li>■ Department of Agriculture, Land Reform and Rural Development (National).</li> <li>■ Department of Economic Development, Tourism and Environmental Affairs.</li> <li>■ Department of Human Settlements, Water and Sanitation.</li> <li>■ Department of Labour.</li> <li>■ Department of Transport.</li> <li>■ Eskom Ltd (Distribution and Transmission).</li> <li>■ Ezemvelo / KZN Wildlife.</li> <li>■ SANRAL.</li> <li>■ South African Heritage Resources Agency; and</li> <li>■ uThukela District Municipality.</li> </ul>
<b>ENTITIES THAT COMMENTED/RESPONDED ON THE PROJECT</b>	
N/A	

Refer to the following table for an explanation on how the public participation process of this project took the methods stipulated in Regulation 41 of the NEMA Regulations into account. Proof of the public participation process that was followed is attached as Appendix E to this document.

Table 8: Table comparing the required methods with the public participation process of this project.

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
<p> <span style="color: green;">■</span> Regulation 41(2)(a): <i>Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of-</i>            (i) <i>The site where the activity to which the application or proposed application relates is or is to be undertaken; and</i>            (ii) <i>Any alternative site.</i> </p> <p> <span style="color: green;">■</span> Regulation 41(3): <i>A notice, notice board or advertisement referred to in sub regulation (2) must—</i>            (a) <i>give details of the application or proposed application which is subjected to public participation; and</i>            (b) <i>state—</i>                (i) <i>whether basic assessment or S&amp;EIR procedures are being applied to the application.</i>                (ii) <i>the nature and location of the activity to which the application relates.</i>                (iii) <i>where further information on the application or proposed application can be obtained; and</i>                (iv) <i>the manner in which and the person to whom representations in respect of the application or proposed application may be made.</i> </p> <p> <span style="color: green;">■</span> Regulation 41(4): <i>A notice board referred to in sub regulation (2) must—</i>            (a) <i>be of a size of at least 60cm by 42cm; and</i>            (b) <i>display the required information in lettering and in a format as may be determined by the competent authority.</i> </p>	<p>           Notice boards in both English and isiZulu were fixed at the following conspicuous and public accessible areas:  <span style="color: blue;">❖</span> Entrance to the farm/site.  <span style="color: blue;">❖</span> Ladysmith Library.         </p> <p>           All the notice boards that were placed complied with the requirements of Regulation 41(3) as presented in Appendix E2 attached to this document.         </p> <p>           The notices were printed on boards of 60 x 42 cm in Arial font of sufficient size.         </p>
<p> <span style="color: green;">■</span> Regulation 41(2)(b): <i>giving written notice, in any of the manners provided for in section 47D of the Act, to-</i>            (i) <i>the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken.</i>            (ii) <i>owners, persons in control of, and occupiers of land adjacent to the site where the activity</i> </p>	<p>           (i) The Landowner (and Applicant) signed an agreement regarding this project and is kept apprised of the EIA (BA) process. To date, no additional comments were received.         </p> <p>           (ii) The surrounding landowner will be invited to comment on the project and the DBAR.         </p> <p>           (iii) The Ward Councillor of Ward 14 will be invited to comment on the project and DBAR.         </p> <p>           (iv) Both the Alfred Duma Local Municipality and the uThukela District Municipality will be invited to comment on the project and DBAR.         </p>

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
<p><i>is or is to be undertaken and to any alternative site where the activity is to be undertaken.</i></p> <p>(iii) <i>the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area.</i></p> <p>(iv) <i>the municipality which has jurisdiction in the area.</i></p> <p>(v) <i>any organ of state having jurisdiction in respect of any aspect of the activity.</i></p> <p>(vi) <i>any other party as required by the competent authority;</i></p>	<p>(v) As listed in Table 7 the relevant state departments and entities will be invited to comment on the project and DBAR.</p>
<p>Regulation 41(2)(c): <i>Placing an advertisement in—</i></p> <p>(i) <i>One local newspaper; or</i></p> <p>(ii) <i>any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations.</i></p>	<p>The project and availability of the DBAR was advertised in the Ladysmith Gazette in both English and isiZulu.</p>
<p>Regulation 41(2)(d): <i>Placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken...</i></p>	<p>Not applicable, as the proposed activity will not extend beyond the boundaries of the metropolitan or district municipality in which it will be undertaken.</p>
<p>Regulation 41(2)(e): <i>Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to—</i></p> <p>(i) <i>illiteracy.</i></p> <p>(ii) <i>disability; or</i></p> <p>(iii) <i>any other disadvantage.</i></p>	<p>Apart from informing the ward councillors of the project and availability of the DBAR, 2 500 isiZulu flyers were also distributed in and around the Matiwane Community by a professional media distribution company (Vibrant Direct). The project description was illustrated (images and pictures) on the flyers to simplify comprehension.</p> <p>A hard copy of the DBAR with an isiZulu executive summary was placed at the Ladysmith Library for ease of perusal by the public that does not have access to the internet. The availability of the DBAR at the Library was advertised in all the public participation documents that were distributed.</p>
<p>Regulation 41(5): <i>Where public participation is conducted in terms of this regulation for an application or proposed application, sub regulation (2)(a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19(1)(b) or</i></p>	<p>Not applicable to this application.</p>

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
<p><i>23(1)(b) or the public participation process contemplated in regulation 21(2)(d) ...</i></p>	
<p> <span style="color: green;">■</span> Regulation 41(6): <i>When complying with this regulation, the person conducting the public participation process must ensure that—</i>            (a) <i>information containing all relevant facts in respect of the application or proposed application is made available to potential interested and affected parties; and</i>            (b) <i>participation by potential or registered interested and affected parties is facilitated in such a manner that all potential or registered interested and affected parties are provided with a reasonable opportunity to comment on the application or proposed application.</i> </p>	<p> <span style="color: green;">■</span> The DBAR containing all relevant facts in respect of the application was available to potential I&amp;APs for perusal and commenting over a 30-days commenting period. The DBAR was available on the company (Greenmined) website as well as in hard copy in the application area. I&amp;AP's will be invited to contact the EAP should additional information be required.         </p>
<p> <span style="color: green;">■</span> Regulation 41(7): <i>Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all relevant authorities agree to such combination of processes.</i> </p>	<p> <span style="color: green;">■</span> Not applicable to this project.         </p>

**iii) Summary of issues raised by I&AP's**

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

Table 9: Summary of issues raised by IAPs.

<p><b>Interested and Affected Parties</b></p> <p><i>List the name of persons consulted in this column, and</i></p> <p><i>Mark with an X where those who must be consulted were in fact consulted</i></p>	<p><b>Date Comments Received</b></p>	<p><b>Issues raised</b></p>	<p><b>EAPs response to issues as mandated by the applicant</b></p>	<p><b>Section and paragraph reference in this report where the issues and or response were incorporated.</b></p>
<p><b><u>Affected Parties</u></b></p>	<p>X</p>			
<p><b>Landowner/s</b></p>				
<p>Pieter Albert Steyn landowner of:   Schaap Plaats 5689 Portion 10</p>	<p>X</p>			<p>Appendix F2: Proof of public participation process.</p>
<p><b>Lawful occupier/s of the land</b></p>				
<p>N/A</p>		<p>N/A</p>	<p>N/A</p>	
<p><b>Landowners or lawful occupiers on adjacent properties</b></p>	<p>X</p>	<p>-</p>	<p>-</p>	<p>-</p>
<p>Pieter Albert Steyn adjacent landowner of:</p>	<p>X</p>	<p>No comments received</p>	<p>N/A</p>	<p>N/A</p>

<p><b>Interested and Affected Parties</b></p> <p><b>List the name of persons consulted in this column, and</b></p> <p><b>Mark with an X where those who must be consulted were in fact consulted</b></p>		<p><b>Date Comments Received</b></p>	<p><b>Issues raised</b></p>	<p><b>EAPs response to issues as mandated by the applicant</b></p>	<p><b>Section and paragraph reference in this report where the issues and or response were incorporated.</b></p>
<p>📌 Schaap Plaats 5689 Portion 1</p>					
<p>Pieter Albert Steyn adjacent landowner of:</p> <p>📌 Schaap Plaats 5689 Portion 3</p>	X	No comments received	N/A	N/A	N/A
<p>Sharp Sharp Fresh Foods Pty Ltd adjacent landowner of:</p> <p>📌 Schaap Plaats 5689 Portion 4</p>	X	No comments received	N/A	N/A	N/A
<p>Mark Prinsloo adjacent landowner of:</p> <p>Schaap Plaats 5689 Portion 15</p>	X	No comments received	N/A	N/A	N/A
<p>Wiseman Njabulo Maunze &amp; Nompumelelo Nokulunga Maunze adjacent landowner of:</p> <p>📌 Schaap Plaats 5689 Portion 19</p>	X	25 April 2024	<p>I have this issue and originates from Mt Steyn's farm.</p> <p>They promise to come to do an assessment of my dam, and nobody came.</p> <p>My dam is also loaded with fish, so if their equipment's have oil leaks what will happen to them.</p>	<p>Thank you for your participation in the public consultation process. We have carefully reviewed your concerns regarding the water. It appears that your concern may not be directly related to the new mining application but rather to the management approved spoiling site for the N11 itself.</p> <p>To address your concerns effectively, we have forwarded your matter to the contractor</p>	<p><i>Proof of public participation Appendix E</i></p>

<p><b>Interested and Affected Parties</b></p> <p><i>List the name of persons consulted in this column, and</i></p> <p><i>Mark with an X where those who must be consulted were in fact consulted</i></p>		<p><b>Date Comments Received</b></p>	<p><b>Issues raised</b></p>	<p><b>EAPs response to issues as mandated by the applicant</b></p>	<p><b>Section and paragraph reference in this report where the issues and or response were incorporated.</b></p>
				<p>responsible for the N11 spoiling site. They will be in direct contact with you to discuss the issue further and provide any necessary clarification or resolution.</p> <p>We appreciate your engagement in this matter and trust they will address your concerns in a timely manner.</p>	
<p><i>Dubai Prop Pty Ltd adjacent landowner of</i></p> <p> <i>Schaap Plaats 5689 Portion 20</i></p>	X	<p><i>No comments received</i></p>	<p><i>N/A</i></p>	<p><i>N/A</i></p>	<p><i>N/A</i></p>
<p><b>Municipal councillor</b></p>					
<p><i>Cllr. (Ward 14)</i></p>	X	<p><i>No comments received</i></p>	<p><i>N/A</i></p>	<p><i>N/A</i></p>	<p><i>N/A</i></p>
<p><b>Municipality</b></p>					

<b>Interested and Affected Parties</b>		<b>Date Comments Received</b>	<b>Issues raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Section and paragraph reference in this report where the issues and or response were incorporated.</b>
<i>List the name of persons consulted in this column, and</i>					
<i>Mark with an X where those who must be consulted were in fact consulted</i>					
 Alfred Duma Local Municipality		No comments received	N/A	NA	N/A
 uThukela District Municipality	X	No comments received	N/A	NA	N/A
<b>Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e</b>					N/A
Department of Police, Roads, and Transport	X	No comments received	N/A	N/A	N/A
Eskom	X	No comments received.	N/A	N/A	N/A
South African National Roads Agency	X	No comments received.	N/A	N/A	N/A

<b>Interested and Affected Parties</b>  <i>List the name of persons consulted in this column, and</i>  <i>Mark with an X where those who must be consulted were in fact consulted</i>	<b>Date Comments Received</b>		<b>Issues raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Section and paragraph reference in this report where the issues and or response were incorporated.</b>
<b>Communities</b>	<i>No community were identified within the study area.</i>				
<b>Dept. Land Affairs</b>					
<i>Department of Agricultural and Rural Development</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
<b>Traditional Leaders</b>	<i>N/A</i>				
<b>Dept. Environmental Affairs</b>					
<i>Department of Economic Development Tourism &amp; Environmental Affairs (Southern Region)</i>	<i>X</i>	<i>No comments received</i>			
<b>Other Competent Authorities affected</b>					

<b>Interested and Affected Parties</b>		<b>Date Comments Received</b>	<b>Issues raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Section and paragraph reference in this report where the issues and or response were incorporated.</b>
<i>List the name of persons consulted in this column, and</i>					
<i>Mark with an X where those who must be consulted were in fact consulted</i>					
<i>Department of Labour</i>	X	<i>No comments received</i>	<i>N/A</i>	<i>NA</i>	<i>N/A</i>
<i>Department of Public Works and Infrastructure</i>	X	<i>No comments received</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
<i>Department of Rural Development and Agrarian Reform</i>	X	<i>No comments received</i>	<i>N/A</i>	<i>NA</i>	<i>N/A</i>
<i>Department of Water and Sanitation</i>	X	<i>No comments received</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
<i>Ezemvelo KZN Wildlife</i>	X	<i>No comments received</i>	<i>N/A</i>	<i>NA</i>	<i>N/A</i>
<i>South African Heritage Resources Agency / AMAFA</i>	X	<i>No comments received</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
<b><u>Other affected parties</u></b>					
N/A					
<b><u>interested parties</u></b>					

<p><b><i>Interested and Affected Parties</i></b></p> <p><b><i>List the name of persons consulted in this column, and</i></b></p> <p><b><i>Mark with an X where those who must be consulted were in fact consulted</i></b></p>	<p><b><i>Date Comments Received</i></b></p>	<p><b><i>Issues raised</i></b></p>	<p><b><i>EAPs response to issues as mandated by the applicant</i></b></p>	<p><b><i>Section and paragraph reference in this report where the issues and or response were incorporated.</i></b></p>
<p>N/A</p>				

**iv) The Environmental attributes associated with the alternatives.**

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

**(1) Baseline Environment**

**(a) Type of environment affected by the proposed activity.**

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

This section describes the biophysical, cultural, and socio-economic environment that may be affected and the baseline conditions, which are likely to be affected by the proposed mining activity.

**PHYSICAL ENVIRONMENT**

**CLIMATE**

The following chart shows the maximum, minimum and average temperatures (21°C daytime, 15°C night-time) of the Ladysmith region. Ladysmith experiences its highest temperatures during the summer months from November – March with peaks of up to 32°C; thereafter the mercury drops to lows of 7°C during June/July.

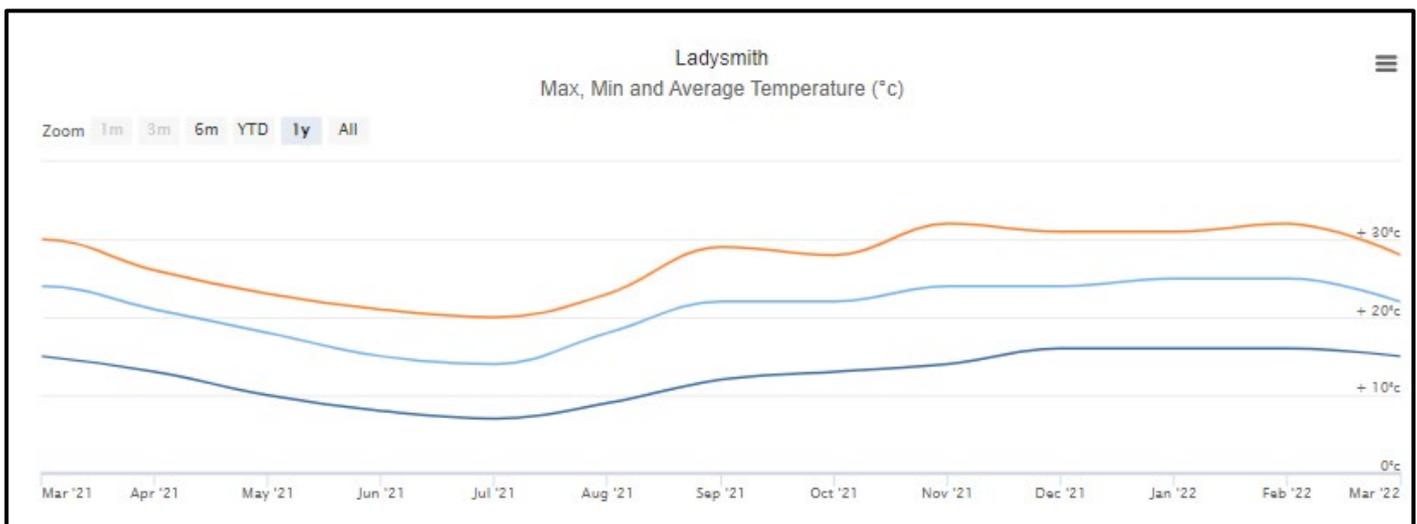


Figure 5: Maximum, minimum, and average temperature of the Ladysmith region where the orange line indicates the maximum temperature, the light blue line shows the averages, and the dark blue line shows the minimum temperatures (chart obtained from <http://www.worldweatheronline.com>)

The following chart obtained from World Weather Online shows that the measured rainfall average for 2021 was ±824 mm, while the area received the lowest rainfall during the winter months (May – August) and the highest in the summer (January - March).

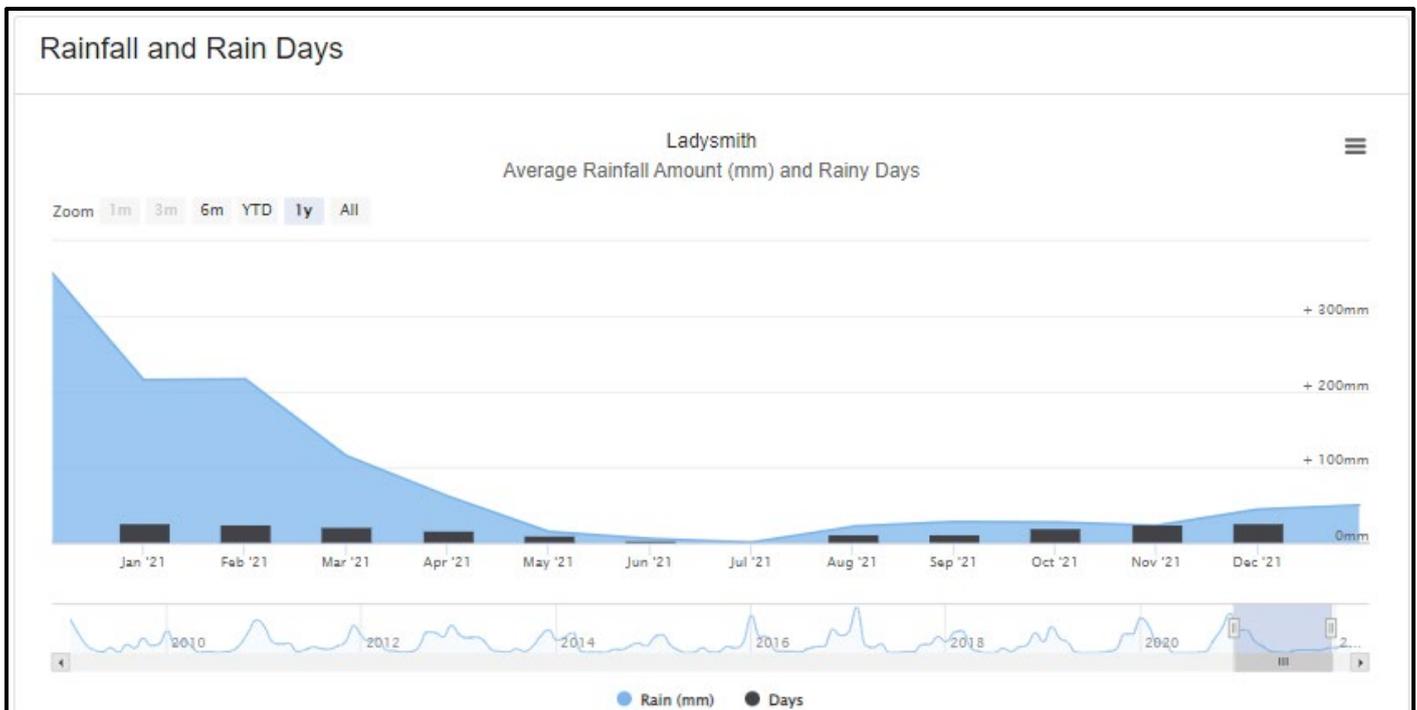


Figure 6: Average rainfall amount and rainy days count for the Ladysmith region (chart obtained from <http://www.worldweatheronline.com>)

The dominant wind direction of the Ladysmith region is constant in a north-western direction (south-eastern wind), with the average wind speed being  $\pm 4$  knots ( $\pm 7.83$  km/h) as shown in the figure below (measured at the Ladysmith Airport).



Figure 7: Image showing the dominant wind direction (first panel) and average wind speed over a 12 month period for the Ladysmith area (image obtained from <http://www.windfinder.com/windstatistics/ladysmith>).

## TOPOGRAPHY

The topography of the greater study area can be described as an undulating terrain with broad valleys supporting tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana* var. *woodii*. (Mucina and Rutherford, 2012). The area has elevations generally ranging between 1 150 – 1050 mamsl.

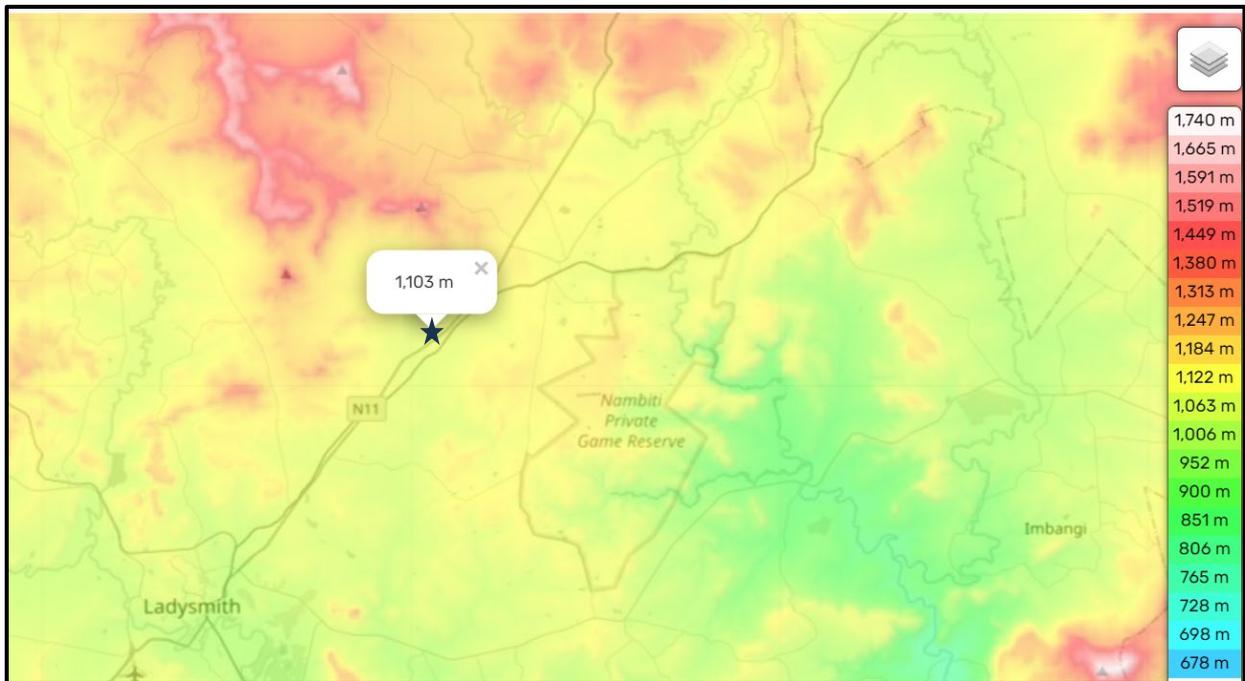


Figure 8: Map showing the topography of the greater Ladysmith area where the star indicates the application area (image obtained from <http://www.en-za.topographic-map.com/maps/gwpq/South-Af>).

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Topography.

### **VISUAL CHARACTERISTICS**

*(Determined through site assessment by EAP)*

The visual character of the surrounding areas mainly comprises of a dormant agricultural setting, previously mined areas (gravel). The aesthetic ambiance of the area is that of a rural area, intersected by road- and electricity infrastructure, and transformed by the existing excavations.

The land use of the immediate surrounding properties is mainly used for agricultural purposes with the bulk of the land being natural to semi-natural rangelands grazed by cattle.

The mining permit area, nestled alongside the N11 to the south, presents a stark visual landscape shaped by its history of excavation activities. As one approaches, the eye is drawn to the uneven terrain, marked by the scars of past mining excavations left unrehabilitated. The site's is screened by large trees to the east. Upon closure the excavation will be sculpted into gentle undulations.

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Visual Characteristics.

## **AIR AND NOISE QUALITY**

*(Determined through site assessment by EAP)*

The air quality of the study area is generally very good given the area's predominant agricultural use and rural character. Other factors contributing to air pollution stem from vehicle emissions along the N11. Given the surrounding extent of mostly covered areas, no extreme dust generation, under windy conditions, is experienced. The noise ambiance of the surrounding area is highly impacted by traffic travelling along the N11.

## **GEOLOGY AND SOIL**

Soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime rare or absent in the landscape.

The interior parts of KwaZulu-Natal are characterised by a variety of Karoo Supergroup rocks, including Dwyka, Ecca and Beaufort Groups Mudstones, sandstones and shales of the Beaufort and Ecca Groups of the Karoo Supergroup predominate and are intruded by dolerites of Jurassic age. Land types of Bb, Ac, Fa, and Ca (Mucina & Rutherford, 2012).

The gravel of the study area is a coarse gravel and highly suitable for construction purposes. The material to be mined is already in aggregate form, gravel will be excavated by means of earth moving equipment and then loaded and hauled to a crushing and screening plant.

## **HYDROLOGY**

Two streams one on the western side ( $\pm 950$  m) and one on the eastern side  $\pm 650$  m was identified but not any within 500 m of the proposed mining area.

No wetlands or watercourse were identified within the application footprint.

An existing excavation feature lies to the east of the site, serving as the approved designated spoil site for the N11 project. This excavation occasionally holds water seasonally but will remain unaffected by the planned mining activities. Despite its periodic water accumulation, this feature has been deemed suitable for its designated purpose and will not face any adverse effects from the proposed mining operations.

The Department of Water and Sanitation (DWS) has approved multiple abstraction points for water usage, specifically for dust suppression purposes. Consequently, the water necessary for dust suppression will be sourced from one of these pre-approved abstraction points.

*Table 10: Aquatic characteristics of the greater study area*

<b>Water Management Area</b>	Upper Orange WMA 12
<b>Sub Water Management Area</b>	Riet Modder Sub-WMA
<b>Quaternary Catchment</b>	V12G
FEPA Status	No freshwater priority area status

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Hydrology.

## **BIOLOGICAL ENVIRONMENT**

### **MINING AND BIODIVERSITY**

*(Information extracted from the Mining and Biodiversity Guideline: Mainstreaming Biodiversity into the Mining Sector, Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, 2013)*

The Mining and Biodiversity Guideline, compiled by the South African Mining and Biodiversity Forum (SAMBF) provides the mining sector with a practical, user-friendly manual for integrating biodiversity considerations into planning processes and managing biodiversity during the developmental and operational phases of a mine, from exploration through to closure.

When the mining footprint is layered over the Mining and Biodiversity Map, as shown in the figure below, it does not fall over an area of biodiversity importance with a corresponding risk rating for mining. The guideline notes that environmental screening, the EIA, and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.



*Figure 9: The Mining Guidelines map shows the proposed mining area (blue polygon) within an area of no biodiversity importance with a no risk for mining (uncoloured) (image obtained from the BGIS Map Viewer – Mining Guidelines).*

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Site-Specific Terrestrial Biodiversity (including fauna and flora).

### **BIODIVERSITY CONSERVATION AREAS**

The DFFE screening tool shows the animal theme as being of medium sensitivity, whereas the plant theme yielded medium sensitivity. However, according to the screening tool the overall site is highly sensitivity in terms of terrestrial biodiversity due to the area being within a Strategic Water Source Area (shown in Figure 11 as not applicable).

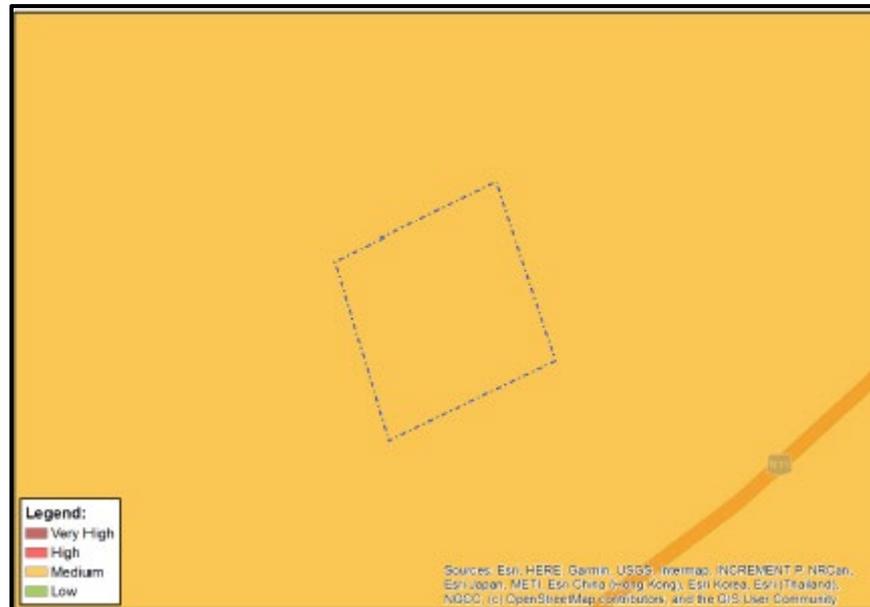


Figure 10: DFFE screening tool output for animal species (image obtained from DFFE screening tool report).

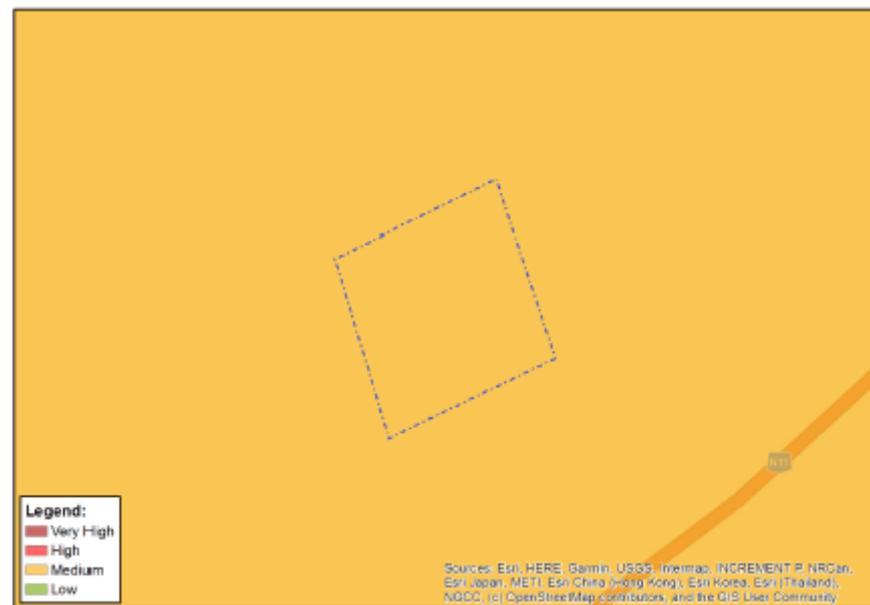


Figure 11: DFFE screening tool output for plant species (image obtained from DFFE screening tool report).

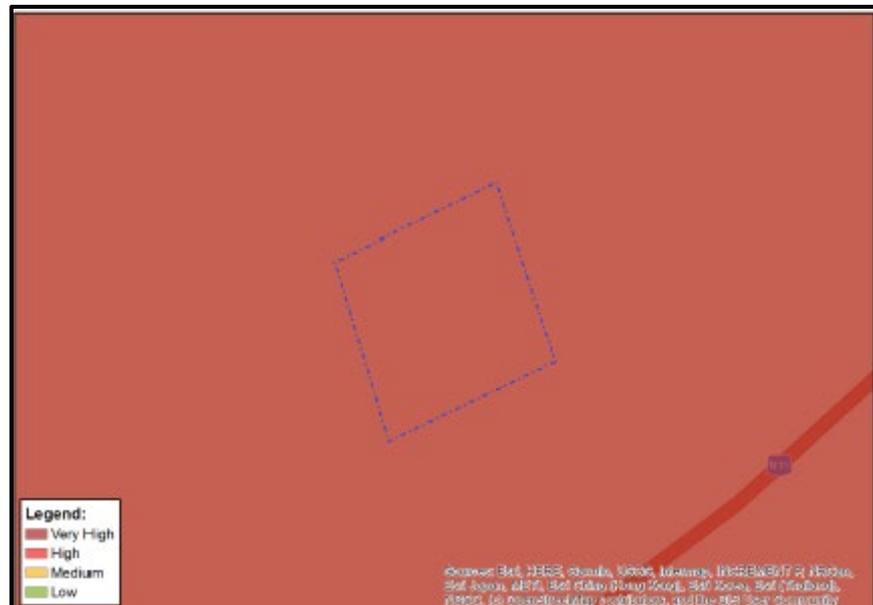


Figure 12: DFFE screening tool output for terrestrial biodiversity (image obtained from DFFE screening tool report).

According to the KZN Biodiversity Sector Plan (2014), no ecological corridor falls within the study area, nor within proximity to the study area. No areas in the immediate vicinity of the property have been flagged for future conservation as part of the KwaZulu-Natal Protected Areas Expansion 20-year Strategy (EKZNV, 2010) spatial coverage, and likewise no provincial protected areas or forests occur within the study area.

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity (including fauna and flora).

## GROUNDCOVER

The geographic region of the proposed development falls in the Grassland Biome. The Grassland Biome is found chiefly on the high central plateau of South Africa, and the inland areas of KwaZulu-Natal and the Eastern Cape. According to Mucina and Rutherford (2006) the natural vegetation type of the study area is classified as Northern KwaZulu-Natal Moist Grassland (Gs 4).

**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. sanguinalis*, *Diheteropogon amplexans*, *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*.

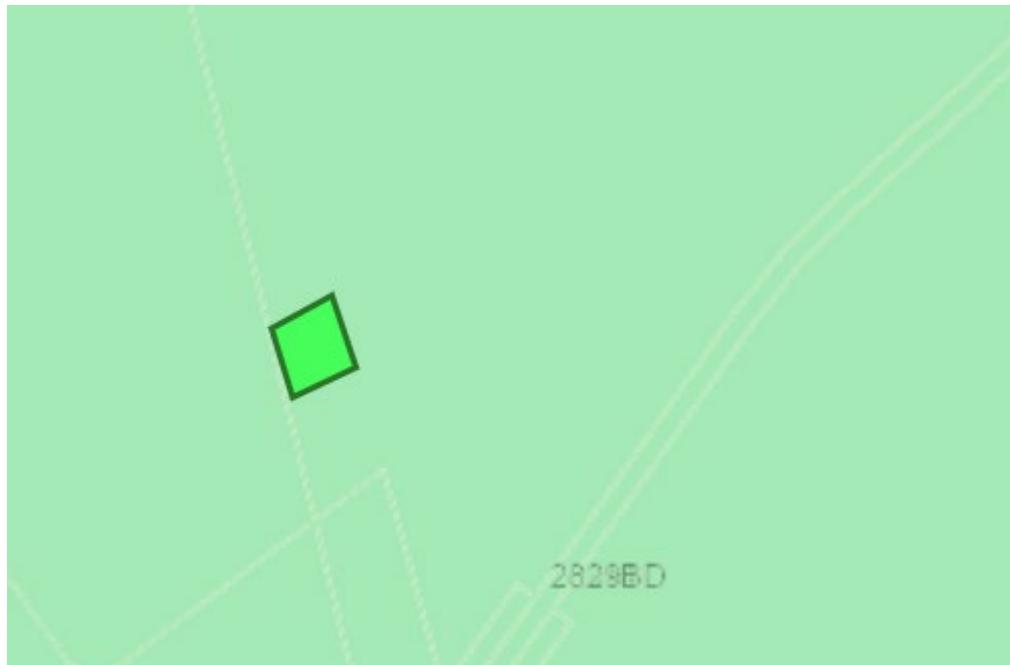


Figure 13: National vegetation cover map showing the mining area within the Northern KwaZulu-Natal Moist Grassland (Gs4) (light green). (Image obtained from BGIS Map Viewer – National Vegetation Map)

## FAUNA

Various small mammals and reptiles occur on the property. Larger herbivore species are very scarce or absent due to the conflicting land use. The fauna at the site will not be impacted by the proposed mining activity as they will be able to move away or through the site, without being harmed. Workers will be informed and managed to ensure that no fauna at the site is harmed. No poaching or hunting of animals will be allowed. All construction vehicles should adhere to a low-speed limit (<40km/h) to avoid collisions with susceptible species such as snakes and tortoises. Trenches and

deep excavations should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Fauna.

### **HUMAN ENVIRONMENT:**

#### **CULTURAL AND HERITAGE ENVIRONMENT**

The South African Heritage Resources Agency (SAHRA) compiled the Palaeontological (fossil) Sensitivity Map (PSM) to guide developers, heritage officers and practitioners in screening palaeontologically sensitive areas at the onset of a project. When the footprint of the proposed mining area is placed on the PSM, it shows the study area to extend over an area of insignificant/zero (grey) concern as presented in the figure below. Considering this, no palaeontological study is required.

According to the Screening Tool Report, the Archaeological and Cultural Heritage Theme Sensitivity of the area is low, and the mining area extends across and already disturbed area, therefore no HIA is deemed necessary.

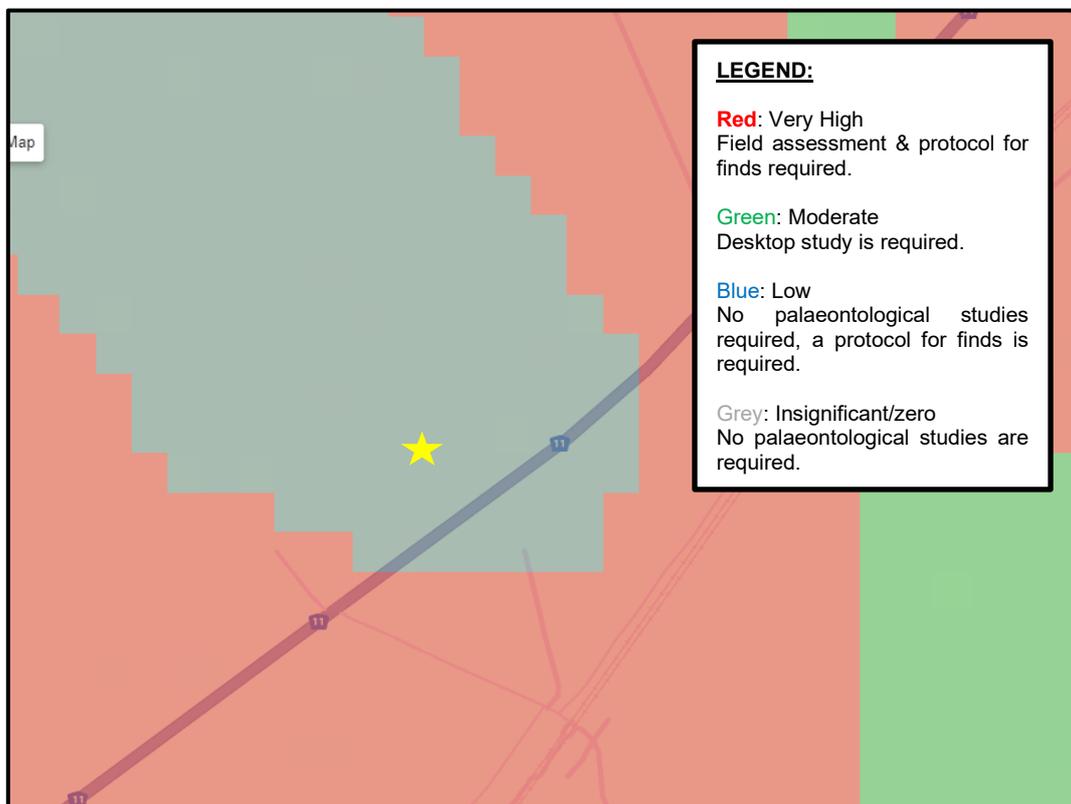


Figure 14: The SAHRA palaeontological sensitivity map shows the proposed mining footprint (yellow star) falls in an area of Insignificant/Zero (grey) concern.

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Cultural and Heritage Environment.

## **SOCIO-ECONOMIC ENVIRONMENT**

*(Information extracted from the Alfred Duma Local Municipality Integrated Development Plan 2022/2023)*

The proposed mining area is in Ward 14 of the Alfred Duma Local Municipality (ADLM). Alfred Duma Municipality spans over an area of 3 957.63 km<sup>2</sup> of which is dominated by 70% of rural settlements with limited basic services and infrastructure. ADLM comprises of 37 wards with 29 of those being rural wards and some of them administered by the Traditional Authorities name Inkosi Khumalo in Driefontein Block, Inkosi Shabalala in Matiwane, Inkosi Sithole Mhlumayo, Inkosi Mabaso. The Municipality is strategically located along the N3 corridor which links Durban and Gauteng as well as the N11 which links it with Mpumalanga and Free State Provinces. and as such its long-term vision is to be the first metro municipality in the northern region. It has the highest population numbers compared to other municipalities and it is the most developed and serves as the regional economic hub in the district as most government regional offices and Industrial areas are located within the municipality jurisdiction.

The Alfred Duma Local Municipality is strategically located at the intersection of two major national development corridors and trade routes that is: The N11 which runs in a north south direction linking KwaZulu-Natal with Mpumalanga Province and the N3 which runs in an east west direction linking Durban and Johannesburg Metropolitan areas. Thus, the ADLM is highly accessible at both regional and national levels. This is recognised in the recently introduced Provincial Growth and Development Strategy for KwaZulu-Natal which classifies Ladysmith as a tertiary node with regional significance. Ladysmith is thus centrally located with respect to the important development corridors and transport routes within the district. This reflect that the municipality is earmarked for the location of infrastructure that serves the whole of Uthukela District and beyond and connects the region with major urban centres such as Durban and Johannesburg. The ADLM is also well located in relation to at least two of the major tourism destinations in KwaZulu-Natal. Certainly, it serves as a base for the exploration of the Battlefields to the north and Ukhahlamba-Drakensburg Park to the south. In addition, ADLM is a World Heritage Site and a world acclaimed tourist destination.

The population of Alfred Duma has experienced steady growth over the years more than any other municipality in the district. Census indicates that the population for the former eMnambithi/ Ladysmith municipality has risen from a total of 225 459 people in 2001 to 237 437 in (2011) with an average growth of 0.52% which is much less than

in 2001 where the growth rate was 4.67%, while with former Indaka Municipality Census (2011) decreased from 113,644 people in 2001 to 103,116 people. Thus, such indicates a population decline of 10.2% over 10 years. Since census is an official survey which takes place every 10 years, between those intervals another enumeration of the population is conducted; Community Survey. The last Community Survey (CS) was conducted in 2016. The population of Alfred Duma Municipality was recorded at 356 276 people in 2016 compared to a total of 340 553 in 2011. This is evidence of an increase of 15 721 people between the period of 2011 and 2016, this means that the municipality has experienced annual growth percent of 0.92.

### **Gender Profile**

The age structure of ADLM on the population pyramid reveals a children population profile with 37% of the population under the age of 14 years of age and 46% being of working age, and with only a 7% of the elderly population. ADLM population consists of more females than males, the females account for 53% of the population and male population only account for about 47%. This is assumed to be related to males who migrate to seek employment opportunities outside the municipal boundaries, which, in assumption based on 2011 StatsSA data, has translated to 56.1% of the households being female headed. This female domination in the municipality is contributed by amongst others male migrating to the big cities in search of greener pastures or good living conditions thereby living their spouses as household heads. 46.3% of the population are under the age of 19 years old, which indicates that a large portion of the population is under the working age and that there is high level of dependency in the Municipality the increasing number of the age dependency population places a lot of pressure on the basic services of the municipality as this increases the dependency rate as this age group makes little positive contribution to the economy of the town. As such, it is critically important for the SDF to enable the Municipality to anticipate population growth in the age group from 0-19 years and channel development to areas where there is pressure in this regard. As most of this population are scholars, it is important that support is given through the provision of excellent educational services as well as access to basic health and child support grant amongst other factors. An analysis of the population structure indicates a large drop in the population from those aged 20-24 years old and above. This could be due to out-migration of the youth in search of employment in other areas.

The population of Alfred Duma over the next five years is estimated to reach an approximated number 450000; taking into cognisance, the average growth rate of 2% in the municipality. A growth in population will mean that there will be an increase in density and population structure more especially amongst the population that forms

part and parcel of the dependent population. This will require that municipality make available more job and employment opportunities to help in alleviating the problem of rapid population growth. The unemployed youth population is expected to increase up to 40% over the next four years. The higher rates of unemployed young person's increase the dependency ratio, the widespread of diseases as well as increasing crime rates in the Alfred Duma Local Municipality area of jurisdiction.

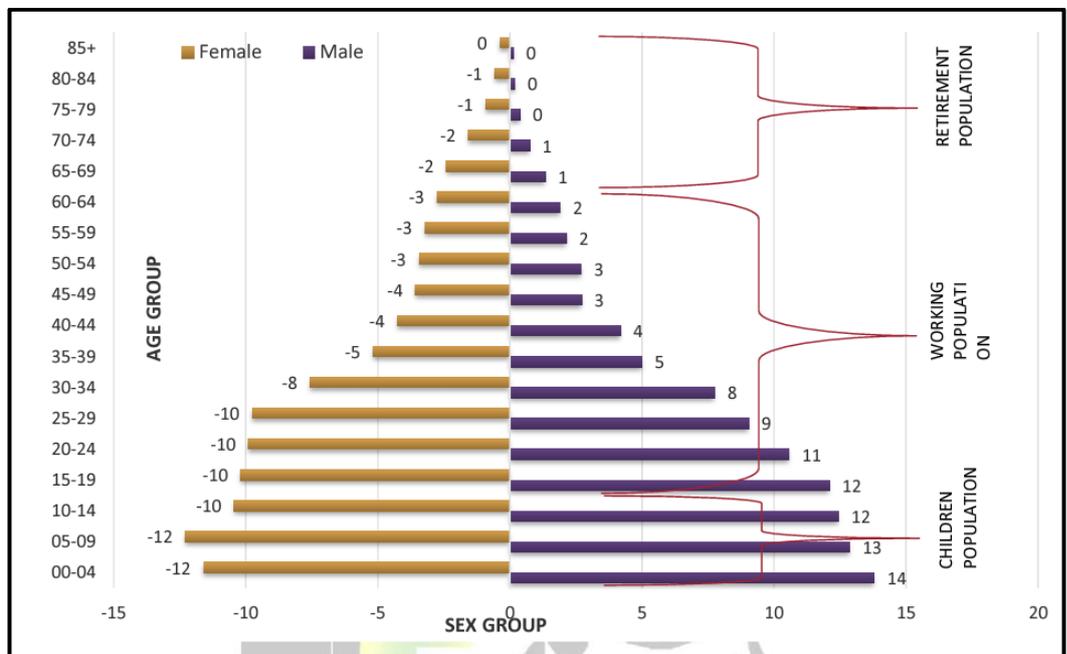


Figure 15: Population pyramid of sex among age groups (image obtained from the ADLM IDP 2022/2023).

### Population Profile

Alfred Duma is the most populated local municipality within uThukela District, contributing approximately 50% of the district population. The predominant population group is Black African with 95%, followed by Indian/Asian, then Whites and lastly the Coloureds. Majority of the black community are in the townships and tribal areas, such as the study area, whereas Indians/Asians and coloureds are located in areas around Ladysmith. Whites are largely found in the farmlands and partly in Ladysmith area. Historically the black community has been subjected to apartheid policies of discrimination where the poor were pushed into townships and the dislocated rural area. As such, majority of the black community have experienced poverty, lack of employment opportunities, lack of infrastructure and basic services. The number of black people on the municipality is seen to be increasing at a rapid rate, over the next five years this growth is set to be seen increasing by almost half and the number of White, Asian and Coloured Communities is predicted to decrease rapidly. This will in turn have an impact on the employment equity of some areas as well as the use of affirmative action as there needs to be a balance in the racial groups in all the sectors of employment.

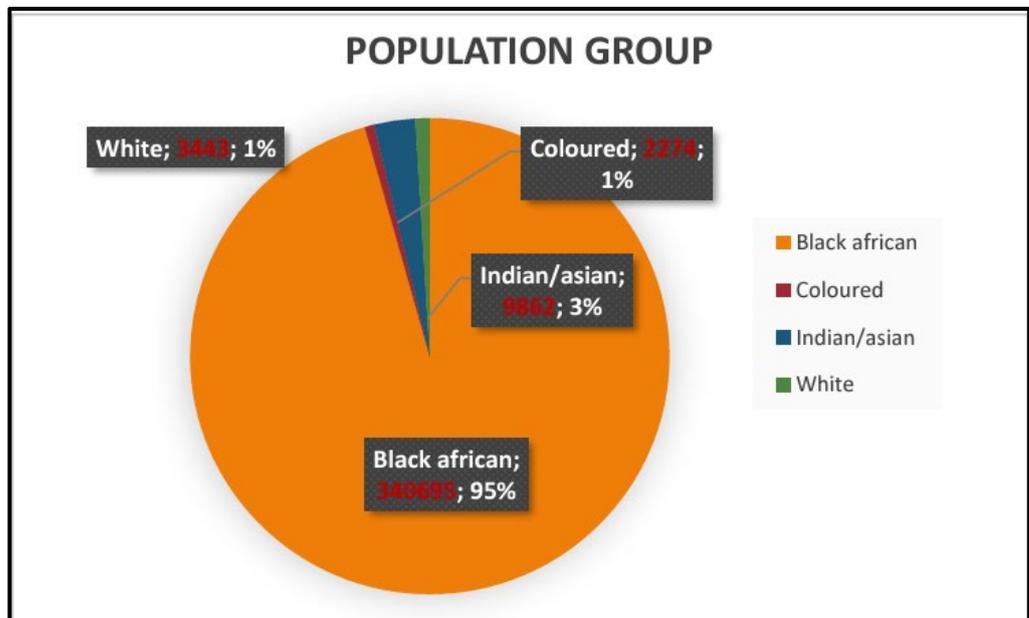


Figure 16: Racial distribution of the ADLM (image obtained from the ADLM IDP 2022/2023).

### Economic Profile

The employment status of the Alfred Duma Local Municipality depicts that most of the population are not economically active. This can be due to various social and economic factors which includes but are not limited to age, social dependency, physical impediments, lack of education, poor access to services and health and other social reasons. The number of employed people indicates that people are employed in the primary, secondary, and tertiary sectors of the town. Most people are however employed in the tertiary sector which shows an increase in the number of service and telecommunication centres in the municipality.

The high number of unemployed individuals in the municipality can mainly be attributed to lack of education, poor healthcare, and the unavailability of employment opportunities in both the private and public sectors of the municipality. The discouraged work seekers comprise of individuals who have attempted to find employment through numerous means and have not found employment opportunities to date. These individuals are not just uneducated people but also highly educated individuals who have attempted to find employment but to no avail.

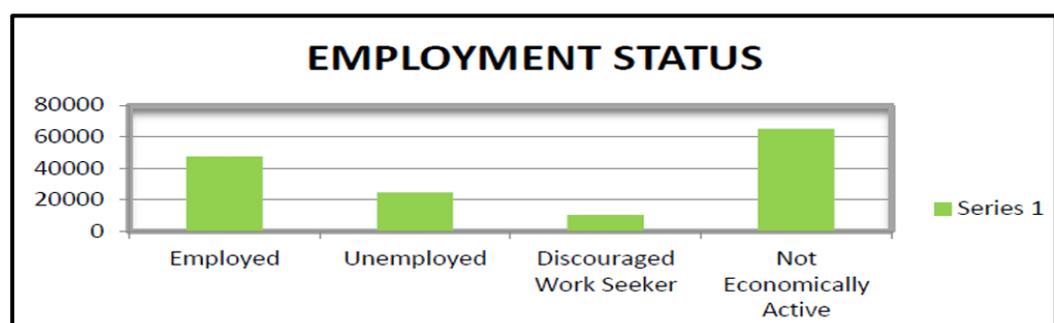


Figure 17: Employment status of the ADLM (image obtained from the ADLM IDP 2022/2023)

## **Education Levels**

Education is one of the most fundamental factors to development. Education raises people productivity and promotes entrepreneurship and technological advances. In addition, it is very crucial in securing social and economic progress and improving income distribution. Alfred Duma has a population with low literacy and education levels with about 75% of the population not having access to matric certificates. Low education levels can impede the economic growth of a municipality and the population in genera especially in the technologically advanced era by which we live in.

### **(b) Description of the current land uses.**

The Remaining Extent of Portion 10 of Schaap Plaats 5689 GS is situated in a rural setting intersected by road-, road- and electricity infrastructure, and transformed by the existing excavations.

The land use of the immediate surrounding properties is mainly used for agricultural purposes with the bulk of the land being natural to semi-natural rangelands grazed by cattle.

Land use within the greater landscape is predominantly for agricultural purposes with the bulk of the land (almost 70%) being natural to semi-natural rangelands (grasslands) grazed mostly by cattle.

A high voltage Eskom power line (275kV) passes the property to the North ( $\pm 700$  m) as well as a 11kV power line run past the proposed mining area with the nearest. The nearest pylon of the power line borders the site to the east  $\pm 10$  m from the proposed mining area. The N11 national road ( $\pm 130$  m) passes the proposed site on the southern side. A railway line passes the site to the southeast ( $\pm 400$  m). The proposed mining site is  $\pm 195$  m from a residential dwelling to the south. Two streams on one the western side ( $\pm 950$  m) and one on the eastern side  $\pm 650$  m was identified but not any within 500 m of the proposed mining area.

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

*Table 11: Land uses and/or prominent features that occur within 500 m radius of the proposed area.*

<b>LAND USE CHARACTER</b>	<b>YES</b>	<b>NO</b>	<b>DESCRIPTION</b>
Natural area	<b>YES</b>	-	The study area is surrounded by natural areas used for agricultural purposes.
Low density residential	-	<b>NO</b>	-
Medium density residential	-	<b>NO</b>	-

<b>LAND USE CHARACTER</b>	<b>YES</b>	<b>NO</b>	<b>DESCRIPTION</b>
High density residential	-	<b>NO</b>	-
Informal residential	-	<b>NO</b>	-
Retail commercial & warehousing	-	<b>NO</b>	-
Light industrial	-	<b>NO</b>	-
Medium industrial	-	<b>NO</b>	-
Heavy industrial	-	<b>NO</b>	-
Power station	-	<b>NO</b>	-
High voltage power line		<b>NO</b>	A high voltage Eskom power line (275kV) passes the property to the North ( $\pm 700$ m) as well as a 11kV power line run past the proposed mining area with the nearest the nearest pylon of the power line borders the site to the east $\pm 10$ m from the proposed mining area
Office/consulting room	-	<b>NO</b>	-
Military or police base / station / compound	-	<b>NO</b>	-
Spoil heap or slimes dam	<b>YES</b>		This application is to extent the footprint of the existing borrow pit on the property.
Borrow pit, sand, or borrow pit	<b>YES</b>	-	An existing excavation feature lies to the east of the site, serving as the approved designated spoil site for the N11 project. This excavation occasionally holds water seasonally but will remain unaffected by the planned mining activities. Despite its periodic water accumulation, this feature has been deemed suitable for its designated purpose and will not face any adverse effects from the proposed mining operations.
Dam or reservoir	<b>YES</b>	-	An existing excavation feature lies to the east of the site, serving as the approved designated spoil site for the N11 project. This excavation occasionally holds water seasonally but will remain unaffected by the planned mining activities. Despite its periodic water accumulation, this feature has been deemed suitable for its designated purpose and will not face any adverse effects from the proposed mining operations.
Hospital/medical centre	-	<b>NO</b>	-
School/ crèche	-	<b>NO</b>	-
Tertiary education facility	-	<b>NO</b>	-
Church	-	<b>NO</b>	-
Old age home	-	<b>NO</b>	-
Sewage treatment plant	-	<b>NO</b>	-
Train station or shunting yard	-	<b>NO</b>	-
Railway line	<b>YES</b>		A railway line passes the site to the southeast ( $\pm 400$ m)

LAND USE CHARACTER	YES	NO	DESCRIPTION
Major road (4 lanes or more)	-	NO	The N11 that borders the site to the south does not have 4 lanes or more.
Airport	-	NO	-
Harbour	-	NO	-
Sport facilities	-	NO	-
Golf course	-	NO	-
Polo fields	-	NO	-
Filling station	-	NO	-
Landfill or waste treatment site	-	NO	-
Plantation	-	NO	-
Agriculture	YES	-	As mentioned earlier the proposed mining area is situated within an area used for grazing/conditioning of livestock. Various fallow lands surround the study area.
River, stream, or wetland	-	NO	Two streams on one the western side ( $\pm 950$ m) and one on the eastern side $\pm 650$ m was identified but not any within 500 m of the proposed mining area.
Nature conservation area	-	NO	-
Mountain, hill, or ridge	YES	-	The proposed mining area is situated within the midslope region identified on the property. The surrounding area is also undulating/hilly.
Museum	-	NO	-
Historical building	-	NO	-
Protected Area	-	NO	-
Graveyard	-	NO	-
Archaeological site	-	NO	-
Other land uses (describe)	-	NO	-

**(c) Description of specific environmental features and infrastructure on the site.**

**SPECIFIC ENVIRONMENTAL FEATURES**

**SITE SPECIFIC TOPOGRAPHY**

The topography of the greater study area can be described as an undulating terrain.

The natural topography of the area surrounding the proposed gravel mine is best described as slightly undulating bottomland landscape covered with broad valleys supporting tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana* var. *woodii*. (Mucina and Rutherford, 2012).

The average elevation of the study area is 1 109 meters with the highest point recorded close to the top portion of the proposed borrow pit area (1 111 m) and the lowest point recorded (1106).



Figure 18: Elevation profile of Site Alternative 1 (Image obtained from Google Earth).

As mentioned earlier, due to the impracticality of importing large volumes of fill material to restore the borrow pit area to its original topography, the rehabilitation option (upon closure) is to render the borrow pit safe and leave it as a minor landscape feature. If the proposed closure actions, as prescribed in the EMPR, are implemented the impact on the topography of the specific area is deemed to be of low significance.

### **SITE SPECIFIC VISUAL CHARACTERISTICS**

*(Determined through desktop studies, and site investigation by EAP)*

The following figure shows the viewshed analysis (according to Google Earth) for the footprint of the study area within a  $\pm 10$  km radius around the study area. The green shaded areas indicate the positions from where the borrow pit will be visible. The analysis shows that the proposed visual impact will be of medium concern. Although the proposed mining area will be visible within the above mentioned  $\pm 10$  km radius, it is proposed that as the distance between the development and the observer increases the visual impact will decrease. From this analysis it is proposed that the visual impact of the proposed gravel mining operation will be of low significance as this is an existing excavated area and especially as no permanent structures will be constructed. The small scale of the proposed operation, and the mining within an existing excavation area contributes to the low visual significance. Should the Applicant successfully rehabilitate the mining area (upon closure), no additional residual visual impact is expected upon closure of the mine.

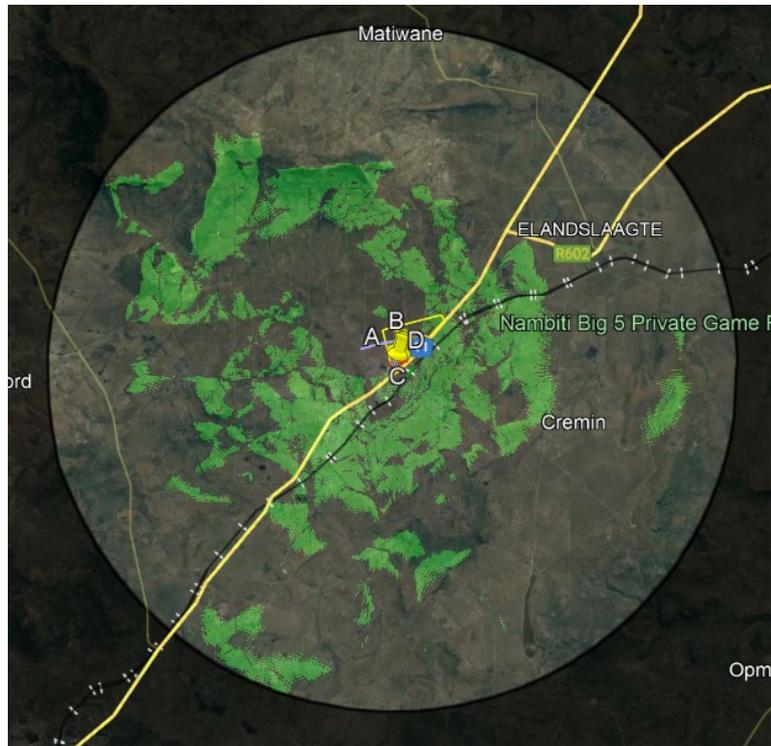


Figure 19: Viewshed analysis of the highest corner (D) of the earmarked area where the green shaded areas indicate the positions from where the earmarked area (pink polygon) will be visible. (Image obtained from Google Earth).

## SITE SPECIFIC AIR AND NOISE QUALITY

The proposed mining site is  $\pm 195$  m from a residential dwelling to the south, with the N11 passing the property more than 100 m to the south. As mentioned earlier, the prevalent wind direction of the study area is in a north-western direction for most of the year. Currently the air quality of the study area is mainly impacted on by traffic along the N11, agricultural practices such as the burning of sugar cane, and cooking/heating fires in the area.

Emission into the atmosphere is controlled by the National Environmental Management: Air Quality Act, 2004. The proposed mining activity does not trigger an application in terms of the said act, and emissions to be generated is expected to mainly entail dust due to the displacement of soil, excavation of gravel, and the transport of material on gravel roads. As the prevalent wind direction is in a north-western direction. Should the Applicant implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low-medium significance.

As with air quality, the current activities on the property and surrounding environment already impact the noise ambiance of the study area. Traffic along the N11 increase the natural noise levels of the receiving environment. The noise to be generated at the proposed borrow pit will contribute to these daily noise levels. The proposed

activity will contribute noise generated because of mining of gravel and transporting of material. The nuisance value of noise generated by heavy earthmoving equipment, to residence in the near vicinity is deemed to be of low-medium significance.

Although the proposed activity will have a cumulative impact on the ambient noise levels, the development will not take place in a pristine environment, and the impact is therefore deemed compatible with the current operations and of low-medium significance.

Should the mining permit area be approved, the cumulative dust nuisance on the receiving environment (after mitigation) is deemed to be of low-medium significance, while the cumulative noise nuisance (after mitigation) will be of medium significance.

### **SITE SPECIFIC GEOLOGY AND SOIL**

The site-specific geology resembles the geology as described under *Part A(h)(iv)(1)(a) Type of Environment Affected by the Proposed Activity – Geology and Soil*. The geology of the study area is intersected by a Stone Aggregate / Gravel intrusion. This application is for the mining of Stone Aggregate / Gravel that will be used as fill material during the upgrade of the N11.

### **SITE SPECIFIC HYDROLOGY**

#### **DFFE National Web Based Environmental Screening Tool:**

The Screening Tool, developed by the Department of Environmental Affairs (“DEA”), now Department Forestry and Fisheries of Environment, (DFFE), is a geospatial web-enabled application that aims to provide readily available information, known as ‘spatial datasets’, which enables applicants for Environmental Authorisation to screen their proposed site for environmental sensitivities.

According to the Screening Report (February 2024) the following terrestrial and aquatic biodiversity sensitivities were identified for the project area:

*Table 12: Summary of the development site’s environmental sensitivities.*

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Aquatic Biodiversity Theme	X			
Terrestrial Biodiversity Theme	X			

#### **1. Aquatic Biodiversity Theme:**

Although the Screening Report Tool shows the earmarked footprint within the Northern Drakensberg Strategic Water Source Area (SWSA), ground truthing confirmed that the

area is already highly altered and not near any natural water source, river, or drainage line. As explained earlier the borrow pit will be mined for a maximum of 5 years (unless construction of the N11 is completed earlier) whereafter the area will be rehabilitated and returned to the landowner. The proposed project does not require a Water Use Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No 36 of 1998), and considering this no need could be identified for an ABIA and/or HA.

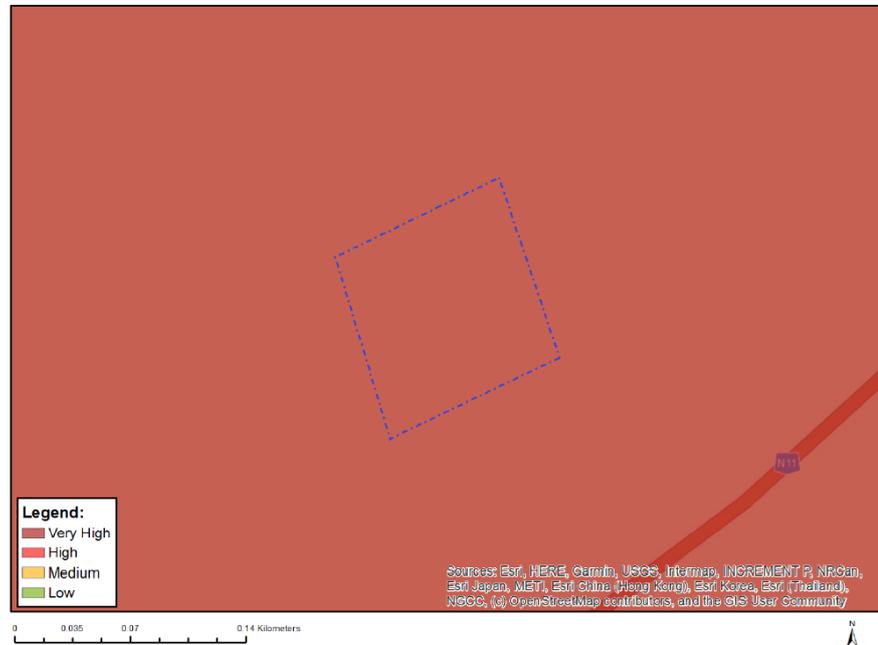


Figure 20: DFFE screening tool output for aquatic biodiversity (image obtained from DFFE screening tool report).

## 2. Terrestrial Biodiversity Theme:

The DFFE screening tool portrays the sensitivity of the Terrestrial Biodiversity Theme of the study area as Very High due to the SWSA (SW) \_Northern Drakensberg Strategic Water Source Area and VU\_Northern KwaZulu-Natal Moist Grassland.

As mentioned earlier, the proposed mining footprint extends across an area that has previously been mined and is already disturbed. No protected or red data animal or plant species were identified during the site inspection, and no fauna will be impacted by the proposed borrow pit as the animals will be able to move away or through the site without being harmed. The proposed operation will temporarily affect 1 ha (maximum) of the farm for approximately 5 years (maximum). Thereafter the borrow pit will be rehabilitated, the depression will be sloped, and the topsoil will be returned to promote vegetation regrowth. The proposed footprint does not extend across an area of high animal/plant sensitivities, nor does it enter any Critical Biodiversity Areas. Considering this, should the Applicant implement the mitigation measures proposed in the EMP the impact of the proposed activity on the terrestrial biodiversity of the area

is deemed to be of low significance. Therefore, considering the site-specific state of the earmarked area there is no need for a TBIA, PSA or ASA.

## **SITE SPECIFIC TERRESTRIAL BIODIVERSITY (INCLUDING FAUNA AND FLORA)**

### **SITE SPECIFIC FAUNA**

#### **Sensitivity Assessment:**

As mentioned earlier, the DFFE screening tool shows the animal theme as being of medium sensitivity, and the terrestrial biodiversity of very high sensitivity. However, ground truthing revealed that the proposed mining footprint extends across an area that has previously been mined and is already disturbed. No protected or red data animal or plant species were identified during the site inspection, and no fauna will be impacted by the proposed borrow pit as the animals will be able to move away or through the site without being harmed.

Therefore, there is no evident fatal flaw regarding fauna that would prevent this development from being authorised if the mitigation and monitoring measures proposed by the specialist are implemented by the Applicant.

### **SITE SPECIFIC CULTURAL AND HERITAGE ENVIRONMENT**

No sites of archaeological or cultural importance were identified during the site inspection, and consultation with the interested and affected parties also did not identify any potential area of concern. The potential impact of the proposed mining activities on the cultural and/or heritage environment is therefore deemed to be insignificant, however the Applicant will implement a chance-find protocol on site for the duration of the site establishment-, operational- and decommissioning phase.

A Needs and Desirability Application Form will be submitted to AMAFA in May 2024 to inform them of the proposed project and obtain their comments.

### **SITE SPECIFIC INFRASTRUCTURE**

No infrastructure exists in the proposed 1 ha footprint. Infrastructure in proximity to the proposed footprint include a high voltage Eskom power line ( $\pm 715$  m) passes the property to the North. The nearest pylon of the 11kV power line borders the site to the east  $\pm 10$  m from the proposed mining area. The N11 national road ( $\pm 130$  m) passes the proposed site on the southern side. A railway line passes the site to the southeast ( $\pm 400$  m), and the farm fences. The proposed mining site is  $\pm 195$  m from a residential dwelling to the south. Should the mitigation measures proposed in this document be

implemented the existing infrastructure on the farm will be safeguarded against mining related impacts.

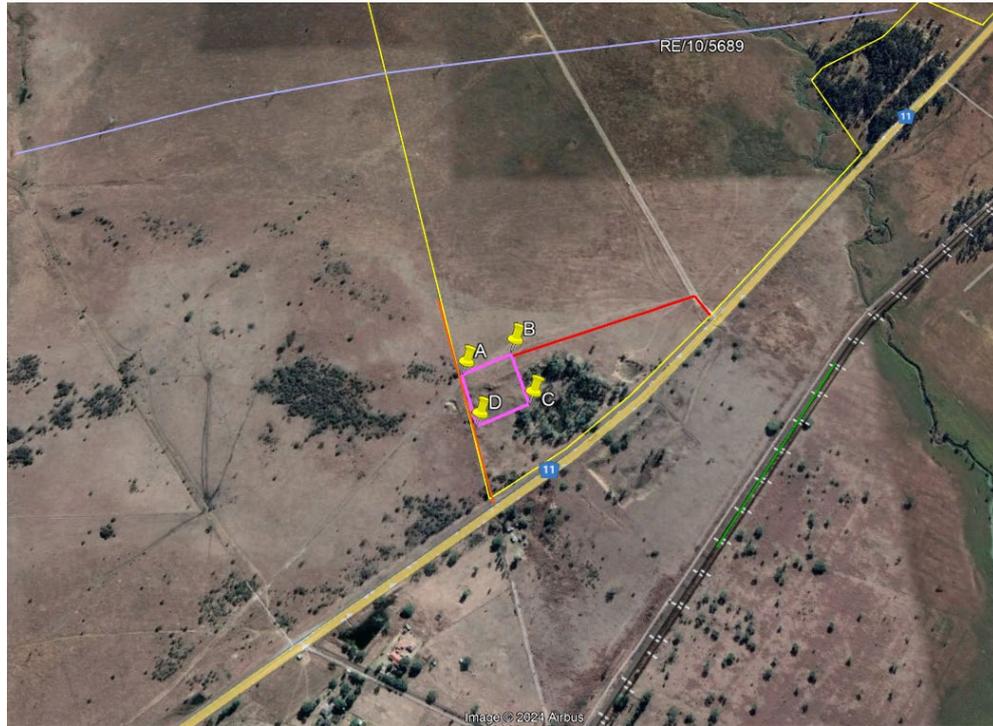


Figure 21: Satellite view showing the structures near the mining area (pink polygon) orange line show the Eskom power line 11kV, and the dwelling is south of the farm boundary (yellow line) (image obtained from Google Earth).

**(d) Environmental and current land use map.**

(Show all environmental and current land use features)

The environmental and current land use map is attached as Appendix B.

**v) Impacts and risks identified including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts.**

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

The following potential impacts were identified of each main activity in each phase of the proposed project. The significance rating was determined using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact rating listed below was determined for each impact **prior** to bringing the proposed mitigation measures into consideration. The degree of mitigation indicates the possibility of partial, full or no mitigation of the identified impact.

**SITE ESTABLISHMENT STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN:**

Loss of agricultural land for duration of mining

Rating: Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium</b>						<b>Degree of Mitigation: None</b>	
3	4	1	2,67	5	5	5	<b>13,33</b>

Alteration of natural environment and habitat loss because of site establishment

Rating: Low-Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low-Medium</b>						<b>Degree of Mitigation: Partial</b>	
2	2	1	1,67	1	5	3	<b>5</b>

Visual intrusion as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Partial</b>	
1	2	1	1,33	3	3	3	<b>4</b>

Loss of topsoil and fertility as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	1	1,67	2	1	1,5	<b>2,5</b>

Impact on ecological processes and functionality of ecosystems as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
4	4	1	3	2	1	1,5	<b>4,5</b>

Infestation of the topsoil heaps and mining area with invader plant species as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	1	1,67	2	1	1,5	<b>2,5</b>

Potential impact on fauna within the footprint area as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
1	2	1	1,33	1	1	1	<b>1,33</b>

Dust nuisance as a result of the as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
1	1	1	1,00	2	1	1,5	<b>1,5</b>

Noise nuisance as a result of the mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Partial</b>	

1	2	1	1,33	1	1	1	1,33
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Work opportunities to local residents (Positive Impact)

Rating: Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium</b>						<b>Degree of Mitigation: N/A</b>	
1	2	5	2,67	5	5	5	13,33

### MINING OF GRAVEL - EXCAVATION, LOADING AND TRANSPORTING OF MATERIAL

Visual intrusion as a result of mining activities

Rating: Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium</b>						<b>Degree of Mitigation: Partial</b>	
3	2	1	2,00	3	3	3	6

Soil contamination from hydrocarbon spills as a result of mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
5	1	1	2,33	2	1	1,5	3,5

Potential contamination of environment due to improper waste management as a result of mining activities

Rating: Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium</b>						<b>Degree of Mitigation: Full</b>	
5	5	5	5	2	1	2	10

Disturbance to fauna within the footprint area as a result of mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	2	2,00	2	1	1,5	3

Noise nuisance as a result of the mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	1	2	1,5	4,5

Dust nuisance as a result of the mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	1	2	1,5	4,5

Facilitation of erosion due to mining activities.

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	2	1	1,5	4,5

Potential impact on areas/infrastructure of heritage or cultural concern as a result of mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	

4	4	1	3	1	1	1	3
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Health and safety risk as a result of mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
4	4	1	3	1	1	1	3

### STOCKPILING AND TRANSPORTING MATERIAL FROM SITE

Loss of stockpiled material due to ineffective storm water control

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>			<b>Site Alternative 1</b>			<b>Degree of Mitigation: None</b>	
2	2	1	1,67	2	1	1,5	2,5

Dust nuisance as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	2	1	2,00	2	1	1,5	3

Noise nuisance as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	2	1	2	2	1	1,5	3

Potential contamination of environment due to improper waste management as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
1	2	1	1,33	2	1	1,5	2

Infestation of denuded areas with invader plant species as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	2	1	1,5	4,5

Potential increase in runoff from bare areas and associated accelerated erosion as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	2	1	1,5	4,5

Deterioration of the access road to the mining area as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
2	4	1	2,33	2	2	2	4,67

Overloading of trucks having an impact on the public roads as a result of stockpiling and transporting material from site

Rating: Low-Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low-Medium</b>						<b>Degree of Mitigation: Full</b>	
4	2	5	3,67	2	1	1,5	<b>5,5</b>

### SLOPING AND LANDSCAPING UPON CLOSURE OF THE MINING AREA

Erosion of returned topsoil after rehabilitation

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	2	2,00	2	1	1,5	<b>3</b>

Infestation of the reinstated area with invader plant species

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	2	1	2,00	2	2	2	<b>4</b>

Noise nuisance as a result of the decommissioning activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Partial</b>	
1	1	2	1,33	1	5	3	<b>4</b>

Dust nuisance as a result as a result of the decommissioning activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Partial</b>	
1	1	2	1,33	1	5	3	<b>4</b>

Potential contamination of environment due to improper waste management

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	1	1,67	2	1	1,5	<b>2,50</b>

Safety risk posed by un-sloped areas.

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
4	4	1	3	1	1	1	<b>3</b>

Return of the mining area to agricultural use upon closure (Positive Impact)

Rating: Medium - high

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium - high</b>						<b>Degree of Mitigation: Full</b>	
3	5	1	3,00	5	5	5	<b>15,00</b>

### CUMULATIVE IMPACTS:

Cumulative dust nuisance when borrow pit and approved spoiling area operate.

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium-High</b>						<b>Degree of Mitigation: Full</b>	
4	4	2	3.3	5	5	5	<b>16.5</b>

Cumulative noise nuisance when borrow pit and approved spoiling area operate.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Medium-High</b>						<b>Degree of Mitigation: Partial</b>	
3	4	3	3.3	5	5	5	<b>16.5</b>

Cumulative visual impact when borrow pit and approved spoiling area operate.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Medium-High</b>						<b>Degree of Mitigation: Partial</b>	
4	4	2	3.3	5	5	5	<b>16.5</b>

Cumulative impact of invader plants in both the approved spoiling area footprints.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: High</b>						<b>Degree of Mitigation: Full</b>	
4	4	4	4	5	5	5	<b>20</b>

Cumulative impact on job opportunities when borrow pit and approved spoiling area operate.

			Consequence			Likelihood	Significance (+)
Severity (+)	Duration	Extent		Probability	Frequency		
<b>Rating: High (+)</b>						<b>Degree of Mitigation: N/A</b>	
5	4	5	4.6	5	5	5	<b>23</b>

### SLOPING AND LANDSCAPING DURING REHABILITATION:

Safety risk posed by un-sloped areas.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Medium-High</b>						<b>Degree of Mitigation: Full</b>	
4	5	1	3.3	5	5	5	<b>16.5</b>

Erosion of returned topsoil after rehabilitation.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Medium</b>						<b>Degree of Mitigation: Full</b>	
4	4	1	3	4	5	4.5	<b>13.5</b>

Infestation of the reinstated areas by weeds and invader plant species

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Medium-High</b>						<b>Degree of Mitigation: Full</b>	
3	5	3	3.6	5	5	5	<b>18</b>

Exposed disturbed area with no indigenous vegetation upon closure.

			Consequence			Likelihood	Significance

Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Medium</b>						<b>Degree of Mitigation: Full</b>	
3	4	1	2.6	4	5	4.5	<b>11.7</b>

Potential impact associated with litter/waste left at the mining area.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Medium</b>						<b>Degree of Mitigation: Full</b>	
3	5	1	3	4	5	4.5	<b>10.5</b>

Return of the mining area to agricultural use upon closure (Positive Impact)

			Consequence			Likelihood	Significance (+)
Severity (+)	Duration	Extent		Probability	Frequency		
<b>Rating: Medium-High</b>						<b>Degree of Mitigation: N/A</b>	
3	5	1	3	5	5	5	<b>15</b>

**vi) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks.**

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

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

**DEFINITIONS AND CONCEPTS:**

**Environmental significance:**

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

- Environmental significance is a value judgement.
- The degree of environmental significance depends on the nature of the impact.
- The importance is rated in terms of both biophysical and socio-economic values.
- Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

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

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

**Impact**

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

**Consequence**

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

**Likelihood**

A qualitative term covering both probability and frequency.

## Frequency

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

## Probability

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

## Environment

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation (ISO 14004, 1996).

## Methodology that will be used

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

$$\text{Environmental Significance} = \text{Overall Consequence} \times \text{Overall Likelihood}$$

### Determination of Overall Consequence

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

#### ***Determination of Severity / Intensity***

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

The table below will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 13: Table to be used to obtain an overall rating of severity, taking into consideration the various criteria.

Type of criteria	Rating				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / non-harmful	Small / Potentially harmful	Significant/ Harmful	Great/ Very harmful	Disastrous Extremely harmful
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action

Type of criteria	Rating				
	1	2	3	4	5
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible	Low cost to mitigate	Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact. Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna, and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

### ***Determination of Duration***

Duration refers to the amount of time that the environment will be affected by the event, risk, or impact, if no intervention e.g. remedial action takes place.

*Table 14: Criteria for the rating of duration*

Rating	Description
1	Up to ONE MONTH
2	ONE MONTH to THREE MONTHS (QUARTER)
3	THREE MONTHS to ONE YEAR
4	ONE to TEN YEARS
5	Beyond TEN YEARS

### ***Determination of Extent/Spatial Scale***

Extent or spatial scale is the area affected by the event, aspect, or impact.

*Table 15: Criteria for the rating of extent / spatial scale.*

Rating	Description
1	Immediate, fully contained area
2	Surrounding area
3	Within Business Unit area of responsibility
4	Within the farm/neighbouring farm area
5	Regional, National, International

### ***Determination of Overall Consequence***

Overall consequence is determined by adding the factors determined above and summarized below, and then dividing the sum by 3.

*Table 16: Example of calculating overall consequence.*

Consequence	Rating
Severity	Example 4
Duration	Example 2
Extent	Example 4
<b>SUBTOTAL</b>	<b>10</b>

Consequence	Rating
<b>TOTAL CONSEQUENCE:</b> (Subtotal divided by 3)	3.3

### **Determination of Likelihood:**

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

### ***Determination of Frequency***

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

*Table 17: Criteria for the rating of frequency.*

Rating	Description
1	Once a year or once/more during operation
2	Once/more in 6 Months
3	Once/more a Month
4	Once/more a Week
5	Daily

### ***Determination of Probability***

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

*Table 18: Criteria for the rating of probability.*

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

### ***Overall Likelihood***

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

*Table 19: Example of calculating overall likelihood.*

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

## Determination of Overall Environmental Significance:

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of **LOW**, **LOW-MEDIUM**, **MEDIUM**, **MEDIUM-HIGH** or **HIGH**, as shown in the table below.

Table 20: Determination of overall environmental significance.

Significance or Risk	Low	Low-Medium	Medium	Medium-High	High
Overall Consequence X Overall Likelihood	1 – 4.9	5 – 9.9	10 – 14.9	15 – 19.9	20 – 25

## Qualitative description or magnitude of Environmental Significance

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision-making process associated with this event, aspect, or impact.

Table 21: Description of environmental significance and related action required.

Significance	Low	Low-Medium	Medium	Medium-High	High
Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect. Acceptable.	Impact is of low order and therefore likely to have little real effect. Acceptable.	Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to company	Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable	Impact is of the highest order possible. Unacceptable. Fatal flaw.
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve	Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible.	Improve management measures to reduce risk.	Implement significant mitigation measures or implement alternatives.

Based on the above, the significance rating scale has been determined as follows:

- High** Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and / or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.
- Medium-High** Impacts of a substantial order. In the case of negative impacts, mitigation and / or remedial activity would be feasible but difficult, expensive, time-

	consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
Medium	Impact would be real but not substantial within the bounds of those, which could occur. In the case of negative impacts, mitigation and / or remedial activity would be both feasible and fairly easily possible, in case of positive impacts; other means of achieving these benefits would be about equal in time, cost and effort.
Low-Medium	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and / or remedial activity would be either easily achieved or little would be required, or both. In case of positive impacts alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these.
Low	Impact would be negligible. In the case of negative impacts, almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap, and simple. In the case of positive impacts, alternative means would almost all likely be better, in one or a number of ways, than this means of achieving the benefit.
Insignificant	There would be a no impact at all – not even a very low impact on the system or any of its parts.

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

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

As discussed above Site Alternative 1, which entails the mining of an area previously used for the mining of gravel from an existing borrow pit, was identified during the assessment phase of the environmental impact assessment.

Site Alternative 2 has been thoroughly investigated but has been deemed unsuitable and will not be further assessed in the BAR (Basic Assessment Report). While it is part of existing excavation, it was planned for the designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project. Additionally, the quantity of material available at this site is insufficient, making it impractical as a potential alternative for future use. These factors collectively contribute to the decision to exclude Site Alternative 2 from further consideration in the assessment process.

As the proposed property are actively mined/earmarked for mining, additional design/layout alternatives that take the current land uses into account were considered, discussed, and assessed but even though it was found part of existing excavation, it was planned for the

designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project.

Therefore, no additional design/layout alternatives were deemed viable for this project.

**POSITIVE IMPACTS ASSOCIATED WITH THE PROJECT:**

- The permit holder will be able to exploit the resource on the property and provide fill material for the intended N11 road upgrade at competitive prices.
- The landowner will be able to further diversify the income generation of the property.
- New job opportunities will be created by the proposed activity.
- The presence of the proposed operation will contribute (directly & indirectly) to the local economy with preference give to HDSA & women owned local suppliers.
- The borrow pit on the property will be rehabilitated as part of the closure conditions of this mining permit.
- Upon closure of the mine, the area can be returned to agricultural use.

**POTENTIAL NEGATIVE IMPACTS ASSOCIATED WITH THE PROJECT:**

The following table shows the potential negative impacts associated with the preferred project proposal that were identified during the EIA:

Table 22: List of potential negative impacts associated with the preferred project proposal

**SITE ESTABLISHMENT STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN:**

	<b>Before</b>	<b>After</b>
Loss of agricultural land for duration of mining	Medium	Medium
Alteration of natural environment and habitat loss as a result of site establishment	Medium	Low-Medium
Visual intrusion as a result of site establishment	Medium-High	Low
Loss of topsoil and fertility as a result of site establishment	Low-Medium	Low
Infestation of the topsoil heaps and mining area with invader plant species as a result of site establishment	Low-Medium	Low
Impact on ecological processes and functionality of ecosystems as a result of site establishment	Low-Medium	Low
Potential impact on fauna within the footprint area as a result of site establishment	Low	Low
Dust nuisance as a result of the as a result of site establishment	Low	Low
Noise nuisance as a result of the mining activities	Low	Low
Work opportunities to local residents (Positive Impact)	Medium	Medium

**MINING OF GRAVEL - EXCAVATION, LOADING AND TRANSPORTING OF MATERIAL**

Visual intrusion as a result of mining activities	Medium	Medium
Soil contamination from hydrocarbon spills as a result of mining activities	Medium	Low
Potential contamination of environment due to improper waste management as a result of mining activities	Medium	Medium
Disturbance to fauna within the footprint area as a result of mining activities	Low-Medium	Low
Noise nuisance as a result of the mining activities	Medium	Low
Dust nuisance as a result of the mining activities	Medium	Low
Facilitation of erosion due to mining activities		
Potential impact on areas/infrastructure of heritage or cultural concern as a result of mining activities	Low	Low
Health and safety risk as a result of mining activities	Medium	Low

**STOCKPILING AND TRANSPORTING MATERIAL FROM SITE**

Loss of stockpiled material due to ineffective storm water control	Low-Medium	Low
Dust nuisance as a result of stockpiling and transporting material from site	Low-Medium	Low
Noise nuisance as a result of stockpiling and transporting material from site	Low-Medium	Low

Potential contamination of environment due to improper waste management as a result of stockpiling and transporting material from site	Low	Low
Infestation of denuded areas with invader plant species as a result of stockpiling and transporting material from site	Medium	Low
Potential increase in runoff from bare areas and associated accelerated erosion.	Medium	Low
Deterioration of the access road to the mining area as a result of stockpiling and transporting material from site	Low-Medium	Low
Overloading of trucks having an impact on the public roads as a result of stockpiling and transporting material from site	Medium-High	Low-Medium

**SLOPING AND LANDSCAPING UPON CLOSURE OF THE MINING AREA**

Erosion of returned topsoil after rehabilitation	Medium	Low
Infestation of the reinstated area with invader plant species	Medium	Low
Noise nuisance as a result of the decommissioning activities	Low	Low
Dust nuisance as a result as a result of the decommissioning activities	Low	Low
Potential contamination of environment due to improper waste management	Medium	Low
Safety risk posed by un-sloped areas.	Medium	Low
Return of the mining area to agricultural use upon closure (Positive Impact)	Medium-High	Medium-High

**viii)The possible mitigation measures that could be applied and the level of risk.**

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

The following mitigation measures are proposed to address/minimize the impact of the proposed activity on the surrounding environment:

**TOPOGRAPHY**

**Rehabilitating/Landscaping of Mining Area:**

- The excavated area must serve as a final depositing area for the placement of overburden.
- Rocks and coarse material removed from the excavation must be dumped into the excavation.
- Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.
- No waste may be permitted to be deposited in the excavations.
- Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.
- The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within six months from closure of the site.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.
- On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).
- On completion of mining operations, the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200 mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.
- Rehabilitation must be aligned with the guidelines proposed in the 2023 Terrestrial Biodiversity Impact Assessment.

## **VISUAL CHARACTERISTICS**

### **Visual Mitigation:**

- The site must have a neat appearance and at all times kept in good condition.
- Mining equipment must be stored neatly in dedicated areas when not in use.
- The permit holder must limit vegetation removal, and stripping of topsoil may only be done immediately prior to the mining/use of a specific area.
- The excavation must be contained within the approved footprint of the permitted area.
- Upon closure the site must be rehabilitated to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum.

## **AIR AND NOISE QUALITY**

### **Fugitive Dust Emission Mitigation Measures:**

- The liberation of dust into the surrounding environment must be effectively controlled using, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products).
- The site manager must daily assess the efficiency of all dust suppression equipment.
- Speed on the haul roads must be limited to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust.
- Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining.
- Loads must be flattened to prevent spillage during transportation on public roads.
- Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts.
- All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012).
- Best practice measures shall be implemented during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.
- Monthly fallout-dust monitoring must be implemented at the site for the duration of the activities and the results must be compliant with the standards of the National Dust Control Regulations, 2013.

### **Noise Handling:**

- The permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site.
- No loud music may be permitted at the mining area.

- All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).
- A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM: AQUA, 2004, SANS 10103:2008.
- Site management must strive to minimise the noise caused by generators. All generators must be maintained and equipped with sound mufflers. If possible, the generators must be pointed away from the neighbouring land users. Further to this, all generators must be placed on a level area/footing to minimise vibration noise.
- Best practice measures shall be implemented to minimize potential noise impacts.

## **GEOLOGY AND SOIL**

### **Topsoil Management:**

- The upper 300 mm of the soil must be stripped and stockpiled before mining.
- Topsoil is a valuable and essential resource for rehabilitation, and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
- Topsoil stripping, stockpiling, and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time.
- The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed areas.
- Topsoil stockpiles must be protected against losses by water- and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion.
- Topsoil heaps may not exceed 1.5 m in height and are not to be sloped more than 1:2 to avoid collapse.
- The temporary topsoil stockpiles must be kept free of invasive plant species.
- Topsoil heaps to be stored longer than a period of 3 months needs to be vegetated with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season.
- Storm- and runoff water must be diverted around the on-site stockpile area to prevent erosion.
- The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site.
- The permit holder must strive to re-instate topsoil at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil

by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal.

- An indigenous grass layer must be planted and established immediately after spreading of topsoil, to stabilize the soil and protect it from erosion. The grass layer must be fertilized for optimum biomass production. It is important that rehabilitation be taken up to the point of stabilization. Rehabilitation cannot be considered complete until the first grass layer is well established.
- Run-off water must be controlled via temporary berms, where necessary, on the slopes to ensure that accumulation of run-off does not cause down-slope erosion.
- The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement.

## **HYDROLOGY**

### **Erosion Control and Storm Water Management:**

- Storm water management measures must be implemented for the duration of the mining activities.
- Clearing of vegetation must be limited to the proposed mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place.
- Vegetation clearing activities must be put on hold when heavy rains are expected.
- Stormwater must be diverted around the topsoil heaps and mining areas to prevent erosion.
- Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms.
- When mining within steep slopes, it must be ensured that adequate slope protection is provided.
- During mining, the outflow of run-off water from the mining excavation must be controlled to prevent down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur.
- No dirty water emanating from the borrow pit shall be discharged into the natural environment or any watercourse. All runoffs must be channelled into the stormwater system.
- Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation.

- Any erosion problems within the mining area because of the mining activities observed must be rectified immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur.
- Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose:
  - Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.
  - Dirty water must be collected and contained in a system separate from the clean water system.
  - Dirty water must be prevented from spilling or seeping into clean water systems.
  - Storm water management measures must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns).
  - The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan.
- All fuels and chemicals stored or used on site must be contained within fit for purpose containers and stored within designated storage areas. To prevent pollution of the surrounding environment during an accidental spillage, the designated storage areas must be situated on an impermeable surface and must feature a perimeter bund and a drainage sump. The volume of the bund and sump must be sized to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. The storage areas must feature a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently.
- All erosion and sediment control measures must be monitored (weekly) for the life of the operation and repaired immediately when damaged. The erosion and sediment control structures may only be removed once vegetation cover has successfully recolonised the affected areas.
- After heavy rainfall events, the contractor must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled-in with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.

## **TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUND COVER**

### **Management of Vegetation Removal:**

- The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly.
- The Applicant must be committed to a conservation approach and the actual footprint of disturbance must be kept to a minimum.
- A pre-commencement environmental induction for all site staff must be provided to ensure that basic environmental principles are adhered to. This includes awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas, etc.
- A pre-commencement walkthrough must be done by the ECO to identify and demarcate important species to be relocated and sub habitats not to be disturbed.
- Permits for the removal of protected plant species (especially *Aloe marlothii*) must be obtained and kept on-site in the possession of the flora search and rescue team.
- Bush-clearance may only commence once the plant permits were received, and the important plants were relocated by a suitably qualified person.
- Grubbing is not permitted as a method of clearing vegetation. Any trees needing clearing must be cut down using chain saws and hauled from the site using appropriate machinery where practically possible.
- Cleared vegetation to be retained at any time may not be burned but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes.
- The ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing is taking place.
- All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed.
- No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the ECO and without the relevant permits.
- No fires must be allowed on-site.
- Spoil heaps and topsoil stockpiles must be provided with a vegetation cover of indigenous grasses.

#### **Management of Invasive Plant Species:**

- An invasive plant species management plan (Appendix H) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the mining activities.

- No planting or importing of any alien species to the site for landscaping, rehabilitation or any other purpose may be allowed.
- All stockpiles (topsoil & overburden) must be kept free of invasive plant species.
- Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
  - The plants can be uprooted, felled, or cut off and can be destroyed completely.
  - The plants can be treated chemically by a registered pest control officer (PCO) using an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide. Only herbicides which have been certified safe for use in aquatic environments by independent testing authority are to be used.

### **Fire Management:**

- No open fires to be permitted on site. Fires may only be made within the areas and for purposes approved by the ECO.
- Fire prevention facilities must be present at all hazardous storage facilities.
- Ensure adequate fire-fighting equipment is available and train workers on how to use it.
- Ensure that all workers on site know the proper procedure in case of a fire occurring on site.
- Smoking must not be permitted in areas considered to be a fire hazard.

## **FAUNA**

### **Protection of Fauna:**

- The site manager must ensure no fauna is caught, killed, harmed, sold, or played with.
- Any fauna directly threatened by the operational activities must be removed to a safe location by the ECO or other suitably qualified person.
- The handling and relocation of any animal perceived to be dangerous/venomous/poisonous must be undertaken by a suitably trained individual.
- All personnel must undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Workers must be instructed to report any animals that may be trapped in the working area.
- No snares may be set, or nests raided for eggs or young.
- All vehicles must adhere to a low-speed limit (20 km/h is recommended) to avoid collisions with susceptible species such as snakes and tortoises.
- No litter, food or other foreign material may be thrown or left around the site. Such items must be kept in the site vehicles and daily removed to the site camp.
- Indigenous vegetation must be reserved wherever possible, and vegetation clearing during the breeding season must be avoided.

## **CULTURAL AND HERITAGE ENVIRONMENT**

### **Archaeological, Heritage and Palaeontological Aspects:**

- All mining must be confined to the development footprint area.
- If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.
- The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify AMAFA.
- Work may only continue once the go-ahead was issued by AMAFA.

## **LAND USE**

### **Loss of agricultural land for duration of mining:**

- The Applicant signed a lease agreement with the landowner to compensate for the loss of agricultural land for the duration of the mining period. If needed, mined out/rehabilitated areas could revert to grazing once the grass layer stabilised.

## **EXISTING INFRASTRUCTURE**

### **Managing the Power Lines:**

Building Restrictions for the 11kV Overhead Power Line:

- No building or structures may be erected or installed above or below the surface of the ground, neither may any material which might endanger the safety of this power line be placed within 12 (twelve) metres from the centre line of this power line, or either side (overall servitude width 24 metres).
- The applicant will adhere to all relevant environmental legislation. Dimensions and specifics will be in accordance with ESKOM standards to not obstruct Eskom's existing infrastructure in any way.
- No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work.

- The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded electrically live and therefore dangerous at all times.
- Any third-party servitudes encroaching on Eskom land shall be registered against Eskom's Notaries deed at the applicant's own cost.
- Prior any construction activities, the applicant is required to contact Eskom and detailed Surveyed Plans are to be submitted to this office.

#### **Management of the Access Road:**

- Access to and from the mining area shall not be permitted from the N11, unless authorised by SANRAL.
- Storm water must be diverted around the access road to prevent erosion.
- Vehicular movement must be restricted to the existing access road and crisscrossing of tracks through undisturbed areas must be prohibited.
- Rutting and erosion of the access road caused as a direct result of the mining activities must be repaired by the permit holder.
- Overloading of the trucks must be prevented, and proof of load weights must be filed and be available for auditing by relevant officials.
- The speed of all mining equipment/vehicles must be restricted to 40 km/h on the access roads.

#### **GENERAL**

##### **Waste Management:**

- Regular vehicle maintenance, repairs and services may only take place at an off-site workshop and service area. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. This waste must be treated as hazardous waste and must be disposed of at a registered hazardous waste handling facility, alternatively collected by a registered hazardous waste handling contractor. The safe disposal certificates must be filed for auditing purposes.
- If a diesel bowser is used on site, it must always be equipped with a drip tray. Drip trays must be used during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.
- Mixing and/or decanting of all chemicals and hazardous substances must take place on an impermeable surface and must be protected from the ingress and egress of stormwater.

- Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. The dirty rags used to clean the drip trays must be disposed as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a registered facility. Proof of safe disposal must be filed for auditing purposes.
- An oil spill kit must be obtained, and the employees must be trained in the emergency procedures to follow when a spill occurs as well as the application of the spill kit.
- Spills must be cleaned up immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMRE) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a registered facility. Proof must be filed.
- Suitable covered receptacles must be always available and conveniently placed for the disposal of general waste.
- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point to be collected at least once a month and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or in the vicinity of the mine area. Proof of disposal must be available for auditing purposes.
- Biodegradable refuse must be handled as indicated above.
- Re-use or recycling of waste products must be encouraged on site.
- No waste may be buried or burned on the site.
- Ablution facilities must be provided in the form of a chemical toilet/s. The chemical toilet must be anchored (to prevent blowing/falling over) and shall be serviced at least once a week for the duration of the mining activities by a registered liquid waste handling contractor. The safe disposal certificates must be filed for auditing purposes.
- The use of any temporary, chemical toilet facilities must not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the permit holder.
- When small volumes of wastewater are generated during the life of the mine the following is applicable:
  - Water containing waste must not be discharged into the natural environment.
  - Measures to contain the wastewater and safely dispose thereof must be implemented.

- It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities is reported to the Department of Water and Sanitation and other relevant authorities.
- Site management must implement the use of waste registers to keep record of the waste generated and removed from the mining area.

### **Management of health and safety risks:**

- It must be ensured that the mining area is properly fenced off to prevent incursion by livestock and humans.
- Workers must have access to the correct personal protection equipment (PPE) as required by law.
- Sanitary facilities must be located within 100 m from any point of work.
- All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).

### **ix) Motivation where no alternative sites were considered.**

#### **Site Alternative 1 (Preferred and Only Site Alternative):**

Site Alternative 1, which entails the mining of an area previously used for the mining of gravel from an existing borrow pit, was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team, as the preferred site alternative.

#### **Site Alternative 2 (Not to further assessed in the BAR)**

Site Alternative 2 has been thoroughly investigated but has been deemed unsuitable and will not be further assessed in the BAR (Basic Assessment Report). While it is part of existing excavation, it was planned for the designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project. Additionally, the quantity of material available at this site is insufficient, making it impractical as a potential alternative for future use. These factors collectively contribute to the decision to exclude Site Alternative 2 from further consideration in the assessment process.

### **x) Statement motivating the alternative development location within the overall site.**

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

Presently, the project proposal entails the mining of 1 ha area over the properties listed in section *b) Description of the Property* and presented in Figures 1 and 2. Applicants can only apply for mining permits within areas where such permits are not yet held by other companies/applicants. Furthermore, the mining activities are dependent upon the presence of the desired minerals which are again dependent upon geological formations. As this site is known/expected to contain presence of economically viable gravel deposits it was selected. The proposed footprint of the MP application was based on the available geological information which is of interest to gravel.

As mentioned previously the proposed site earmarked for mining will entail the extension of an existing borrow pit within the boundaries of the proposed GPS coordinates (Table 6). As no permanent infrastructure will be established, the production rate and subsequent

stockpiling of the material will dictate the layout of the proposed footprint area. The proposed site was identified as the preferred site and only viable alternative based on the following:

- The existing borrow pit on the property remains unrehabilitated.
- Should the Applicant be allowed to mine the area, the existing borrow pit will be rehabilitated as part of the closure conditions of this mining permit.
- Containing the mining related activities to the already disturbed area on the farm, will reduce the visual impact on the surrounding environment.
- The existing farm road can be used to access the proposed mining area with minor upgrading needed.
- Moving the proposed mining area further to the east, will not only exclude the existing borrow pit from the mining area, but also move the mine too close to the power lines that passes the site  $\pm 50$  m to the east.
- The mining area cannot be moved to the south as the resource which the Applicant intends to mine is concentrated on the hill and not found further to the south.

Considering the above mentioned, the proposed site is believed to be the most practical alternative as the area was previously approved for mining, there is an existing borrow pit, the topsoil and/or overburden layer of the footprint is relatively shallow, the resource is of good grade, access and rehabilitation is simplified, and the environmental related impacts are acceptable.

**i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity.**

(Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures)

During the impact assessment process, the following potential impacts were identified of each main activity in each phase. An initial significance rating (listed under v) *Impacts and Risks Identified*) was determined for each potential impact should the mitigation measures proposed in this document not be implemented on-site. The impact assessment process then continued in identifying mitigation measures to address the impact that the proposed mining activity may have on the surrounding environment.

The significance rating was again determined for each impact using the methodology as explained under vi) *Methodology Used in Determining and Ranking the Significance*. The impact ratings listed below was determined for each impact **after** bringing the proposed mitigation measures into consideration and therefore represents the final layout/activity proposal.

**SITE ESTABLISHMENT STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN:**

Loss of agricultural land for duration of mining

Rating: Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium</b>						<b>Degree of Mitigation: None</b>	
3	4	1	2,67	5	5	5	<b>13,33</b>

Alteration of natural environment and habitat loss as a result of site establishment

Rating: Low-Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low-Medium</b>						<b>Degree of Mitigation: Partial</b>	
2	2	1	1,67	1	5	3	<b>5</b>

Visual intrusion as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Partial</b>	
1	2	1	1,33	3	3	3	<b>4</b>

Loss of topsoil and fertility as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	1	1,67	2	1	1,5	<b>2,5</b>

Impact on ecological processes and functionality of ecosystems as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
4	4	1	3	2	1	1,5	<b>4,5</b>

Infestation of the topsoil heaps and mining area with invader plant species as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	1	1,67	2	1	1,5	<b>2,5</b>

Potential impact on fauna within the footprint area as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
1	2	1	1,33	1	1	1	<b>1,33</b>

Dust nuisance as a result of the as a result of site establishment

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
1	1	1	1,00	2	1	1,5	<b>1,5</b>

Noise nuisance as a result of the mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Partial</b>	

1	2	1	1,33	1	1	1	1,33
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Work opportunities to local residents (Positive Impact)

Rating: Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium</b>						<b>Degree of Mitigation: N/A</b>	
1	2	5	2,67	5	5	5	13,33

**MINING OF GRAVEL - EXCAVATION, LOADING AND TRANSPORTING OF MATERIAL**

Visual intrusion as a result of mining activities

Rating: Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium</b>						<b>Degree of Mitigation: Partial</b>	
3	2	1	2,00	3	3	3	6

Soil contamination from hydrocarbon spills as a result of mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
5	1	1	2,33	2	1	1,5	3,5

Potential contamination of environment due to improper waste management as a result of mining activities

Rating: Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium</b>						<b>Degree of Mitigation: Full</b>	
5	5	5	5	2	1	2	10

Disturbance to fauna within the footprint area as a result of mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	2	2,00	2	1	1,5	3

Noise nuisance as a result of the mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	1	2	1,5	4,5

Dust nuisance as a result of the mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	1	2	1,5	4,5

Facilitation of erosion due to mining activities.

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	2	1	1,5	4,5

Potential impact on areas/infrastructure of heritage or cultural concern as a result of mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	

4	4	1	3	1	1	1	3
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Health and safety risk as a result of mining activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
4	4	1	3	1	1	1	3

### STOCKPILING AND TRANSPORTING MATERIAL FROM SITE

Loss of stockpiled material due to ineffective storm water control

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>			<b>Site Alternative 1</b>			<b>Degree of Mitigation: None</b>	
2	2	1	1,67	2	1	1,5	2,5

Dust nuisance as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	2	1	2,00	2	1	1,5	3

Noise nuisance as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	2	1	2	2	1	1,5	3

Potential contamination of environment due to improper waste management as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
1	2	1	1,33	2	1	1,5	2

Infestation of denuded areas with invader plant species as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	2	1	1,5	4,5

Potential increase in runoff from bare areas and associated accelerated erosion as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	2	1	1,5	4,5

Deterioration of the access road to the mining area as a result of stockpiling and transporting material from site

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
2	4	1	2,33	2	2	2	4,67

Overloading of trucks having an impact on the public roads as a result of stockpiling and transporting material from site

Rating: Low-Medium

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low-Medium</b>						<b>Degree of Mitigation: Full</b>	
4	2	5	3,67	2	1	1,5	<b>5,5</b>

### SLOPING AND LANDSCAPING UPON CLOSURE OF THE MINING AREA

Erosion of returned topsoil after rehabilitation

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	2	2,00	2	1	1,5	<b>3</b>

Infestation of the reinstated area with invader plant species

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	2	1	2,00	2	2	2	<b>4</b>

Noise nuisance as a result of the decommissioning activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Partial</b>	
1	1	2	1,33	1	5	3	<b>4</b>

Dust nuisance as a result as a result of the decommissioning activities

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Partial</b>	
1	1	2	1,33	1	5	3	<b>4</b>

Potential contamination of environment due to improper waste management

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
3	1	1	1,67	2	1	1,5	<b>2,50</b>

Safety risk posed by un-sloped areas.

Rating: Low

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low</b>						<b>Degree of Mitigation: Full</b>	
4	4	1	3	1	1	1	<b>3</b>

Return of the mining area to agricultural use upon closure (Positive Impact)

Rating: Medium - high

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Medium - high</b>						<b>Degree of Mitigation: Full</b>	
3	5	1	3,00	5	5	5	<b>15,00</b>

### CUMULATIVE IMPACTS:

Cumulative dust nuisance when borrow pit and approved spoiling area operate.

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
<b>Rating: Low-Medium</b>						<b>Degree of Mitigation: Full</b>	
3	4	2	3	3	3	3	<b>9</b>

Cumulative noise nuisance when borrow pit and approved spoiling area operate.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Medium</b>						<b>Degree of Mitigation: Partial</b>	
3	4	3	3.3	4	5	4.5	<b>14.8</b>

Cumulative visual impact when borrow pit and approved spoiling area are developed.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Medium</b>						<b>Degree of Mitigation: Partial</b>	
3	4	2	3	4	5	4.5	<b>13.5</b>

Cumulative impact of invader plants in both the borrow pit and approved spoiling area footprints.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
<b>Rating: Low-Medium</b>						<b>Degree of Mitigation: Full</b>	
2	3	5	3.3	2	2	2	<b>6.6</b>

**j) Assessment of each identified potentially significant impact and risk.**

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

*Table 23: Assessment of each identified potentially significant impact and risk.*

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
Whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	(E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, air pollution, etc...etc...etc.)		In which impact is anticipated. (E.g. Construction, commissioning, operational Decommissioning closure, post closure.)	If not mitigated.	(modify, remedy, control, or stop) through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc etc)  E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation.	If not mitigated.
<ul style="list-style-type: none"> <li>Demarcation of site with visible beacons.</li> </ul>	<ul style="list-style-type: none"> <li>No impact could be identified other than the beacons being outside the boundaries of the approved mining area.</li> </ul>	N/A	Site Establishment phase	N/A	Control through management and monitoring.	N/A
<ul style="list-style-type: none"> <li>Site establishment and infrastructure development.</li> </ul>	<ul style="list-style-type: none"> <li>Loss of agricultural land for duration of mining.</li> </ul>	The impact may affect the agricultural	Site Establishment &	<ul style="list-style-type: none"> <li>Medium</li> </ul>	Should the proposed project be approved, the operation will temporarily	<ul style="list-style-type: none"> <li>Medium</li> </ul>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
		opportunities of the property.	Operational Phase		interrupt the agricultural activities of the footprint area, only to be reversed upon the closure of the mine. The impact could be controlled through progressive rehabilitation.	
<ul style="list-style-type: none"> <li>Site establishment and infrastructure development.</li> <li>Stripping and stockpiling of topsoil and overburden.</li> <li>Excavation, loading and hauling material from site.</li> <li>Cumulative impact</li> </ul>	<ul style="list-style-type: none"> <li>Visual intrusion as a result of site establishment.</li> <li>Visual intrusion associated with the excavation activities.</li> <li>Cumulative visual impact when borrow pit and stockpile area are developed.</li> </ul>	The visual impact may affect the aesthetics of the landscape.	Site Establishment & Operational Phase	<ul style="list-style-type: none"> <li>Medium-High</li> <li>Medium-High</li> <li>Medium-High</li> </ul>	<u>Control:</u> Implementing proper housekeeping.	<ul style="list-style-type: none"> <li>Low</li> <li>Low</li> <li>Medium</li> </ul>
<ul style="list-style-type: none"> <li>Site establishment and infrastructure development.</li> <li>Cumulative Impacts</li> </ul>	<u>Site Establishment Phase:</u> <ul style="list-style-type: none"> <li>Alteration of natural environment and habitat loss.</li> <li>Impact on ecological processes and functionality of ecosystems</li> </ul>	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	<u>Site Establishment Phase:</u> <ul style="list-style-type: none"> <li>Low-Medium</li> <li>Low-Medium</li> </ul>	<u>Control:</u> Implementing proper housekeeping and the mitigation measures proposed by the specialist.	<u>Site Establishment Phase:</u> <ul style="list-style-type: none"> <li>Low</li> <li>Low</li> </ul>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
<ul style="list-style-type: none"> <li>Site establishment and infrastructure development.</li> </ul>	<ul style="list-style-type: none"> <li>New job opportunities because of the mining operation (+).</li> </ul>	Contribution to the socio-economic status of the area.	Site Establishment, & Operational Phase.	<ul style="list-style-type: none"> <li>High+</li> </ul>	N/A	<ul style="list-style-type: none"> <li>High+</li> </ul>
<ul style="list-style-type: none"> <li>Stripping and stockpiling of topsoil and overburden.</li> <li>Excavation, loading and stockpiling and transporting of material.</li> <li>Sloping and landscaping during rehabilitation.</li> </ul>	<ul style="list-style-type: none"> <li>Loss of stockpiled topsoil during mining and stockpiling.</li> <li>Potential increase in runoff from bare areas and associated accelerated erosion.</li> <li>Facilitation of erosion due to mining activities.</li> <li>Potential increase in runoff from bare areas and associated accelerated erosion.</li> <li>Erosion of returned topsoil after rehabilitation.</li> <li>Exposed disturbed area with no indigenous vegetation upon closure.</li> </ul>	The loss/contamination of topsoil and erosion of the footprint will affect the rehabilitation of the excavation upon closure of the site.	Site Establishment-, Operational and Decommissioning Phase	<ul style="list-style-type: none"> <li>Low-Medium</li> <li>Low-Medium</li> <li>Low-Medium</li> <li>Low-Medium</li> <li>Medium</li> <li>Medium</li> </ul>	<u>Control &amp; Remedy:</u> Proper housekeeping and storm water management.	<ul style="list-style-type: none"> <li>Low</li> <li>Low</li> <li>Low</li> <li>Low</li> <li>Low</li> <li>Low</li> </ul>
<ul style="list-style-type: none"> <li>Stripping and stockpiling of topsoil and/or overburden.</li> <li>Excavation, loading and hauling of material.</li> </ul>	<ul style="list-style-type: none"> <li>Dust nuisance because of the disturbance of soil.</li> <li>Dust nuisance due to excavation and from loading and vehicles transporting the material.</li> <li>Cumulative dust nuisance when borrow pit and stockpile area operate.</li> </ul>	Increased dust generation will impact on the air quality of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	<ul style="list-style-type: none"> <li>Low-Medium</li> <li>Medium</li> <li>Medium-High</li> </ul>	<u>Control:</u> Dust suppression methods and proper housekeeping.	<ul style="list-style-type: none"> <li>Low</li> <li>Low-Medium</li> <li>Low-Medium</li> </ul>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
<ul style="list-style-type: none"> <li>█ Stockpiling, and transporting of material.</li> <li>█ Cumulative impact</li> </ul>						
<ul style="list-style-type: none"> <li>█ Stripping and stockpiling of topsoil and/or overburden.</li> <li>█ Excavation, loading and hauling material from site.</li> <li>█ Stockpiling, and transporting of material.</li> <li>█ Cumulative impact</li> </ul>	<ul style="list-style-type: none"> <li>█ Noise nuisance generated by earthmoving machinery.</li> <li>█ Noise nuisance because of the mining activities.</li> <li>█ Cumulative noise nuisance when borrow pit and stockpile area operate.</li> </ul>	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	<ul style="list-style-type: none"> <li>█ Low-Medium</li> <li>█ Medium</li> <li>█ Medium-High</li> </ul>	<u>Control:</u> Noise suppression methods and proper housekeeping.	<ul style="list-style-type: none"> <li>█ Low</li> <li>█ Low</li> <li>█ Medium</li> </ul>
<ul style="list-style-type: none"> <li>█ Stripping and stockpiling of topsoil and/or overburden.</li> <li>█ Stockpiling, and transporting of material.</li> <li>█ Cumulative impact</li> <li>█ Sloping and landscaping during rehabilitation phase.</li> </ul>	<ul style="list-style-type: none"> <li>█ Infestation of the topsoil heaps and mining area with weeds or invader plant species.</li> <li>█ Infestation of the area with invader plant species.</li> <li>█ Cumulative impact of invader plants in the borrow pit footprint.</li> <li>█ Infestation of the reinstated areas by weeds and invader plant species.</li> </ul>	Infestation of the footprint by invader plant species may affect the biodiversity of the receiving environment.	Site Establishment-, Operational, and Decommissioning Phase	<ul style="list-style-type: none"> <li>█ Low - Medium</li> <li>█ Medium</li> <li>█ High</li> <li>█ Medium-High</li> </ul>	<u>Control &amp; Remedy:</u> Implementation of an invasive plant species management plan.	<ul style="list-style-type: none"> <li>█ Low</li> <li>█ Low</li> <li>█ Low-Medium</li> <li>█ Low</li> </ul>
<ul style="list-style-type: none"> <li>█ Stripping and stockpiling of</li> </ul>	<ul style="list-style-type: none"> <li>█ Potential contamination of footprint area and surface</li> </ul>	Contamination of the footprint area will negatively	Site Establishment-, Operational-, and	<ul style="list-style-type: none"> <li>█ Medium</li> <li>█ Medium</li> <li>█ Medium</li> </ul>	<u>Control &amp; Remedy:</u> Proper housekeeping and implementation of	<ul style="list-style-type: none"> <li>█ Low</li> <li>█ Low</li> <li>█ Low</li> </ul>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
<p>topsoil and/or overburden.</p> <ul style="list-style-type: none"> <li>█ Excavation, loading and hauling of material.</li> <li>█ Stockpiling and transporting of material.</li> <li>█ Sloping and landscaping during rehabilitation phase.</li> </ul>	<p>runoff because of hydrocarbon spillages.</p> <ul style="list-style-type: none"> <li>█ Soil contamination from hydrocarbon spills and/or littering.</li> <li>█ Potential contamination of environment due to improper waste management.</li> <li>█ Potential impact associated with litter/waste left at the mining area.</li> </ul>	<p>impact the soil, surface runoff and potentially the groundwater. It will also incur additional costs to the permit holder.</p>	Decommissioning Phase	<ul style="list-style-type: none"> <li>█ Medium</li> </ul>	an emergency response plan and waste management plan.	<ul style="list-style-type: none"> <li>█ Low</li> </ul>
<ul style="list-style-type: none"> <li>█ Excavation, loading of material.</li> <li>█ Sloping and landscaping during rehabilitation phase.</li> </ul>	<ul style="list-style-type: none"> <li>█ Health and safety risk posed by mining activities.</li> <li>█ Safety risk posed by un-sloped areas.</li> </ul>	<p>An unsafe working environment affects the labour force, as well as pose a threat to animals and humans that may enter the mining footprint.</p>	Operational-, and Decommissioning Phase	<ul style="list-style-type: none"> <li>█ Medium</li> <li>█ Medium</li> </ul>	<p><u>Stop &amp; Control:</u> Adherence to the mining rules and regulations, demarcation of the mining area and proper housekeeping.</p>	<ul style="list-style-type: none"> <li>█ Low</li> <li>█ Low</li> </ul>
<ul style="list-style-type: none"> <li>█ Stockpiling, and transporting of material.</li> </ul>	<ul style="list-style-type: none"> <li>█ Overloading of trucks impacting road infrastructure.</li> <li>█ Degradation of the access road.</li> </ul>	<p>Collapse of the internal road infrastructure will affect the landowner negatively. If the mine negatively affects public traffic, it may incur additional costs and</p>	Operational phase	<ul style="list-style-type: none"> <li>█ Medium-High –</li> <li>█ Low Medium</li> </ul>	<p><u>Control &amp; Remedy:</u> Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to mining.</p>	<ul style="list-style-type: none"> <li>█ Low Medium</li> <li>█ Low</li> </ul>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
		complaints from the public.				
<ul style="list-style-type: none"> <li>Sloping and landscaping during rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>Return of the mining area to agricultural use upon closure (+)</li> </ul>	The area will be returned to the landowner for future use.	Decommissioning Phase	<ul style="list-style-type: none"> <li>Medium-High+</li> </ul>	N/A	<ul style="list-style-type: none"> <li>Medium-High+</li> </ul>

The supporting impact assessment conducted by the EAP must be attached as an appendix, marked Appendix F

**k) Summary of specialist reports.**

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

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Table 24: Summary of specialist reports.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED

## **l) Environmental impact statement**

### **i) Summary of the key findings of the environmental impact assessment.**

The key findings of the environmental impact assessment entail the following:

#### **Project proposal:**

- The project entails the extension of the existing borrow pit on a portion of the Remaining Extent of Portion 10 of Schaap Plaats 5689 GS, situated in the Magisterial District of Uthukela of KwaZulu-Natal Province. The mining area will be 1 ha and the product to be material will be used, by the Applicant, as fill material for the intended road works tender to upgrade the N11 in the vicinity of Ladysmith. The rehabilitation of the mining area upon closure of the site will incorporate the rehabilitation of the borrow pit on the property.

#### **Topography:**

- The natural topography of the area surrounding the proposed gravel mine is best described as slightly undulating bottomland landscape covered with broad valleys supporting tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana* var. *woodii*. (Mucina and Rutherford, 2012).
- Due to the impracticality of importing large volumes of fill material to restore the borrow pit to its original topography, the rehabilitation option (upon closure) is to render the borrow pit safe and leave it as a minor landscape feature.

#### **Visual Characteristics:**

- The viewshed shows that the proposed visual impact will be of medium concern. Although the proposed mining area will be visible within the above mentioned  $\pm 10$  km radius, it is proposed that as the distance between the development and the observer increases the visual impact will decrease. From this analysis it is proposed that the visual impact of the proposed gravel mining operation will be of low significance as this is an existing excavated area and especially as no permanent structures will be constructed.
- The small scale of the proposed operation, and the mining within an existing excavation area contributes to the low visual significance. Should the Applicant

successfully rehabilitate the mining area (upon closure), no additional residual visual impact is expected upon closure of the mine.

### **Air and Noise Quality:**

- The proposed activity does not require an air emissions licence.
- The proposed activity will contribute the emissions mechanical mining equipment to the receiving environment for the duration of the operational phase. Should the permit holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the traffic of the surrounding area.

### **Hydrology:**

- Two streams on one the western side ( $\pm 950$  m) and one on the eastern side  $\pm 650$  m was identified but not any within 500 m of the proposed mining area.
- No wetlands or watercourse were identified within the application footprint.
- An existing excavation feature lies to the east of the site, serving as the approved designated spoil site for the N11 project. This excavation occasionally holds water seasonally but will remain unaffected by the planned mining activities. Despite its periodic water accumulation, this feature has been deemed suitable for its designated purpose and will not face any adverse effects from the proposed mining operations.
- The Department of Water and Sanitation (DWS) has approved multiple abstraction points for water usage, specifically for dust suppression purposes. Consequently, the water necessary for dust suppression will be sourced from one of these pre-approved abstraction points.

### **Terrestrial Biodiversity (including fauna and flora):**

- Since the mid-1990s, the site has experienced extensive vegetation clearance to enable road development, resulting in significant disturbance and degradation. Unfortunately, proper rehabilitation efforts have not been undertaken to restore its condition.
- The provincially protected plant, *Aloe marlothii* (Mountain Aloe) is present on site within large colonies (to be relocated). No other SCCs were identified on site.
- The proposed mining area covers  $\pm 1$  ha of Medium SEI Vegetation.

- Considering the project's relatively small scale and the current land use patterns in the area—characterized by disturbed grasslands utilized for grazing—potential impacts on faunal movement are unlikely to be of significant concern.
- With optimal mitigation measures in place, the project is deemed environmentally acceptable in terms of terrestrial biodiversity. However, strict adherence to mitigation and management recommendations is crucial to ensure its sustainability.

#### **Fauna:**

- None of the sensitive avifauna or faunal species obtained from SANBI were observed on site.
- Visual observations during the site inspection revealed no significant faunal species of conservation concern (SCC), nor was any evidence found to suggest their probable presence within the project area. Considering the current habitat conditions and level of disturbance, it is improbable that faunal species of conservation concern inhabit the proposed project area. Consequently, the likelihood of impacts on fauna of conservation concern is low, with overall consequences deemed inconsequential.
- There is no evident fatal flaw regarding fauna that would prevent this development from being authorised if the mitigation and monitoring measures proposed by the specialist are implemented by the Applicant.

#### **Cultural and Heritage Environment:**

- No sites of archaeological, palaeontological, or cultural importance exist at the study area, a Needs and Desirability Application Form will be submitted to AMAFA in May 2024 to inform them of the proposed project and obtain their comments.

#### **Existing Infrastructure:**

- No infrastructure exists in the 1 ha footprint.
- No stockpiles may be placed within 10 m of the adjacent 11kV power lines.
- Should the mitigation measures proposed in this document be implemented the existing infrastructure on the farm/neighbouring properties will not be impaired.

#### **ii) Final Site Map**

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

See the map indicating site activities attached as Appendix C.

**iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.**

The positive impacts associated with the project include:

- The permit holder will be able to exploit the resource on the property and provide fill material for the intended N11 road upgrade at competitive prices.
- The landowner will be able to further diversify the income generation of the property.
- New job opportunities will be created by the proposed activity.
- The presence of the proposed operation will contribute (directly & indirectly) to the local economy with preference give to HDSA & women owned local suppliers.
- The borrow pit on the property will be rehabilitated as part of the closure conditions of this mining permit.
- Upon closure of the mine, the area can be returned to agricultural use.

The following table shows the potential negative impacts associated with the proposed activity that were deemed to have a Low-Medium or higher significance/risk:

Table 25: Potential negative impacts associated with the proposed activity with a Low-Medium or higher significance/risk.

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE (BEFORE MITIGATION)	SIGNIFICANCE (AFTER MITIGATION)
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> </ul>	<ul style="list-style-type: none"> <li>■ Loss of agricultural land for duration of mining.</li> </ul>	<ul style="list-style-type: none"> <li>■ Medium</li> </ul>	<ul style="list-style-type: none"> <li>■ Medium</li> </ul>
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Stripping and stockpiling of topsoil and overburden.</li> <li>■ Excavation, loading and hauling material from site</li> </ul>	<ul style="list-style-type: none"> <li>■ Visual intrusion because of site establishment.</li> <li>■ Visual intrusion caused by mining activities.</li> <li>■ Visual intrusion associated with the excavation activities.</li> <li>■ Cumulative visual impact when borrow pit and stockpile area are developed.</li> </ul>	<ul style="list-style-type: none"> <li>■ Medium-High</li> <li>■ Medium</li> <li>■ Medium</li> <li>■ Medium-High</li> </ul>	<ul style="list-style-type: none"> <li>■ Low</li> <li>■ Medium</li> <li>■ Medium</li> <li>■ Medium</li> </ul>
<ul style="list-style-type: none"> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Stockpiling, and transporting of material.</li> </ul>	<ul style="list-style-type: none"> <li>■ Cumulative dust nuisance when borrow pit and approved spoiling area operate.</li> </ul>	<ul style="list-style-type: none"> <li>■ Medium-High</li> </ul>	<ul style="list-style-type: none"> <li>■ Low-Medium</li> </ul>
<ul style="list-style-type: none"> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Stockpiling, and transporting of material.</li> </ul>	<ul style="list-style-type: none"> <li>■ Cumulative noise nuisance when borrow pit and approved spoiling area operate..</li> </ul>	<ul style="list-style-type: none"> <li>■ Medium-High</li> </ul>	<ul style="list-style-type: none"> <li>■ Medium</li> </ul>
<ul style="list-style-type: none"> <li>■ Cumulative impacts.</li> </ul>	<ul style="list-style-type: none"> <li>■ Cumulative impact of invader plants in both the borrow pit and stockpile footprints.</li> </ul>	<ul style="list-style-type: none"> <li>■ High</li> </ul>	<ul style="list-style-type: none"> <li>■ Low-Medium</li> </ul>

**m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr.**

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

*Table 26: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr.*

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
<p><b>TOPOGRAPHY</b></p> <p>Landscaping of Mining Area</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>■ Use the excavated area for the final depositing of overburden.</li> <li>■ Dump rocks and coarse material removed from the excavation into the excavation.</li> <li>■ Remove coarse natural material used for the construction of ramps and dump it into the excavations.</li> <li>■ Remove stockpiles during the decommissioning phase, rip the area and return the topsoil to its original depth to provide a growth medium.</li> <li>■ Do not permit any waste to be deposited into the excavations.</li> <li>■ Return the previously stored topsoil to its original depth, once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures.</li> <li>■ If necessary, fertilize the area to allow vegetation to establish rapidly. Seed the site with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within six months from closure of the site.</li> <li>■ If required by the Regional Manager (DMRE) the soil must be analysed and any deleterious effects on the soil arising from the mining operation must be corrected and the area be seeded with a vegetation seed mix to his/her specification.</li> <li>■ On completion of operations, deal with all structures or objects in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).</li> <li>■ On completion of mining operations, scarify the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and</li> </ul>	<ul style="list-style-type: none"> <li>■ Effectively restoring the mined area to allow the return of land use to agricultural purposes.</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<p>dumping operations, to a depth of at least 200mm and graded it to an even surface condition. Where applicable/possible return topsoil to its original depth over the area.</p> <ul style="list-style-type: none"> <li>■ Align the rehabilitation with the guidelines proposed in the 2023 TBIA.</li> </ul>	
<p><b>VISUAL CHARACTERISTICS</b></p> <p>Visual mitigation</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>■ Ensure that the site have a neat appearance and is always kept in good condition.</li> <li>■ Store mining equipment in a dedicated area when not in use.</li> <li>■ Limit vegetation removal, and only strip topsoil immediately prior to the mining/use of a specific area.</li> <li>■ Contain excavations to the approved footprint of the permitted area.</li> <li>■ Upon closure, rehabilitate the site to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum.</li> </ul>	<ul style="list-style-type: none"> <li>■ Minimise the impact of the mining operations on the visual characteristics of the receiving environment during the operational phase and minimise the residual impact after closure.</li> </ul>
<p><b>AIR AND NOISE QUALITY</b></p> <p>Dust Mitigation</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>■ Control the liberation of dust into the surrounding environment using; inter alia, water spraying and/or other dust-allaying agents.</li> <li>■ Daily assess the efficiency of all dust suppression equipment.</li> <li>■ Limit speed on the haul roads to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust.</li> <li>■ Minimise areas devoid of vegetation, and only remove vegetation immediately prior to mining.</li> <li>■ Flatten loads to prevent spillage during transportation on public roads.</li> <li>■ Consider weather conditions upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts.</li> <li>■ Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA, 2004 and ASTM D1739 (SANS 1137:2012).</li> <li>■ Implement best practice measures during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.</li> </ul>	<ul style="list-style-type: none"> <li>■ Dust prevention measures are applied to minimise the impact.</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> <li>■ Implement monthly fallout-dust monitoring at the site for the duration of the activities and ensure that the results comply with the standards of the National Dust Control Regulations, 2013.</li> </ul>	
<p><b>AIR AND NOISE QUALITY</b></p> <p>Noise Mitigation</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>■ Ensure that employees and staff conduct themselves in an acceptable manner while on site.</li> <li>■ No loud music may be permitted at the mining area.</li> <li>■ Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996.</li> <li>■ Contract a qualified occupational hygienist to quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring must be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM: AQA 2004, SANS 10103:2008.</li> <li>■ Minimise the noise caused by generators. Maintain and equip all generators with sound mufflers, and if possible, point the generators away from the neighbouring land users. Place all generators on a level area/footing to minimise vibration noise.</li> <li>■ Implement best practice measures to minimise potential noise impacts.</li> </ul>	<ul style="list-style-type: none"> <li>■ Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.</li> </ul>
<p><b>GEOLOGY AND SOIL</b></p> <p>Topsoil Handling</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>■ Strip and stockpile the upper 300 mm of the soil before mining.</li> <li>■ Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process.</li> <li>■ Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. Plan mining in such a way that topsoil is stockpiled for the minimum possible time.</li> <li>■ Place the topsoil on a levelled area, within the mining footprint. Do not stockpile topsoil in undisturbed areas.</li> <li>■ Protect topsoil stockpiles against losses by water- and wind erosion. Position stockpiles so it is not vulnerable to erosion by wind and water.</li> </ul>	<ul style="list-style-type: none"> <li>■ Adequate fertile topsoil is available to rehabilitate the mined area.</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<p>The establishment of plants (grass) on the stockpiles will help to prevent erosion.</p> <ul style="list-style-type: none"> <li>■ Ensure that topsoil heaps do not exceed 1.5 m and not sloped more than 1:2 to avoid collapse.</li> <li>■ Keep temporary topsoil stockpiles free of invasive plant species.</li> <li>■ Vegetate the topsoil heaps to be stored longer than 3 months with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season.</li> <li>■ Divert storm- and runoff water around the on-site stockpile area to prevent erosion.</li> <li>■ Spread the topsoil evenly, to a depth of 300 mm, over the rehabilitated area upon closure of the site.</li> <li>■ Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season.</li> <li>■ Plant an indigenous grass layer immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the grass layer for optimum production. Rehabilitation extends until the first grass layer is well established.</li> <li>■ Control run-off water with temporary banks, where necessary, to prevent accumulation of run-off causing down-slope erosion.</li> <li>■ Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement.</li> </ul>	
<p><b>HYDROLOGY</b></p> <p>Erosion Control and Storm Water Management</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>■ Implement storm water management measures for the duration of the mining activities.</li> <li>■ Undertake construction during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible.</li> </ul>	<ul style="list-style-type: none"> <li>■ Impact on the environment caused by stormwater discharge is avoided and erosion is managed.</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> <li>■ Limit clearing of vegetation to the proposed mining footprint and associated infrastructure. Ensure no clearing takes place outside the minimum required footprint.</li> <li>■ Place vegetation clearing on hold when heavy rains are expected.</li> <li>■ Divert stormwater around the topsoil heaps and mining areas to prevent erosion.</li> <li>■ Protect stockpiles from erosion and store it on flat areas surrounded by appropriate berms where possible.</li> <li>■ Ensure that adequate slope protection is provided when mining within steep slopes.</li> <li>■ Control the outflow of run-off water from the mining excavation to prevent down-slope erosion, by constructing temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur.</li> <li>■ Install a silt fence at the bottom of the perimeter fence to catch sediment carried by surface runoff from bare surfaces at the site. All demarcation must be signed off by the ECO before any work commences.</li> <li>■ Do not discharge dirty water emanating from the borrow pit into the natural environment or any watercourse. Channel all runoff into the stormwater system.</li> <li>■ Regularly monitor roads and other disturbed areas within the project for erosion and ensure problem areas receive follow-up monitoring to assess the success of the remediation.</li> <li>■ Rectify erosion problems within the mining area because of the mining activities immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur.</li> <li>■ Use silt/sediment traps/barriers where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other sensitive areas. Regularly maintain and clear the sediment/silt barriers to ensure effective drainage of the areas.</li> </ul>	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> <li>■ Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWS.</li> <li>■ Contain all fuels and chemicals stored or used on site in fit for purpose containers and store within designated storage areas. Ensure the designated storage areas are situated on an impermeable surface with a perimeter bund and a drainage sump. Size the volume of the bund and sump to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. Ensure that the storage areas have a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently.</li> <li>■ Re-vegetate all exposed/bare surfaces and embankments once shaped. If revegetation of exposed surfaces cannot take place immediately, temporary erosion, and sediment control measures must be installed and maintained until such time that revegetation can commence.</li> <li>■ Monitor all erosion and sediment control measures weekly for the life of the operation and repaired immediately when damaged. Only remove the erosion and sediment control structures once vegetation cover has successfully recolonised the affected areas.</li> <li>■ After heavy rainfall events, check the site for erosion damage and rehabilitate this damage immediately. Fill in erosion rills and gullies with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.</li> <li>■ Check settlement ponds every month to assess the amount of sediment collected. Remove sediment at a predetermined depth of sediment and stockpiled separately.</li> </ul>	
<p><b>HYDROLOGY</b></p> <p>Mitigating the potential impact on the aquatic environment.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p>	<ul style="list-style-type: none"> <li>■ Do not locate any equipment laydown or storage areas within 40 m of any watercourse and/or within the 1:100-year flood line, whichever is greater in width.</li> <li>■ Keep the clearing of natural and semi-natural grasslands to the approved area and to a minimum.</li> </ul>	<ul style="list-style-type: none"> <li>■ The mining activities have no impact on the nearby wetland system.</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
	<p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>Where it is necessary to remove surface water from the borrow pit site; pump the water to a site where it will not negatively influence the natural environment through erosion of permanent flooding, possibly the two non-perennial streams.</li> <li>To prevent the contamination of the aquatic environment: <ul style="list-style-type: none"> <li>▪ Notify the CM and ECO immediately of any pollution incidents on site.</li> <li>▪ Prevent discharge of any pollutants, such as cement, concrete, lime chemicals and fuels into any water source.</li> </ul> </li> </ul>	
<p><b>TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER</b></p> <p>Management of vegetation removal.</p>	<p>Permit holder to apply for a removal plant permit from Ezemvelo.</p> <p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>Clearly demarcate the mining boundaries and contain all operations to the approved mining area. Declare the area outside the mining boundaries a no-go area and educate all staff accordingly.</li> <li>Commit to a conservation approach and keep the actual footprint of disturbance to a minimum.</li> <li>Arrange a pre-commencement environmental induction for all staff on site to ensure that basic environmental principles are adhered to. This must include awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas, etc.</li> <li>Obtain permits for the removal of protected plant species (especially <i>Aloe marlothii</i>) and kept it on-site in the possession of the flora search and rescue team.</li> <li>Only commence with bush-clearance once the plant permits were received, and the important plants were relocated by a suitably qualified person.</li> <li>Do not allow grubbing as a method of clearing vegetation. Cut any trees that need to be cleared using chain saws and hauled it from the site using appropriate machinery where practically possible.</li> <li>Do not burn cleared vegetation to be retained at any time, but rather mulch and stockpiled it. Ideally cover the heaps with stockpiled topsoil and retain the material for future site rehabilitation.</li> </ul>	<ul style="list-style-type: none"> <li>Vegetation clearing is restricted to the authorised development footprint of the mine.</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> <li>✎ Arrange that the ECO provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing is taking place.</li> <li>✎ Ensure all vehicles remain on demarcated roads and prevent unnecessary driving in the veld outside these areas.</li> <li>✎ Do not translocated, uprooted, or disturbed plants for rehabilitation or other purposes without express permission from the ECO and without the relevant permits.</li> <li>✎ Do not allow fires on-site.</li> <li>✎ Provide spoil heaps and topsoil stockpiles with a vegetation cover of indigenous grasses.</li> <li>✎ Generate a biodiversity protocol and rehabilitation plan that can be implemented upon closure.</li> </ul>	
<p><b>TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER</b></p> <p>Management of invasive plant species.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>✎ Implement an invasive plant species management plan to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. Do weed/alien ongoing clearing on throughout the life of the mining activities.</li> <li>✎ Do not allow planting or importing of any alien species to the site for landscaping, rehabilitation, or any other purpose.</li> <li>✎ Keep all stockpiles (topsoil &amp; overburden) free of invasive plant species.</li> <li>✎ Control declared invader or exotic species on the rehabilitated areas. Only use herbicides that are certified safe for use in aquatic environments by an independent testing authority.</li> </ul>	<ul style="list-style-type: none"> <li>✎ Mining area is kept free of invasive plant species.</li> </ul>
<p><b>TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER</b></p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p>	<ul style="list-style-type: none"> <li>✎ Do not permit open fires on site. Only make fires within the areas and for purposes approved by the ECO.</li> <li>✎ Ensure fire prevention facilities are present at all hazardous storage facilities.</li> </ul>	<ul style="list-style-type: none"> <li>✎ No fire outbreaks as a result of the mining activities.</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
Fire Management	Compliance to be monitored by the Environmental Control Officer.	<ul style="list-style-type: none"> <li>■ Ensure adequate fire-fighting equipment is available and train workers on how to use it.</li> <li>■ Ensure that all workers on site know the proper procedure in case of a fire occurring on site.</li> <li>■ Do not permit smoking in areas considered to be a fire hazard.</li> </ul>	
<b>FAUNA</b> Protection of fauna	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.  Compliance to be monitored by the Environmental Control Officer.	<ul style="list-style-type: none"> <li>■ Ensure no fauna is caught, killed, harmed, sold, or played with.</li> <li>■ The ECO or other suitably qualified person must remove any fauna directly threatened by the operational activities to a safe location.</li> <li>■ Arrange a suitably trained individual to undertake the handling and relocation of any animal perceived to be dangerous/venomous/poisonous.</li> <li>■ Arrange that all personnel undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Instruct workers to report any animals that may be trapped in the working area.</li> <li>■ Ensure no snares are set or nests raided for eggs or young.</li> <li>■ Ensure all vehicles adhere to a low-speed limit (20 km/h is recommended) to avoid collisions with susceptible species such as snakes and tortoises.</li> <li>■ Prevent litter, food or other foreign material thrown or left around the site. Keep such items in the site vehicles and daily removed it to the site camp.</li> <li>■ Reserve indigenous vegetation wherever possible and avoid vegetation clearing during the breeding season.</li> </ul>	<ul style="list-style-type: none"> <li>■ Disturbance to fauna is minimised.</li> </ul>
<b>CULTURAL AND HERITAGE ENVIRONMENT</b>  Archaeological, heritage and palaeontological aspects.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	<ul style="list-style-type: none"> <li>■ Confine all mining to the development footprint area.</li> <li>■ Implement the following change find procedure when discoveries are made on site:               <ul style="list-style-type: none"> <li>▪ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Impact to cultural/heritage resources is avoided or at least minimised.</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
	Compliance to be monitored by the Environmental Control Officer.	<p>developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.</p> <ul style="list-style-type: none"> <li>▪ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.</li> <li>▪ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify AMAFA.</li> <li>▪ Work may only continue once the go-ahead was issued by AMAFA.</li> </ul>	
<p><b>LAND USE</b></p> <p>Loss of agricultural land for duration of mining.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<p>■ If needed, sign mined/rehabilitated areas back to grazing once the grass layer stabilised.</p>	<p>■ Mining has the least possible impact on the operation of the property.</p>
<p><b>EXISTING INFRASTRUCTURE</b></p> <p>Managing the Power Lines</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<p>■ Implement or comply with the following requirements of Eskom:</p> <p>Building Restrictions for the 11kV Overhead Power Line:</p> <p>■ No building or structures may be erected or installed above or below the surface of the ground, neither may any material which might endanger the safety of this power line be placed within 12 (twelve) metres from the centre line of this power line, or either side (overall servitude width 24 metres).</p>	<p>■ Mining has no impact on the power lines.</p>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> <li>■ The applicant will adhere to all relevant environmental legislation. Dimensions and specifics will be in accordance with ESKOM standards to not obstruct Eskom's existing infrastructure in any way.</li> <li>■ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work.</li> <li>■ The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded electrically live and therefore dangerous at all times.</li> <li>■ Any third-party servitudes encroaching on Eskom land shall be registered against Eskom's Notaries deed at the applicant's own cost.</li> <li>■ Prior any construction activities, the applicant is required to contact Eskom and detailed Surveyed Plans are to be submitted to this office.</li> </ul>	
<p><b>EXISTING INFRASTRUCTURE</b></p> <p>Potential structural damage to adjacent residence.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>■ Refurbish any damage to the residence, directly caused by the mining activities.</li> </ul>	<ul style="list-style-type: none"> <li>■ Mining has no direct impact on the nearby residences.</li> </ul>
<p><b>EXISTING INFRASTRUCTURE</b></p> <p>Management of the access road.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p>	<ul style="list-style-type: none"> <li>■ Prevent access to and from the mining area from the N11, unless authorised by SANRAL.</li> <li>■ Divert storm water around the access road to prevent erosion.</li> <li>■ Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed areas.</li> </ul>	<ul style="list-style-type: none"> <li>■ The access road remains accessible to the landowner and lawful occupiers during the operational phase, and upon closure, the road is returned in</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
	Compliance to be monitored by the Environmental Control Officer.	<ul style="list-style-type: none"> <li>■ Repair rutting and erosion of the access road caused as a direct result of the mining activities.</li> <li>■ Prevent the overloading of the trucks and file proof of load weights for auditing by relevant officials.</li> <li>■ Restrict the speed of all mining equipment/vehicles to 40 km/h on the access roads.</li> </ul>	a better, or at least the same state as received by the permit holder.
<p><b>GENERAL</b></p> <p>Waste management</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>■ Ensure regular vehicle maintenance, repairs and services only take place at an off-site workshop and service area. Ensure drip trays are present if emergency repairs are needed on equipment not able to move to the workshop. Dispose all waste products in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. Treat this as hazardous waste and dispose of it at a registered hazardous waste handling facility, alternatively arrange collection by a registered hazardous waste handling contractor. File safe disposal certificates for auditing purposes.</li> <li>■ If a diesel bowser is used on site, always equip it with a drip tray. Use drip trays during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.</li> <li>■ Ensure mixing and/or decanting of all chemicals and hazardous substances take place on an impermeable surface that is protected from the ingress and egress of stormwater.</li> <li>■ Ensure drip trays are cleaned after each use. Do not allow dirty drip trays to be used on site. Dispose of dirty rags used to clean the drip trays as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system.</li> <li>■ Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and remove it from the site, either for resale or for appropriate disposal at a registered facility. File proof.</li> </ul>	<ul style="list-style-type: none"> <li>■ Wastes are appropriately handled and safely disposed of at registered waste facilities.</li> </ul>

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> <li>■ Obtain an oil spill kit and train the employees in the emergency procedures to follow when a spill occurs as well as the application of the spill kit.</li> <li>■ Clean spills immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMRE) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a registered facility. File proof.</li> <li>■ Ensure suitable covered receptacles are always available and conveniently placed for the disposal of general waste.</li> <li>■ Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., in a container with a closable lid at a collecting point to be collected at least once a month and disposed of at a recognized landfill site. Take specific precautions to prevent refuse from being dumped on or in the vicinity of the mine area. File proof of disposal.</li> <li>■ Handle biodegradable refuse as indicated above.</li> <li>■ Encourage re-use or recycling of waste products.</li> <li>■ Do not bury or burn waste on the site.</li> <li>■ Provide ablution facilities in the form of a chemical toilet/s. Anchor the chemical toilet (to prevent blowing/falling over) and arrange that it is serviced at least once a week for the duration of the mining activities by a registered liquid waste handling contractor. File the safe disposal certificates.</li> <li>■ Ensure that the use of any temporary, chemical toilet facilities do not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately.</li> <li>■ Do not discharge water containing waste into the natural environment.</li> <li>■ Implement measures to contain the wastewater and safely dispose thereof.</li> </ul>	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> <li>■ Report any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities to the Department of Water and Sanitation and other relevant authorities.</li> <li>■ Implement the use of waste registers to keep record of the waste generated and removed from the mining area.</li> </ul>	
<p><b>GENERAL</b></p> <p>Management of health and safety risks</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> <li>■ Properly fence the mining area to prevent incursion by livestock and humans.</li> <li>■ Ensure that workers have access to the correct PPE as required by law.</li> <li>■ Locate sanitary facilities within 100 m from any point of work.</li> <li>■ Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).</li> </ul>	<ul style="list-style-type: none"> <li>■ Employees work in a healthy and safe environment.</li> </ul>

**n) Aspects for inclusion as conditions of Authorisation.**

Any aspects which must be made conditions of the Environmental Authorisation

The management objectives listed in this report under *Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR* above should be considered for inclusion in the environmental authorisation.

**o) Description of any assumptions, uncertainties, and gaps in knowledge.**

(Which relate to the assessment and mitigation measures proposed)

The assumptions made in this document which relate to the assessment and mitigation measures proposed, stem from site specific information gathered from site inspections, specialist and desktop studies, and background information that were gathered. No uncertainty regarding the proposed project or the receiving environment could be identified.

**p) Reasoned opinion as to whether the proposed activity should or should not be authorised.**

**i) Reasons why the activity should be authorised or not.**

Should the mitigation measures and monitoring programmes proposed in this document be implemented on site, no fatal flaws could be identified that were deemed as severe as to prevent the activity continuing.

**ii) Conditions that must be included in the authorisation.**

The management objectives listed in this report under *Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR* should be considered for inclusion in the environmental authorisation.

**q) Period for which the Environmental Authorisation is required.**

The Applicant requests the Environmental Authorisation to be valid for a five-year period to correspond with the validity of the mining permit.

**r) Undertaking**

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

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

**s) Financial Provision**

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

**i) Explain how the aforesaid amount was derived.**

The annual amount required to manage and rehabilitate the environment was estimated to be ±R 2 283 500.00. Please see the explanation as to how this amount was derived at attached as Appendix G – Financial and Technical Competence Report.

**ii) Confirm that this amount can be provided from operating expenditure.**

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

Raubex KZN (Pty) Ltd will be responsible for the financial and technical aspects of the proposed mining project. The operating expenditure is provided for as such in the Financial and Technical Competence Report attached as Appendix G to this report.

**t) Specific Information required by the competent Authority.**

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

**(1) Impact on the socio-economic conditions of any directly affected person.**

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

*Also refer to Part A(1)(i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site through the life of the activity.*

The following potential impacts were identified that may impact on socio-economic conditions of directly affected persons:

**Visual intrusion associated with the proposed mining activities:**

The proposed mining area will be visible from the N11. Although no permanent infrastructure will be established on site that could permanently affect the visual impact, the removal of vegetation and the extension of the borrow pit will impact on the aesthetic quality of the area. It is proposed that the height of the stockpiles must be controlled to manage the visual impact and the Applicant remove as little vegetation as possible to screen the mining area from public view. The significance of the visual impact, because of the proposed activity,

is expected to be medium-high for the duration of the operational phase. Once mining ceased and the area is rehabilitated the aesthetic quality of the area will improve and a very little to no residual effect is expected.

■ **Dust nuisance caused because of the proposed mining activities:**

The proposed activity will generate dust the movement of earthmoving equipment and the loading and transporting of the material from site. The Applicant will have to implement dust suppression measures to control dust generation and prevent a dust nuisance to surrounding landowners/residents. The impact on the surrounding environment is deemed to be of low significance. Should the mining permit area be established on site, the cumulative dust nuisance on the receiving environment (after mitigation) is deemed to be of low-medium significance. There will be no residual impact after closure.

■ **Noise nuisance because of mining activities:**

Due to the nature of the proposed activity, noise will be generated because of excavating the material, as well as loading and transporting. The nuisance value of noise to be generated by heavy earthmoving equipment is deemed to be of low significance. All vehicles associated with the proposed activity will also be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). There will be no residual impact after closure.

■ **Potential damage to nearby infrastructure:**

Should the Applicant contain the mining activities within the boundaries of the permit area the impact on the existing infrastructure near the mining area is deemed to be of low significance.

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

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

No sites or artefacts classified as national estate as referred to in section 3(2) of the NHRA, 1999 were identified within the footprint of the proposed mining area.

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

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

**Site Alternative 1 (Preferred and Only Site Alternative):**

Site Alternative 1, which entails the mining of an area previously used for the mining of gravel from an existing borrow pit, was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team, as the preferred site alternative.

**Site Alternative 2 (Not to further assessed in the BAR)**

Site Alternative 2 has been thoroughly investigated but has been deemed unsuitable and will not be further assessed in the BAR (Basic Assessment Report). While it is part of an existing excavation, it was planned for the designated bypass road for the N11 to run through it, rendering it incompatible for the proposed project. Additionally, the quantity of material available at this site is insufficient, making it impractical as a potential alternative for future use. These factors collectively contribute to the decision to exclude Site Alternative 2 from further consideration in the assessment process.

## PART B

### ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

#### 1. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME.

##### a) Details of the EAP,

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

The details and expertise of Sonette Smit of Greenmined Environmental (Pty) Ltd that acts as EAP on this project has been included in Part A Section 1(a) as well as Appendix J as required.

##### b) Description of the Aspects of the Activity

(Confirm that the requirements to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

The aspects of the activity that are covered by the environmental management programme has been described and included in Part A, section (1)(h).

##### c) Composite Map

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

As mentioned under Part A, section (1)(l)(ii) this map has been compiled and is attached as Appendix C to this document.

##### d) Description of impact management objectives including management statements

###### i) Determination of closure objectives. (Ensure that the closure objectives are informed by the type of environment described)

The primary objective, at the end of the mine's life, is to obtain a closure certificate at minimum cost and in as short a time as possible whilst still complying with the requirements of the Minerals and Petroleum Resources Development Act (Act No. 28 of 2002) [MPRDA]. To realise this, the following main objectives must be achieved:

- Remove all temporary infrastructure and waste from the mine as per the requirements of this EMPR and of the Provincial Department of Minerals and Resources.
- Shape and contour disturbed areas in compliance with the EMPR.
- Ensure that permanent changes in topography (due to mining) are sustainable and do not cause erosion or the uncontrolled damming of surface water.

- Make all excavations safe.
- Use the topsoil effectively to promote the re-establishment of vegetation.
- Ensure that all rehabilitated areas are stable and self-sustaining in terms of vegetation cover.
- Eradicate all weeds/invader plant species by intensive management of the mining area.

The site-specific closure objectives are discussed in the attached Closure Plan (Appendix K), however, a summary of the closure objectives for the proposed mine were included below.

The decommissioning phase will entail the reinstatement of the mining area by removing the stockpiled material, and site infrastructure/equipment and landscaping the disturbed footprints. Due to the impracticality of importing large volumes of fill to restore the borrow pit area to its original topography, the rehabilitation option is to develop the borrow pit into a minor landscape feature. This will entail creating slopes thereby reducing the overall face angle. The slopes will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil.

The decommissioning activities will therefore consist of the following:

- Sloping and landscaping the borrow pit.
- Removing all stockpiled material.
- Removing all mining machinery and equipment from site.
- Landscaping all disturbed areas and replacing the topsoil.
- Vegetating the reinstated area; and
- Controlling/monitoring the invasive plant species.

The future land use of the proposed area will be agriculture (grazing). Upon replacement of the topsoil, the area around the excavation will once again be available for grazing purposes, and the planting of the grass layer (to protect the topsoil) will tie in with the proposed land use.

The Applicant will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

- Rehabilitation of the excavated area:

The excavated area must serve as a final depositing area for the placement of overburden. Rocks and coarse material removed from the excavation must be dumped into the excavation.

No waste may be permitted to be deposited in the excavations.

Once overburden, rocks and coarse natural materials has been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.

The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from closure of the site.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.

■ Final rehabilitation:

Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required) and maintenance, and invasive plant species clearing.

All mining equipment, and other items used during the mining period must be removed from the site (section 44 of the MPRDA).

Waste material of any description, including receptacles, scrap, rubble, and tyres, must be removed entirely from the mining area, and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.

The management of invasive plant species must be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) will be eradicated from the site.

Final rehabilitation shall be completed within a period specified by the Regional Manager.

Once the mining area was rehabilitated the permit holder is required to submit a closure application to the Department of Mineral Resources and Energy in accordance with section 43(4) of the MPRDA, 2002 that states: *“An application for a closure certificate must be made to the Regional Manager in whose region the land in question is situated within 180 days of the occurrence of the lapsing, abandonment, cancellation, cessation, relinquishment or completion contemplated in subsection (3) and must be accompanied by the prescribed environmental risk report”*. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

**ii) Volume and rate of water use required for the operation.**

Any water required for the implementation of the project will be bought from a legal source and transported to the mining area (in a truck) where it will be stored in tanks until used. Presently, no washing of material is proposed, and the Applicant will therefore mainly use the water for dust suppression purposes on denuded areas and access road (when needed). It is proposed that  $\pm 20\,000$  l water/day will be need for dust suppression measures during the dry months.

**iii) Has a water use licence been applied for?**

The Department of Water and Sanitation (DWS) has approved multiple abstraction points for water usage, specifically for dust suppression purposes. Consequently, the water necessary for dust suppression will be sourced from one of these pre-approved abstraction points.

iv) Impacts to be mitigated in their respective phases.

Table 27: Impact to be mitigated in their respective phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
(as listed in 2.11.1)	of operation in which activity will take place.  State; Planning and design, Pre-Construction, Operational, Rehabilitation, Closure, Post closure	(volumes, tonnages, and hectares or m <sup>2</sup> )	(describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either – Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling, or alluvial diamond prospecting as the case may be.
<ul style="list-style-type: none"> <li>■ Demarcation of site with visible beacons.</li> </ul>	Site Establishment phase	1 ha	Demarcation of the site will ensure that all employees are aware of the boundaries of the mining area, and that work stay within the approved area.	Mining is only allowed within the boundaries of the approved area. <ul style="list-style-type: none"> <li>■ MPRDA, 2008</li> <li>■ NEMA, 1998</li> </ul>	Beacons need to be in place throughout the life of the activity.
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> </ul>	Site Establishment & Operational Phase	1 ha	<p><b><u>Loss of agricultural land for duration of mining:</u></b></p> <ul style="list-style-type: none"> <li>■ The Applicant signed a lease agreement with the landowner to compensate for the loss of agricultural land for the duration of the mining period. If needed, mined/rehabilitated areas could revert to</li> </ul>	Use of agricultural land must be managed in accordance with the: <ul style="list-style-type: none"> <li>■ CARA, 1983</li> <li>■ Closure Plan (Appendix K)</li> </ul>	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			agricultural use once the grass layer stabilised.		
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Stripping and stockpiling of topsoil and overburden.</li> <li>■ Excavation, loading and hauling material from site</li> </ul>	Site Establishment & Operational Phase	1 ha	<p><b><u>Visual Mitigation:</u></b></p> <ul style="list-style-type: none"> <li>■ The site must have a neat appearance and always kept in good condition.</li> <li>■ Mining equipment must be stored neatly in dedicated areas when not in use.</li> <li>■ The permit holder must limit vegetation removal, and stripping of topsoil may only be done immediately prior to the mining/use of a specific area.</li> <li>■ The excavation must be contained within the approved footprint of the permitted area.</li> <li>■ Upon closure the site must be rehabilitated to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum.</li> </ul>	<p>Management of the mining activities must be in accordance with the:</p> <ul style="list-style-type: none"> <li>■ MPRDA, 2008</li> <li>■ NEMA, 1998</li> </ul>	Throughout the site establishment- and operational phases.
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Cumulative Impacts</li> </ul>	Site Establishment phase	1 ha	<p><b><u>Management of vegetation removal:</u></b></p> <ul style="list-style-type: none"> <li>■ The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly.</li> <li>■ The Applicant must be committed to a conservation approach and the actual footprint of disturbance must be kept to a minimum.</li> <li>■ A pre-commencement environmental induction for all site staff must be provided to ensure that basic</li> </ul>	<p>Natural vegetated areas must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ NEM:BA, 2004</li> </ul>	Throughout the site establishment- and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>environmental principles are adhered to. This includes awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas, etc.</p> <ul style="list-style-type: none"> <li>■ A pre-commencement walkthrough must be done to identify and demarcate important species to be relocated and sub habitats not to be disturbed.</li> <li>■ Permits for the removal of protected plant species (especially <i>Aloe marlothii</i>) must be obtained and kept on-site in the possession of the flora search and rescue team.</li> <li>■ Bush-clearance may only commence once the plant permits were received, and the important plants were relocated by a suitably qualified person.</li> <li>■ Grubbing is not permitted as a method of clearing vegetation. Any trees needing clearing must be cut down using chain saws and hauled from the site using appropriate machinery where practically possible.</li> <li>■ Cleared vegetation to be retained at any time may not be burned but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes.</li> <li>■ The ECO must provide supervision and oversight of vegetation clearing activities</li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing takes place.</p> <ul style="list-style-type: none"> <li>■ All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed.</li> <li>■ No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the ECO and without the relevant permits.</li> <li>■ No fires must be allowed on-site.</li> <li>■ Spoil heaps and topsoil stockpiles must be provided with a vegetation cover of indigenous grasses.</li> <li>■ A biodiversity protocol and rehabilitation plan must be in place that can be implemented upon closure.</li> </ul>		
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Stripping and stockpiling of topsoil and overburden.</li> </ul>	Site Establishment & Operational Phase	1 ha	<p><b><u>Protection of Fauna:</u></b></p> <ul style="list-style-type: none"> <li>■ The site manager must ensure no fauna is caught, killed, harmed, sold, or played with.</li> <li>■ Any fauna directly threatened by the operational activities must be removed to a safe location by the ECO or other suitably qualified person.</li> <li>■ The handling and relocation of any animal perceived to be dangerous/venomous/poisonous must</li> </ul>	<p>Site specific fauna must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ NEM:BA, 2004</li> </ul>	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>be undertaken by a suitably trained individual.</p> <ul style="list-style-type: none"> <li>■ All personnel must undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Workers must be instructed to report any animals that may be trapped in the working area.</li> <li>■ No snares may be set, or nests raided for eggs or young.</li> <li>■ All vehicles must adhere to a low-speed limit (20 km/h is recommended) to avoid collisions with susceptible species such as snakes and tortoises.</li> <li>■ No litter, food or other foreign material may be thrown or left around the site. Such items must be kept in the site vehicles and daily removed to the site camp.</li> <li>■ Indigenous vegetation must be reserved wherever possible, and vegetation clearing during the breeding season must be avoided.</li> </ul>		
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Excavation, loading and</li> </ul>	Site Establishment, & Operational Phase.	1 ha	<p><b><u>Archaeological, Heritage and Palaeontological Aspects:</u></b></p> <ul style="list-style-type: none"> <li>■ All mining must be confined to the development footprint area.</li> <li>■ If during the pre-construction phase, construction, operations or closure phases of this project, any person</li> </ul>	Cultural/heritage aspects on site must be managed in accordance with the: <ul style="list-style-type: none"> <li>■ NHRA, 1999</li> </ul>	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
hauling material from site			<p>employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.</p> <ul style="list-style-type: none"> <li>■ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.</li> <li>■ The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify the SAHRA.</li> <li>■ Work may only continue once the go-ahead was issued by SAHRA.</li> </ul>		
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and overburden.</li> <li>■ Excavation, loading and hauling material from site</li> <li>■ Sloping and landscaping</li> </ul>	Site Establishment-, Operational and Decommissioning Phase	1 ha	<p><b><u>Topsoil Management</u></b></p> <ul style="list-style-type: none"> <li>■ The upper 300 mm of the soil must be stripped and stockpiled before mining.</li> <li>■ Topsoil is a valuable and essential resource for rehabilitation, and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.</li> <li>■ Topsoil stripping, stockpiling, and re-spreading must be done in a systematic way. The mining plan must be such that</li> </ul>	<p>Topsoil stripping must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ CARA, 1983</li> <li>■ NEM:BA, 2004</li> <li>■ MPRDA, 2002</li> <li>■ Closure Plan (Appendix K)</li> </ul>	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
during rehabilitation.			<p>topsoil is stockpiled for the minimum possible time.</p> <ul style="list-style-type: none"> <li>■ The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed areas.</li> <li>■ Topsoil stockpiles must be protected against losses by water- and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion.</li> <li>■ Topsoil heaps may not exceed 1.5 m in height and are not to be sloped more than 1:2 to avoid collapse.</li> <li>■ The temporary topsoil stockpiles must be kept free of invasive plant species.</li> <li>■ Topsoil heaps to be stored longer than a period of 3 months needs to be vegetated with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season.</li> <li>■ Storm- and runoff water must be diverted around the on-site stockpile area to prevent erosion.</li> <li>■ The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site.</li> <li>■ The permit holder must strive to re-instate topsoil at a time of year when vegetation cover can be established as quickly as possible afterwards, so that</li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>erosion of returned topsoil by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal.</p> <ul style="list-style-type: none"> <li>■ An indigenous grass layer must be planted and established immediately after spreading of topsoil, to stabilize the soil and protect it from erosion. The grass layer must be fertilized for optimum biomass production. It is important that rehabilitation be taken up to the point of stabilization. Rehabilitation cannot be considered complete until the first grass layer is well established.</li> <li>■ Run-off water must be controlled via temporary berms, where necessary, on the slopes to ensure that accumulation of run-off does not cause down-slope erosion.</li> <li>■ The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement.</li> </ul>		
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, loading and hauling</li> </ul>	Site Establishment-, Operational-, and Decommissioning Phase	1 ha	<p><b><u>Fugitive Dust Emission Mitigation Measures:</u></b></p> <ul style="list-style-type: none"> <li>■ The liberation of dust into the surrounding environment must be effectively controlled using, inter alia, straw, water spraying and/or environmentally friendly dust-allaying</li> </ul>	<p>Dust generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ NEM: AQA, 2004 Regulation 6(1)</li> <li>■ National Dust Control Regulations, GN No R827</li> </ul>	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>material from site.</p> <ul style="list-style-type: none"> <li>■ Stockpiling, and transporting of material.</li> </ul>			<p>agents that contains no PCB's (e.g. DAS products).</p> <ul style="list-style-type: none"> <li>■ The site manager must daily assess the efficiency of all dust suppression equipment.</li> <li>■ Speed on the haul roads must be limited to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust.</li> <li>■ Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining.</li> <li>■ Loads must be flattened to prevent spillage during transportation on public roads.</li> <li>■ Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts.</li> <li>■ All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012).</li> <li>■ Best practice measures shall be implemented during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.</li> <li>■ Monthly fallout-dust monitoring must be implemented at the site for the duration of the activities and the results must be</li> </ul>	<ul style="list-style-type: none"> <li>■ ASTM D1739 (SANS 1137:2012)</li> </ul>	

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			compliant with the standards of the National Dust Control Regulations, 2013.		
<ul style="list-style-type: none"> <li>█ Stripping and stockpiling of topsoil and/or overburden.</li> <li>█ Excavation, loading and hauling material from site.</li> <li>█ Stockpiling, and transporting of material.</li> </ul>	Site Establishment-, Operational-, and Decommissioning Phase	1 ha	<p><b>Noise Handling:</b></p> <ul style="list-style-type: none"> <li>█ The permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site.</li> <li>█ No loud music may be permitted at the mining area.</li> <li>█ All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).</li> <li>█ A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM: AQA, 2004, SANS 10103:2008.</li> <li>█ Site management must strive to minimise the noise caused by generators. All generators must be maintained and equipped with sound mufflers. If possible, the generators must be pointed away from the neighbouring land users. Further to this, all generators must be placed on a level area/footing to minimise vibration noise.</li> <li>█ Best practice measures shall be implemented to minimize potential noise impacts.</li> </ul>	<p>Noise generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>█ NEM: AQA, 2004 Regulation 6(1)</li> <li>█ NRTA, 1996</li> </ul>	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> <li>■ Work hours must be from 07:00 to 18:00 Monday to Saturday. No work may be allowed after hours or on Sundays.</li> </ul>		
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Stockpiling and transporting of material.</li> <li>■ Sloping and landscaping during rehabilitation phase.</li> </ul>	Site Establishment-, Operational, and Decommissioning Phase	1 ha	<p><b><u>Management of Invasive Plant Species:</u></b></p> <ul style="list-style-type: none"> <li>■ An invasive plant species management plan must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the mining activities.</li> <li>■ No planting or importing of any alien species to the site for landscaping, rehabilitation or any other purpose may be allowed.</li> <li>■ All stockpiles (topsoil &amp; overburden) must be kept free of invasive plant species.</li> <li>■ Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:</li> <li>■ Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:               <ul style="list-style-type: none"> <li>▪ The plants can be uprooted, felled, or cut off and can be destroyed completely.</li> </ul> </li> </ul>	Weeds and invader plants on site must be managed in accordance with the: <ul style="list-style-type: none"> <li>■ CARA, 1983</li> <li>■ NEM:BA, 2004</li> <li>■ Invader Plants Species Management Plan (Appendix H)</li> </ul>	Throughout the site establishment-, operational, and decommissioning phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> <li>▪ The plants can be treated chemically by a registered pest control officer (PCO) using an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide. Only herbicides which have been certified safe for use in aquatic environments by independent testing authority are to be used.</li> </ul>		
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and overburden.</li> <li>■ Excavation, loading and hauling material from site</li> <li>■ Sloping and landscaping during rehabilitation.</li> </ul>	Site Establishment-, Operational and Decommissioning Phase	1 ha	<p><b><u>Erosion Control and Storm Water Management:</u></b></p> <ul style="list-style-type: none"> <li>■ A stormwater management plan must be implemented for the duration of the mining activities.</li> <li>■ It is recommended that construction be undertaken during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible.</li> <li>■ Clearing of vegetation must be limited to the proposed mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place.</li> <li>■ Vegetation clearing activities must be put on hold when heavy rains are expected.</li> <li>■ Stormwater must be diverted around the topsoil heaps and mining areas to prevent erosion.</li> <li>■ Stockpiles must be protected from erosion, stored on flat areas where</li> </ul>	Erosion and storm water must be managed in accordance with the: <ul style="list-style-type: none"> <li>■ CARA, 1983</li> <li>■ NEMA, 1998</li> <li>■ NWA, 1998</li> </ul>	Throughout the site and establishment-, operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>possible, and be surrounded by appropriate berms.</p> <ul style="list-style-type: none"> <li>■ When mining within steep slopes, it must be ensured that adequate slope protection is provided.</li> <li>■ During mining, the outflow of run-off water from the mining excavation must be controlled to prevent down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur.</li> <li>■ A silt fence must be installed at the bottom of the perimeter fence to catch sediment carried by surface runoff from bare surfaces at the site. All demarcation must be signed off by the ECO before any work commences.</li> <li>■ No dirty water emanating from the borrow pit shall be discharged into the natural environment or any watercourse. All runoffs must be channelled into the stormwater system.</li> <li>■ Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation.</li> <li>■ Any erosion problems within the mining area because of the mining activities observed must be rectified immediately (within 48 hours) and monitored</li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>thereafter to ensure that it does not re-occur.</p> <ul style="list-style-type: none"> <li>■ Silt/sediment traps/barriers must be used where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other sensitive areas. These sediment/silt barriers must regularly be maintained and cleared to ensure effective drainage of the areas.</li> <li>■ Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose: <ul style="list-style-type: none"> <li>▪ Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.</li> <li>▪ Dirty water must be collected and contained in a system separate from the clean water system.</li> <li>▪ Dirty water must be prevented from spilling or seeping into clean water systems.</li> <li>▪ Storm water management measures must apply for the entire life cycle of</li> </ul> </li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>the mining activity and over different hydrological cycles (rainfall patterns).</p> <ul style="list-style-type: none"> <li>▪ The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan.</li> <li>■ All fuels and chemicals stored or used on site must be contained within fit for purpose containers and stored within designated storage areas. To prevent pollution of the surrounding environment during an accidental spillage, the designated storage areas must be situated on an impermeable surface and must feature a perimeter bund and a drainage sump. The volume of the bund and sump must be sized to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. The storage areas must feature a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently.</li> <li>■ Once shaped, all exposed/bare surfaces and embankments must be re-vegetated immediately. If revegetation of exposed surfaces cannot take place immediately, temporary erosion, and sediment control measures must be installed and maintained until such time that revegetation can commence.</li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> <li>■ All erosion and sediment control measures must be monitored (weekly) for the life of the operation and repaired immediately when damaged. The erosion and sediment control structures may only be removed once vegetation cover has successfully recolonised the affected areas.</li> <li>■ After heavy rainfall events, the contractor must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled-in with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.</li> <li>■ Settlement ponds must be checked every month to assess the amount of sediment collected. Sediment must be removed at a predetermined depth of sediment and stockpiled separately.</li> </ul>		
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Stockpiling and transporting of material.</li> </ul>	Site Establishment-, Operational-, and Decommissioning Phase	1 ha	<p><b><u>Waste Management:</u></b></p> <ul style="list-style-type: none"> <li>■ Regular vehicle maintenance, repairs and services may only take place at an off-site workshop and service area. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a closed container/bin to be removed from the emergency service area (same day) to the workshop in order to ensure proper disposal. This waste must be treated as hazardous waste and must be disposed</li> </ul>	Mining related waste must be managed in accordance with the: <ul style="list-style-type: none"> <li>■ NWA, 1998</li> <li>■ NEM: WA, 2008</li> </ul>	Throughout the site establishment-, operational and decommissioning phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> <li>■ Sloping and landscaping during rehabilitation phase.</li> </ul>			<p>of at a registered hazardous waste handling facility, alternatively collected by a registered hazardous waste handling contractor. The safe disposal certificates must be filed for auditing purposes.</p> <ul style="list-style-type: none"> <li>■ If a diesel bowser is used on site, it must always be equipped with a drip tray. Drip trays must be used during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.</li> <li>■ Mixing and/or decanting of all chemicals and hazardous substances must take place on an impermeable surface and must be protected from the ingress and egress of stormwater.</li> <li>■ Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. The dirty rags used to clean the drip trays must be disposed as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system.</li> <li>■ Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a registered facility. Proof of safe disposal must be filed for auditing purposes.</li> <li>■ An oil spill kit must be obtained, and the employees must be trained in the</li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>emergency procedures to follow when a spill occurs as well as the application of the spill kit.</p> <ul style="list-style-type: none"> <li>■ Spills must be cleaned up immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMRE) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a registered facility. Proof must be filed.</li> <li>■ Suitable covered receptacles must always be available and conveniently placed for the disposal of general waste.</li> <li>■ Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point to be collected at least once a month and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or in the vicinity of the mine area. Proof of disposal must be available for auditing purposes.</li> <li>■ Biodegradable refuse must be handled as indicated above.</li> <li>■ Re-use or recycling of waste products must be encouraged on site.</li> <li>■ No waste may be buried or burned on the site.</li> <li>■ Ablution facilities must be provided in the form of a chemical toilet/s. The chemical toilet must be anchored (to prevent</li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>blowing/falling over) and shall be serviced at least once a week for the duration of the mining activities by a registered liquid waste handling contractor. The safe disposal certificates must be filed for auditing purposes.</p> <ul style="list-style-type: none"> <li>■ The use of any temporary, chemical toilet facilities must not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the permit holder.</li> <li>■ When small volumes of wastewater are generated during the life of the mine the following is applicable: <ul style="list-style-type: none"> <li>▪ Water containing waste must not be discharged into the natural environment.</li> <li>▪ Measures to contain the wastewater and safely dispose thereof must be implemented.</li> </ul> </li> <li>■ It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities is reported to the Department of Water and Sanitation and other relevant authorities.</li> <li>■ Site management must implement the use of waste registers to keep record of the waste generated and removed from the mining area.</li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> </ul>	Site Establishment, & Operational Phase.	N/A	<p><b><u>Mitigating the potential impact on the wetland system:</u></b></p> <ul style="list-style-type: none"> <li>■ It is recommended that construction be undertaken during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible.</li> <li>■ A 40 m buffer must be maintained around the seep- and valley bottom wetland areas throughout the lifespan of the mining activities and must be regarded as a no-go area.</li> <li>■ Prior to the commencement of the site the outer edge of the delineated watercourse (wetlands) and associated buffer zone must be staked out by a surveyor to be signed off by the ECO before work commences (if allowed by the landowner). The demarcations are to remain for the duration of the site.</li> <li>■ No equipment laydown or storage areas may be located within 40 m of any watercourse and/or within the 1:100-year flood line, whichever is greater in width.</li> <li>■ The clearing of natural and semi-natural grasslands must be kept to a minimum and restricted to the approved footprint.</li> <li>■ Where it is necessary to remove surface water from the borrow pit site; water must be pumped to a site where it will not negatively influence the natural environment through erosion of</li> </ul>	All water related matters must be managed in terms of the: <ul style="list-style-type: none"> <li>■ NWA, 1998</li> <li>■ GA conditions</li> </ul>	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>permanent flooding, possibly the non-perennial stream.</p> <ul style="list-style-type: none"> <li>■ To prevent a decrease in groundwater infiltration storm water (and road-surface run-off) should be redirected towards remaining wetland features to increase groundwater infiltration, thereby providing sufficient soil moisture to support wetland species (ensure that this water is slowed down, not channelized and spread out across the surface in order to prevent this water flow from causing erosion – where erosion signs are present prompt actions and measures should be taken to rehabilitate these areas and prevent erosion from occurring in these areas in the future),</li> <li>■ To prevent an increase in surface water flow velocity: <ul style="list-style-type: none"> <li>▪ Ensure that an approved storm water plan is compiled and implemented.</li> <li>▪ The diameters of storm water pipes should be sufficiently large to not result in overly high flow velocities during rainfall events.</li> <li>▪ The flow of storm water onto the buffer and wetland features must be moderated.</li> </ul> </li> <li>■ To prevent the contamination of the aquatic environment: <ul style="list-style-type: none"> <li>▪ The contractor must notify the CM and ECO immediately of any pollution incidents on site.</li> </ul> </li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> <li>▪ The contractor must prevent discharge of any pollutants, such as cement, concrete, lime chemicals and fuels into any water source.</li> <li>■ Ensure that structures like berms are built to prevent soil from entering wetlands as this can result in sedimentation.</li> <li>■ No lights must be established within the construction area near the buffer zones.</li> </ul>		
<ul style="list-style-type: none"> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Sloping and landscaping during rehabilitation phase.</li> </ul>	Operational-, and Decommissioning Phase	1 ha	<p><b><u>Management of health and safety risks:</u></b></p> <ul style="list-style-type: none"> <li>■ It must be ensured that the mining area is properly fenced off to prevent incursion by livestock and humans.</li> <li>■ Workers must have access to the correct personal protection equipment (PPE) as required by law.</li> <li>■ Sanitary facilities must be located within 100 m from any point of work.</li> <li>■ All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).</li> </ul>	<p>Health and safety aspects on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ MHSA, 1996</li> <li>■ OHSA, 1993</li> <li>■ OHSAS 18001</li> <li>■ USBM standards</li> </ul>	Throughout the site establishment-, operational and decommissioning phases.
<ul style="list-style-type: none"> <li>■ Mining of gravel.</li> </ul>	Operational Phase	N/A	<p><b><u>Managing the power lines:</u></b></p> <p>Building Restrictions for the 11kV Overhead Power Line:</p> <ul style="list-style-type: none"> <li>■ No building or structures may be erected or installed above or below the surface of the ground, neither may any material which might endanger the safety of this power line be placed within 12 (twelve) metres from the centre line of this power</li> </ul>	The power lines must be protected in accordance with all Eskom specifications.	Throughout the site establishment-, operational and phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>line, or either side (overall servitude width 24 metres).</p> <ul style="list-style-type: none"> <li>■ The applicant will adhere to all relevant environmental legislation. Dimensions and specifics will be in accordance with Eskom standards so as to not obstruct Eskom's existing infrastructure in any way.</li> <li>■ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work.</li> <li>■ The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded electrically live and therefore dangerous at all times.</li> <li>■ Any third-party servitudes encroaching on Eskom land shall be registered against Eskom's Notaries deed at the applicant's own cost.</li> <li>■ Prior any construction activities, the applicant is required to contact Eskom and detailed Surveyed Plans are to be submitted to this office.</li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> <li>■ Stockpiling, and transporting of material.</li> </ul>	Operational phase	±200 m	<p><b><u>Access road Management:</u></b></p> <ul style="list-style-type: none"> <li>■ Access to and from the mining area shall not be permitted from the N11, unless authorised by SANRAL.</li> <li>■ Storm water must be diverted around the access road to prevent erosion.</li> <li>■ Vehicular movement must be restricted to the existing access road and crisscrossing of tracks through undisturbed areas must be prohibited.</li> <li>■ Rutting and erosion of the access road caused as a direct result of the mining activities must be repaired by the permit holder.</li> <li>■ Overloading of the trucks must be prevented, and proof of load weights must be filed and be available for auditing by relevant officials.</li> <li>■ The speed of all mining equipment/vehicles must be restricted to 40 km/h on the access roads.</li> </ul>	<p>The access road must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>❖ NRTA, 1996</li> </ul>	Throughout the site establishment-, and operational phases.
<ul style="list-style-type: none"> <li>■ Site establishment &amp; infrastructure development.</li> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, loading and hauling</li> </ul>	Site establishment-, and operational phase	1 ha	<p><b><u>Fire Management:</u></b></p> <ul style="list-style-type: none"> <li>■ No open fires to be permitted on site. Fires may only be made within the areas and for purposes approved by the ECO.</li> <li>■ Fire prevention facilities must be present at all hazardous storage facilities.</li> <li>■ Ensure adequate fire-fighting equipment is available and train workers on how to use it.</li> <li>■ Ensure that all workers on site know the proper procedure in case of a fire occurring on site.</li> </ul>	<p>Management of the mining activities must be in accordance with the:</p> <ul style="list-style-type: none"> <li>■ MPRDA, 2008</li> <li>■ NEMA, 1998</li> </ul>	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>material from site.</p> <ul style="list-style-type: none"> <li>■ Stockpiling and transporting of material.</li> <li>■ Sloping and landscaping during rehabilitation phase.</li> </ul>			<ul style="list-style-type: none"> <li>■ Smoking must not be permitted in areas considered to be a fire hazard.</li> </ul>		
<ul style="list-style-type: none"> <li>■ Sloping and landscaping during rehabilitation phase.</li> </ul>	Decommissioning Phase	1 ha	<p><b><u>Rehabilitation/landscaping of mining area:</u></b></p> <ul style="list-style-type: none"> <li>■ The excavated area must serve as a final depositing area for the placement of overburden.</li> <li>■ Rocks and coarse material removed from the excavation must be dumped into the excavation.</li> <li>■ Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.</li> <li>■ Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.</li> <li>■ No waste may be permitted to be deposited in the excavations.</li> <li>■ Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control</li> </ul>	<p>Rehabilitation of the mining area must be in accordance with the:</p> <ul style="list-style-type: none"> <li>❖ CARA, 1983</li> <li>❖ NEM:BA, 2004</li> <li>❖ MPRDA, 2002</li> <li>❖ Closure Plan (Appendix K)</li> </ul>	Throughout the decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>measures, the topsoil previously stored must be returned to its original depth over the area.</p> <ul style="list-style-type: none"> <li>■ The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within six months from closure of the site.</li> <li>■ If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.</li> <li>■ On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).</li> <li>■ On completion of mining operations, the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.</li> </ul>		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> <li>Rehabilitation must be aligned with the guidelines proposed in the 2023 Terrestrial Biodiversity Impact Assessment.</li> </ul>		

### e) Impact Management Outcomes

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

Table 28: Impact Management Outcomes.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc... etc. etc.)	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc... etc..)		In which impact is anticipated?  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure))	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc... etc.)  E.g. <ul style="list-style-type: none"> <li>Modify through alternative method.</li> <li>Control through noise control.</li> <li>Control through management and monitoring.</li> <li>Remedy through rehabilitation.</li> </ul>	(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
<ul style="list-style-type: none"> <li>Demarcation of site with visible beacons.</li> </ul>	<ul style="list-style-type: none"> <li>No impact could be identified other than the beacons being</li> </ul>	N/A	Site Establishment phase	Control through management and monitoring.	Mining is only allowed within the boundaries of the approved area.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	outside the boundaries of the approved mining area.				<ul style="list-style-type: none"> <li>■ MPRDA, 2008</li> <li>■ NEMA, 1998</li> </ul>
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> </ul>	<ul style="list-style-type: none"> <li>■ Loss of agricultural land for duration of mining.</li> </ul>	The impact may affect the agricultural opportunities of the property.	Site Establishment & Operational Phase	Should the proposed project be approved, the operation will temporarily interrupt the agricultural activities of the footprint area, only to be reversed upon the closure of the mine. The impact could be controlled through progressive rehabilitation.	Use of agricultural land must be managed in accordance with the: <ul style="list-style-type: none"> <li>■ CARA, 1983</li> <li>■ Closure Plan (Appendix K)</li> </ul>
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Stripping and stockpiling of topsoil and overburden.</li> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Cumulative impact.</li> </ul>	<ul style="list-style-type: none"> <li>■ Visual intrusion as a result of site establishment.</li> <li>■ Visual intrusion caused by mining activities.</li> <li>■ Visual intrusion associated with the excavation activities.</li> <li>■ Cumulative visual impact when borrow pit and stockpile area are developed.</li> </ul>	The visual impact may affect the aesthetics of the landscape.	Site Establishment & Operational Phase	<u>Control:</u> Implementing proper housekeeping.	Management of the mining activities must be in accordance with the: <ul style="list-style-type: none"> <li>■ MPRDA, 2008</li> <li>■ NEMA, 1998</li> </ul>
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Cumulative Impacts</li> </ul>	<ul style="list-style-type: none"> <li>■ Alteration of natural environment and habitat loss.</li> <li>■ Impact on vegetation structure and plant species composition</li> <li>■ Impact on populations of species of special concern</li> </ul>	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	<u>Control:</u> Implementing proper housekeeping.	Areas of conservation importance must be managed in accordance with the: <ul style="list-style-type: none"> <li>■ NEM:BA, 2004</li> </ul>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	<ul style="list-style-type: none"> <li>■ Impact on targets for threatened ecosystems</li> <li>■ Impact on ecological processes and functionality of ecosystems</li> <li>■ Impact on overall species and ecosystem diversity</li> <li>■ Impact on ecological connectivity.</li> </ul>				
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and overburden.</li> <li>■ Excavation, loading and hauling material from site</li> <li>■ Stockpiling and transporting of material.</li> <li>■ Sloping and landscaping during rehabilitation.</li> </ul>	<ul style="list-style-type: none"> <li>■ Loss of stockpiled topsoil during mining and stockpiling.</li> <li>■ Potential increase in runoff from bare areas and associated accelerated erosion.</li> <li>■ Facilitation of erosion due to mining activities.</li> <li>■ Potential increase in runoff from bare areas and associated accelerated erosion.</li> <li>■ Erosion of returned topsoil after rehabilitation.</li> <li>■ Exposed disturbed area with no indigenous vegetation upon closure.</li> </ul>	<p>The loss/contamination of topsoil and erosion of the footprint will affect the rehabilitation of the excavation upon closure of the site.</p>	<p>Site Establishment-, Operational and Decommissioning Phase</p>	<p><u>Control &amp; Remedy:</u> Proper housekeeping and storm water management.</p>	<p>Topsoil stripping must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ CARA, 1983</li> <li>■ NEM:BA, 2004</li> <li>■ MPRDA, 2002</li> <li>■ Closure Plan (Appendix K)</li> </ul>
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> </ul>	<ul style="list-style-type: none"> <li>■ Dust nuisance caused because of the disturbance of soil.</li> <li>■ Dust nuisance due to excavation and from loading</li> </ul>	<p>Increased dust generation will impact on the air quality of the receiving environment.</p>	<p>Site Establishment-, Operational-, and Decommissioning Phase</p>	<p><u>Control:</u> Dust suppression methods and proper housekeeping.</p>	<p>Dust generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ NEM: AQA, 2004 Regulation 6(1)</li> </ul>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> <li>█ Excavation, loading and hauling material from site.</li> <li>█ Stockpiling, and transporting of material.</li> <li>█ Cumulative impact.</li> </ul>	<ul style="list-style-type: none"> <li>and vehicles transporting the material.</li> <li>█ Cumulative dust nuisance when borrow pit and stockpile area operate.</li> </ul>				<ul style="list-style-type: none"> <li>█ National Dust Control Regulations, GN No R827</li> <li>█ ASTM D1739 (SANS 1137:2012)</li> </ul>
<ul style="list-style-type: none"> <li>█ Stripping and stockpiling of topsoil and/or overburden.</li> <li>█ Excavation, loading and hauling material from site.</li> <li>█ Stockpiling, and transporting of material.</li> <li>█ Cumulative impact.</li> </ul>	<ul style="list-style-type: none"> <li>█ Noise nuisance generated by earthmoving machinery.</li> <li>█ Noise nuisance because of the mining activities.</li> <li>█ Cumulative noise nuisance when borrow pit and stockpile area operate.</li> </ul>	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	<u>Control:</u> Noise suppression methods and proper housekeeping.	Noise generation on site must be managed in accordance with the: <ul style="list-style-type: none"> <li>█ NEM: AQA, 2004 Regulation 6(1)</li> <li>█ NRTA, 1996</li> </ul>
<ul style="list-style-type: none"> <li>█ Stripping and stockpiling of topsoil and/or overburden.</li> <li>█ Excavation, loading and hauling material from site.</li> <li>█ Stockpiling, and transporting of material.</li> <li>█ Cumulative impact.</li> <li>█ Sloping and landscaping during rehabilitation phase.</li> </ul>	<ul style="list-style-type: none"> <li>█ Infestation of the topsoil heaps and mining area with weeds or invader plant species.</li> <li>█ Infestation of the area with invader plant species.</li> <li>█ Cumulative impact of invader plants in both the borrow pit and stockpile footprints.</li> <li>█ Infestation of the reinstated areas by weeds and invader plant species.</li> </ul>	Infestation of the footprint by invader plant species may affect the biodiversity of the receiving environment.	Site Establishment-, Operational, and Decommissioning Phase	<u>Control &amp; Remedy:</u> Implementation of an invasive plant species management plan.	Weeds and invader plants on site must be managed in accordance with the: <ul style="list-style-type: none"> <li>█ CARA, 1983</li> <li>█ NEM:BA, 2004</li> </ul>
<ul style="list-style-type: none"> <li>█ Stripping and stockpiling of topsoil and/or overburden.</li> </ul>	<ul style="list-style-type: none"> <li>█ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages.</li> </ul>	Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the	Site Establishment-, Operational-, and Decommissioning Phase	<u>Control &amp; Remedy:</u> Proper housekeeping and implementation of an emergency response plan and waste management plan.	Mining related waste must be managed in accordance with the: <ul style="list-style-type: none"> <li>█ NWA, 1998</li> <li>█ NEM: WA, 2008</li> </ul>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> <li>✦ Excavation, loading and hauling material from site.</li> <li>✦ Stockpiling and transporting of material.</li> <li>✦ Sloping and landscaping during rehabilitation phase.</li> </ul>	<ul style="list-style-type: none"> <li>✦ Soil contamination from hydrocarbon spills and/or littering.</li> <li>✦ Potential contamination of environment due to improper waste management.</li> <li>✦ Potential impact associated with litter/waste left at the mining area.</li> </ul>	<p>groundwater. It will also incur additional costs to the permit holder.</p>			
<ul style="list-style-type: none"> <li>✦ Site establishment &amp; infrastructure development.</li> <li>✦ Stripping and stockpiling of topsoil and/or overburden.</li> <li>✦ Stockpiling and transporting of material.</li> </ul>	<ul style="list-style-type: none"> <li>✦ Potential change of natural runoff and drainage patterns.</li> <li>✦ Removal of mean annual precipitation from the catchment due to control of runoff water.</li> <li>✦ Alteration of hydrological and geomorphological process.</li> <li>✦ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic).</li> <li>✦ Direct Physical loss or medication of freshwater habitat</li> <li>✦ Impacts to water quality</li> <li>✦ Potential change of natural runoff and drainage patterns.</li> <li>✦ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects).</li> </ul>	<p>This could impact the hydrology of the receiving environment.</p>	<p>Site Establishment, &amp; Operational Phase.</p>	<p><u>Control:</u> Implementing the SWMP.</p>	<p>Any water related matters must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>✦ NWA, 1998</li> <li>✦ GA conditions</li> </ul>

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> <li>█ Excavation, loading and hauling material from site.</li> <li>█ Sloping and landscaping during rehabilitation phase.</li> </ul>	<ul style="list-style-type: none"> <li>█ Health and safety risk posed by mining activities.</li> <li>█ Unsafe working environment for employees.</li> <li>█ Safety risk posed by un-sloped areas.</li> </ul>	<p>An unsafe working environment affects the labour force, as well as pose a threat to animals and humans that may enter the mining footprint.</p>	<p>Operational-, and Decommissioning Phase</p>	<p><u>Stop &amp; Control:</u> Adherence to the mining rules and regulations, demarcation of the mining area and proper housekeeping.</p>	<p>Health and safety aspects on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>█ MHSA, 1996</li> <li>█ OHSA, 1993</li> <li>█ OHSAS 18001</li> <li>█ USBM standards</li> </ul>
<ul style="list-style-type: none"> <li>█ Mining of gravel.</li> </ul>	<ul style="list-style-type: none"> <li>█ Potential damage to Eskom power lines.</li> </ul>	<p>Damage to the power lines will have a detrimental effect on the electricity supply of the community.</p>	<p>Operational Phase</p>	<p><u>Stop &amp; Control:</u> Adherence to the mining rules and regulations, and Eskom specifications.</p>	<p>The power lines must be protected in accordance with all Eskom specifications.</p>
<ul style="list-style-type: none"> <li>█ Stockpiling, and transporting of material.</li> </ul>	<ul style="list-style-type: none"> <li>█ Overloading of trucks impacting road infrastructure.</li> <li>█ Degradation of the access road.</li> </ul>	<p>Collapse of the internal road infrastructure will affect the landowner and lawful occupiers negatively. If the mine negatively affects public traffic, it may incur additional costs and complaints from the public.</p>	<p>Operational phase</p>	<p><u>Control &amp; Remedy:</u> Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to mining.</p>	<p>The access road must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>❖ NRTA, 1996</li> </ul>

## f) Impact Management Actions

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

Table 29: Impact Management Actions.

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<p>whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc... etc. etc.)</p>	<p>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc... etc..)</p>	<p>(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc... etc.)</p> <p>E.g.</p> <ul style="list-style-type: none"> <li>• Modify through alternative method.</li> <li>• Control through noise control.</li> <li>• Control through management and monitoring.</li> <li>• Remedy through rehabilitation.</li> </ul>	<p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either: Upon cessation of the individual activity Or. Upon the cessation of mining bulk sampling or alluvial diamond prospecting as the case may be.</p>	<p>(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>
<p>Demarcation of site with visible beacons.</p>	<p>No impact could be identified other than the beacons being outside the boundaries of the approved mining area.</p>	<p>Control through management and monitoring.</p>	<p>Beacons need to be in place throughout the life of the mine.</p>	<p>Mining is only allowed within the boundaries of the approved area.</p> <ul style="list-style-type: none"> <li>■ MPRDA, 2008</li> <li>■ NEMA, 1998</li> </ul>
<p>Site establishment and infrastructure development.</p>	<p>Loss of agricultural land for duration of mining.</p>	<p>Should the proposed project be approved, the operation will temporarily interrupt the agricultural activities of the footprint area, only to be reversed upon the closure of the mine. The impact could be controlled through progressive rehabilitation.</p>	<p>Throughout site establishment- and operational phases.</p>	<p>Use of agricultural land must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ CARA, 1983</li> <li>■ Closure Plan (Appendix K)</li> </ul>

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Stripping and stockpiling of topsoil and overburden.</li> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Cumulative impacts.</li> </ul>	<ul style="list-style-type: none"> <li>■ Visual intrusion as a result of site establishment.</li> <li>■ Visual intrusion caused by mining activities.</li> <li>■ Visual intrusion associated with the excavation activities.</li> <li>■ Cumulative visual impact when borrow pit and stockpile area are developed.</li> </ul>	<p><u>Control:</u> Implementing proper housekeeping.</p>	<p>Throughout site establishment- and operational phases.</p>	<p>Management of the mining activities must be in accordance with the:</p> <ul style="list-style-type: none"> <li>■ MPRDA, 2008</li> <li>■ NEMA, 1998</li> </ul>
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Cumulative Impacts</li> </ul>	<ul style="list-style-type: none"> <li>■ Alteration of natural environment and habitat loss.</li> <li>■ Impact on vegetation structure and plant species composition</li> <li>■ Impact on populations of species of special concern</li> <li>■ Impact on targets for threatened ecosystems</li> <li>■ Impact on ecological processes and functionality of ecosystems</li> <li>■ Impact on overall species and ecosystem diversity</li> <li>■ Impact on ecological connectivity.</li> </ul>	<p><u>Control:</u> Implementing proper housekeeping.</p>	<p>Applicable during the site establishment phase, and to be managed throughout the operational and decommissioning phases.</p>	<p>Areas of conservation importance must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ NEM:BA, 2004</li> </ul>
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and overburden.</li> <li>■ Excavation, loading and hauling material from site</li> <li>■ Stockpiling and transporting of material.</li> </ul>	<ul style="list-style-type: none"> <li>■ Loss of stockpiled topsoil during mining and stockpiling.</li> <li>■ Potential increase in runoff from bare areas and associated accelerated erosion.</li> </ul>	<p><u>Control &amp; Remedy:</u> Proper housekeeping and storm water management.</p>	<p>Throughout operational- and decommissioning phases.</p>	<p>Topsoil stripping must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ CARA, 1983</li> <li>■ NEM:BA, 2004</li> <li>■ MPRDA, 2002</li> <li>■ Closure Plan (Appendix K)</li> </ul>

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> <li>■ Sloping and landscaping during rehabilitation.</li> </ul>	<ul style="list-style-type: none"> <li>■ Facilitation of erosion due to mining activities.</li> <li>■ Potential increase in runoff from bare areas and associated accelerated erosion.</li> <li>■ Erosion of returned topsoil after rehabilitation.</li> <li>■ Exposed disturbed area with no indigenous vegetation upon closure.</li> </ul>			
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Stockpiling, and transporting of material.</li> <li>■ Cumulative impacts.</li> </ul>	<ul style="list-style-type: none"> <li>■ Dust nuisance caused because of the disturbance of soil.</li> <li>■ Dust nuisance due to excavation and from loading and vehicles transporting the material.</li> <li>■ Cumulative dust nuisance when borrow pit and stockpile area operate.</li> </ul>	<p><u>Control:</u> Dust suppression methods and proper housekeeping.</p>	<p>Throughout site establishment-, and operational phase.</p>	<p>Dust generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ NEM: AQA, 2004 Regulation 6(1)</li> <li>■ National Dust Control Regulations, GN No R827</li> <li>■ ASTM D1739 (SANS 1137:2012)</li> </ul>
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Stockpiling, and transporting of material.</li> <li>■ Cumulative impacts.</li> </ul>	<ul style="list-style-type: none"> <li>■ Noise nuisance generated by earthmoving machinery.</li> <li>■ Noise nuisance because of the mining activities.</li> <li>■ Cumulative noise nuisance when borrow pit and stockpile area operate.</li> </ul>	<p><u>Control:</u> Noise suppression methods and proper housekeeping.</p>	<p>Throughout site establishment-, and operational phase.</p>	<p>Noise generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ NEM: AQA, 2004 Regulation 6(1)</li> <li>■ NRTA, 1996</li> </ul>

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, stockpiling, and transporting of material.</li> <li>■ Cumulative impacts.</li> <li>■ Sloping and landscaping during rehabilitation phase.</li> </ul>	<ul style="list-style-type: none"> <li>■ Infestation of the topsoil heaps and mining area with weeds or invader plant species.</li> <li>■ Infestation of the area with invader plant species.</li> <li>■ Infestation of the reinstated areas by weeds and invader plant species.</li> </ul>	<p><u>Control &amp; Remedy:</u> Implementation of an invasive plant species management plan.</p>	<p>Throughout operational- and decommissioning phases.</p>	<p>Weeds and invader plants on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ CARA, 1983</li> <li>■ NEM:BA, 2004</li> </ul>
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Stockpiling, and transporting of material.</li> <li>■ Sloping and landscaping during rehabilitation phase.</li> </ul>	<ul style="list-style-type: none"> <li>■ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages.</li> <li>■ Soil contamination from hydrocarbon spills and/or littering.</li> <li>■ Potential contamination of environment due to improper waste management.</li> <li>■ Potential impact associated with litter/waste left at the mining area.</li> </ul>	<p><u>Control &amp; Remedy:</u> Proper housekeeping and implementation of an emergency response plan and waste management plan.</p>	<p>Throughout operational- and decommissioning phases.</p>	<p>Mining related waste must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ NWA, 1998</li> <li>■ NEM: WA, 2008</li> </ul>
<ul style="list-style-type: none"> <li>■ Site establishment &amp; infrastructure development.</li> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> </ul>	<ul style="list-style-type: none"> <li>■ Potential change of natural runoff and drainage patterns.</li> <li>■ Removal of mean annual precipitation from the catchment due to control of runoff water.</li> <li>■ Alteration of hydrological and geomorphological process.</li> </ul>	<p><u>Control:</u> Implementing the SWMP.</p>	<p>Throughout site establishment-, and operational phase.</p>	<p>Any water related matters must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ NWA, 1998</li> <li>■ GA conditions</li> </ul>

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> <li>■ Stockpiling and transporting of material.</li> </ul>	<ul style="list-style-type: none"> <li>■ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic).</li> <li>■ Direct Physical loss or medication of freshwater habitat</li> <li>■ Impacts to water quality.</li> <li>■ Potential change of natural runoff and drainage patterns.</li> <li>■ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects).</li> </ul>			
<ul style="list-style-type: none"> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Sloping and landscaping during rehabilitation phase.</li> </ul>	<ul style="list-style-type: none"> <li>■ Health and safety risk posed by mining activities.</li> <li>■ Unsafe working environment for employees.</li> <li>■ Safety risk posed by un-sloped areas.</li> </ul>	<p><u>Stop &amp; Control:</u> Adherence to the mining rules and regulations, demarcation of the mining area and proper housekeeping.</p>	<p>Throughout operational- and decommissioning phases.</p>	<p>Health and safety aspects on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>■ MHPA, 1996</li> <li>■ OHSAS, 1993</li> <li>■ OHSAS 18001</li> <li>■ USBM standards</li> </ul>
<ul style="list-style-type: none"> <li>■ Mining of gravel.</li> </ul>	<ul style="list-style-type: none"> <li>■ Potential damage to Eskom power lines.</li> </ul>	<p><u>Stop &amp; Control:</u> Adherence to the mining rules and regulations, and Eskom specifications.</p>	<p>Throughout operational phase.</p>	<p>The power lines must be protected in accordance with all Eskom specifications.</p>
<ul style="list-style-type: none"> <li>■ Stockpiling, and transporting of material.</li> </ul>	<ul style="list-style-type: none"> <li>■ Overloading of trucks impacting road infrastructure.</li> <li>■ Degradation of the access road.</li> </ul>	<p><u>Control &amp; Remedy:</u> Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to mining.</p>	<p>Throughout site establishment- and operational phases.</p>	<p>The access road must be managed in accordance with the:</p> <ul style="list-style-type: none"> <li>❖ NRTA, 1996</li> </ul>

**i) Financial Provision**

**(1) Determination of the amount of Financial Provision.**

**(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.**

The decommissioning phase will entail the reinstatement of the mining area by removing the stockpiled material, and site infrastructure/equipment and landscaping the disturbed footprints. Due to the impracticality of importing large volumes of fill to restore the borrow pit area to its original topography, the rehabilitation option is to develop the borrow pit into a minor landscape feature. This will entail creating slopes along the top edges of the borrow pit thereby reducing the overall face angle. The slopes will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil. The applicant will comply with the minimum closure objectives as prescribed by DMRE.

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

This report, the Draft Basic Assessment Report, includes all the environmental objectives in relation to closure and will be made available for perusal by the landowner, registered I&AP's and stakeholders over a 30-days commenting period.

**(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.**

The requested rehabilitation plan is attached as Appendix D.

**(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.**

The decommissioning phase will entail the final rehabilitation of the mining site. Final landscaping, levelling and top dressing will be done on all areas to be rehabilitated. The rehabilitation of the mining area as indicated on the rehabilitation plan attached as Appendix D will comply with the minimum closure objectives as prescribed by DMRE and detailed below, and therefore is deemed to be compatible:

#### Rehabilitation of the excavated area:

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

#### Final rehabilitation:

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required), maintenance, and clearing of invasive plant species.
  - All equipment, plant, and other items used during the mining period must be removed from the site (section 44 of the MPRDA).
  - Waste material of any description, including receptacles, scrap, rubble, and tyres, must be removed entirely from the mining area, and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.
  - The management of invasive plant species must be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) need to be eradicated from the site.
  - Final rehabilitation must be completed within a period specified by the Regional Manager (DMRE).
- (e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.**

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

**Mine type and saleable mineral by-product**

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

Mine type	Gravel
Saleable mineral by-product	None

**Risk ranking.**

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

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

**Environmental sensitivity of the mine area**

According to Table B.4

Environmental sensitivity of the mine area	Low
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**Level of information**

According to Step 4.2:

Level of information available	Extensive
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**Identify closure components.**

According to Table B.5 and site-specific conditions

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	<b>NO</b>
2(A)	Demolition of steel buildings and structures	-	<b>NO</b>
2(B)	Demolition of reinforced concrete buildings and structures	-	<b>NO</b>
3	Rehabilitation of access roads	-	<b>NO</b>
4(A)	Demolition and rehabilitation of electrified railway lines	-	<b>NO</b>
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	<b>NO</b>
5	Demolition of housing and facilities	-	<b>NO</b>
6	Opencast rehabilitation including final voids and ramps	<b>YES</b>	-
7	Sealing of shafts, adits, and inclines	-	<b>NO</b>
8(A)	Rehabilitation of overburden and spoils	-	<b>NO</b>

8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	<b>NO</b>
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	<b>NO</b>
9	Rehabilitation of subsided areas	-	<b>NO</b>
10	General surface rehabilitation, including grassing of all denuded areas	<b>YES</b>	-
11	River diversions	-	<b>NO</b>
12	Fencing	-	<b>NO</b>
13	Water management (Separating clean and dirty water, managing polluted water, and managing the impact on groundwater)	-	<b>NO</b>
14	2 to 3 years of maintenance and aftercare	<b>YES</b>	-

### **Unit rates for closure components**

According to Table B.6 master rates and multiplication factors for applicable closure components.

<b>Component No.</b>	<b>Main description</b>	<b>Master rate</b>	<b>Multiplication factor</b>
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	-
2(A)	Demolition of steel buildings and structures	-	-
2(B)	Demolition of reinforced concrete buildings and structures	-	-
3	Rehabilitation of access roads	-	-
4(A)	Demolition and rehabilitation of electrified railway lines	-	-
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	-
5	Demolition of housing and facilities	-	-
6	Opencast rehabilitation including final voids and ramps	319 431	0.04
7	Sealing of shafts, adits, and inclines	-	-
8(A)	Rehabilitation of overburden and spoils	-	-
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	-
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	-
9	Rehabilitation of subsided areas	-	-
10	General surface rehabilitation, including grassing of all denuded areas	168 695	1.00
11	River diversions	-	-
12	Fencing	-	-
13	Water management (Separating clean and dirty water, managing polluted water, and managing the impact on groundwater)	-	-
14	2 to 3 years of maintenance and aftercare	22 450	1.00

### **Determine weighting factors.**

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1.10
Weighting factor 2: Proximity to urban area where goods and services are to be supplied	1.05

**Calculation of closure costs**

Table B.10 Template for Level 2: "Rules-based" assessment of the quantum for financial provision

Table 30: Calculation of closure cost

CALCULATION OF THE QUANTUM							
<b>Mine:</b>	Ladysmith Borrow pit			<b>Location:</b>	Ladysmith		
<b>Evaluators:</b>	S Smit			<b>Date:</b>	May 2024		
No	Description	Unit	A Quantity	B Master rate	C Multiplication factor	D Weighting factor 1	E=A *B*C*D Amount (Rand)
			Step 4.5	Step 4.3	Step 4.3	Step 4.4	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	m <sup>2</sup>	0	22	1.00	1.10	R 0.00
2(A)	Demolition of steel buildings and structures	m <sup>2</sup>	0	305	1.00	1.10	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m <sup>2</sup>	0	449	1.00	1.10	R 0.00
3	Rehabilitation of access roads	m <sup>2</sup>	0	55	1.00	1.10	R 0.00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	529	1.00	1.10	R 0.00
4(B)	Demolition and rehabilitations of non-electrified railway lines	m	0	289	1.00	1.10	R 0.00
5	Demolition of housing and/or administration facilities	m <sup>2</sup>	0	609	1.00	1.10	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	1	319 431,00	0.04	1.10	R 12 777,24
7	Sealing of shaft, audits, and inclines	m <sup>3</sup>	0	164	1.00	1.10	R 0.00
8(A)	Rehabilitation of overburden and spoils	ha	0	212954	1.00	1.10	R 0.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	ha	0	265230	1.00	1.10	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	770354	0.51	1.10	R 0.00
9	Rehabilitation of subsided areas	ha	0	178317	1.00	1.10	R 0.00
10	General surface rehabilitation	ha	1	168695	1.00	1.10	R 168 695,00

11	River diversions	ha	0	168695	1.00	1.10	R 0.00
12	Fencing	m	0	192	1.00	1.10	R 0.00
13	Water Management	ha	0	64143	0.17	1.10	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	1	22450	1.00	1.10	R 22 450,00
15(A)	Specialists study	Sum	0				R 0.00
15(B)	Specialists study	Sum	0				R 0.00
Sum of items 1 to 15 above							R 203 922,24
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)		1.05		R10 196,11		<b>Sub Total 1</b>	R 214 118,35

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 <R100 000 000.00	R 12 847,10
		12% of Subtotal 1 if Subtotal 1 >R100 000 000.00	-
2	Contingency	10.0% of Subtotal 1	R 21 411,84
<b>Sub Total 2</b>			
(Subtotal 1 plus management and contingency)			R 248 377,29
Vat (15%)			R 37 256,59
GRAND TOTAL			
(Subtotal 3 plus VAT)			<b>R 285 633,88</b>

The amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum of **R 285 633,88**.

**(f) Confirm that the financial provision will be provided as determined.**

Herewith I, the person, whose name is stated below confirm that I am the person authorised to act as representative of the Applicant in terms of the resolution submitted with the application. I herewith confirm that the company will provide the amount that will be determined by the Regional Manager in accordance with the prescribed guidelines.

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

**g) Monitoring of Impact Management Actions**

**h) Monitoring and reporting frequency.**

**i) Responsible persons**

**j) Time period for implementing impact management actions.**

**k) Mechanisms for monitoring compliance**

*Table 31: Mechanisms for monitoring compliance with and performance assessment against the EMPR and reporting thereon.*

<b>SOURCE ACTIVITY</b>	<b>IMPACTS REQUIRING MONITORING PROGRAMMES</b>	<b>FUNCTIONAL REQUIREMENTS FOR MONITORING</b>	<b>ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)</b>	<b>MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS</b>
Demarcation of site with visible beacons	Maintenance of beacons	<ul style="list-style-type: none"> <li>Visible beacons need to be placed at the corners of the mining area.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>Ensure beacons are in place throughout the life of the mine.</li> </ul>	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> <li>Daily compliance monitoring by site management.</li> <li>Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>
<ul style="list-style-type: none"> <li>Site establishment and infrastructure development.</li> </ul>	<u>Land Use:</u>	<ul style="list-style-type: none"> <li>Mining schedule</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> </ul>	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p>

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
	<ul style="list-style-type: none"> <li>Loss of agricultural land for duration of mining.</li> </ul>		<ul style="list-style-type: none"> <li>Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>If needed, sign mined/rehabilitated areas back to grazing once the grass layer stabilised.</li> </ul>	<ul style="list-style-type: none"> <li>Daily compliance monitoring by site management.</li> <li>Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>
<ul style="list-style-type: none"> <li>Site establishment and infrastructure development.</li> <li>Stripping and stockpiling of topsoil and/or overburden.</li> <li>Excavation, loading and hauling material from site</li> <li>Cumulative impacts.</li> </ul>	<p><u>Visual Characteristics:</u></p> <ul style="list-style-type: none"> <li>Visual intrusion as a result of site establishment.</li> <li>Visual intrusion caused by mining activities.</li> <li>Visual intrusion associated with the excavation activities.</li> <li>Cumulative visual impact when borrow pit and stockpile area are developed.</li> </ul>	<ul style="list-style-type: none"> <li>Minimize the visual impact of the activity on the surrounding environment through proper site management and implementing good housekeeping practices.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>Ensure that the site have a neat appearance and is always kept in good condition.</li> <li>Store mining equipment in a dedicated area when not in use.</li> <li>Limit vegetation removal, and only strip topsoil immediately prior to the mining/use of a specific area.</li> <li>Contain excavations to the approved footprint of the permitted area.</li> <li>Upon closure, rehabilitate the site to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum.</li> </ul>	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> <li>Daily compliance monitoring by site management.</li> <li>Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Cumulative impacts.</li> </ul>	<p><u>Terrestrial Biodiversity, Conservation Areas and Groundcover:</u></p> <ul style="list-style-type: none"> <li>■ Alteration of natural environment and habitat loss.</li> <li>■ Impact on vegetation structure and plant species composition</li> <li>■ Impact on populations of species of special concern</li> <li>■ Impact on targets for threatened ecosystems</li> <li>■ Impact on ecological processes and functionality of ecosystems</li> <li>■ Impact on overall species and ecosystem diversity</li> <li>■ Impact on ecological connectivity.</li> </ul>	<ul style="list-style-type: none"> <li>■ Visible beacons indicating the boundary of the mineable area.</li> <li>■ Removal permit to relocate protected species.</li> <li>■ Indigenous grass mix to seed reinstated areas upon closure.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>■ Botanist to identify plants of importance.</li> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Clearly demarcate the mining boundaries and contain all operations to the approved mining area. Declare the area outside the mining boundaries a no-go area and educate all staff accordingly.</li> <li>■ Commit to a conservation approach and keep the actual footprint of disturbance to a minimum.</li> <li>■ Arrange a pre-commencement environmental induction for all staff on site to ensure that basic environmental principles are adhered to. This must include awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas, etc.</li> <li>■ Arrange a pre-commencement walkthrough to identify and demarcate important species to be relocated and sub habitats that may not be disturbed.</li> <li>■ Obtain permits for the removal of protected plant species (especially <i>Aloe marlothii</i>) and kept it on-site in the possession of the flora search and rescue team.</li> </ul>	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> <li>■ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<ul style="list-style-type: none"> <li>✦ Do not allow grubbing as a method of clearing vegetation. Cut any trees that need to be cleared using chain saws and hauled it from the site using appropriate machinery where practically possible.</li> <li>✦ Only commence with bush-clearance once the plant permits were received, and the important plants were relocated by a suitably qualified person.</li> <li>✦ Do not burn cleared vegetation to be retained at any time, but rather mulch and stockpiled it. Ideally cover the heaps with stockpiled topsoil and retain the material for future site rehabilitation.</li> <li>✦ Arrange that the ECO provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing takes place.</li> <li>✦ Ensure all vehicles remain on demarcated roads and prevent unnecessary driving in the veld outside these areas.</li> <li>✦ Do not translocated, uprooted, or disturbed plants for rehabilitation or other purposes without express permission from the ECO and without the relevant permits.</li> <li>✦ Do not allow fires on-site.</li> <li>✦ Provide spoil heaps and topsoil stockpiles with a vegetation cover of indigenous grasses.</li> <li>✦ Generate a biodiversity protocol and rehabilitation plan that can be implemented upon closure.</li> </ul>	

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<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Cumulative impacts.</li> </ul>	<p><u>Fauna Management</u></p>	<ul style="list-style-type: none"> <li>■ Toolbox talks to educate employees how to handle fauna that enter the work areas.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Ensure no fauna is caught, killed, harmed, sold, or played with.</li> <li>■ The ECO or other suitably qualified person must remove any fauna directly threatened by the operational activities to a safe location.</li> <li>■ Arrange a suitably trained individual to undertake the handling and relocation of any animal perceived to be dangerous/venomous/poisonous.</li> <li>■ Arrange that all personnel undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Instruct workers to report any animals that may be trapped in the working area.</li> <li>■ Ensure no snares are set or nests raided for eggs or young.</li> <li>■ Ensure all vehicles adhere to a low-speed limit (20 km/h is recommended) to avoid collisions with susceptible species such as snakes and tortoises.</li> </ul>	<p>Applicable throughout site establishment-, and operational phases.</p> <ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> <li>■ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

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			<ul style="list-style-type: none"> <li>■ Prevent litter, food or other foreign material thrown or left around the site. Keep such items in the site vehicles and daily removed it to the site camp.</li> <li>■ Reserve indigenous vegetation wherever possible and avoid vegetation clearing during the breeding season.</li> </ul>	
<ul style="list-style-type: none"> <li>■ Site establishment and infrastructure development.</li> <li>■ Excavation, loading and hauling material from site</li> </ul>	<p><u>Cultural and Heritage Environment.</u></p>	<ul style="list-style-type: none"> <li>■ Contact number of an archaeologist &amp; palaeontologist that can be contacted when a discovery is made on site.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Confine all mining to the development footprint area.</li> <li>■ Implement the following change find procedure when discoveries are made on site: <ul style="list-style-type: none"> <li>▪ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.</li> <li>▪ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.</li> </ul> </li> </ul>	<p>Applicable throughout site establishment-, and operational phases.</p> <ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> <li>■ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

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			<ul style="list-style-type: none"> <li>▪ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the AMAFA.</li> <li>▪ Work may only continue once the go-ahead was issued by AMAFA.</li> </ul>	
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or vegetation.</li> </ul>	<p><u>Geology and Soil:</u></p> <ul style="list-style-type: none"> <li>■ Loss of stockpiled topsoil during mining and stockpiling.</li> </ul>	<ul style="list-style-type: none"> <li>■ Earthmoving equipment to strip and stockpile topsoil.</li> <li>■ Indigenous grass mix to be established on topsoil heaps (if needed).</li> <li>■ Erosion control infrastructure (if needed).</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Strip and stockpile the upper 300 mm of the soil before mining.</li> <li>■ Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process.</li> <li>■ Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. Plan mining in such a way that topsoil is stockpiled for the minimum possible time.</li> <li>■ Place the topsoil on a levelled area, within the mining footprint. Do not stockpile topsoil in undisturbed areas.</li> <li>■ Protect topsoil stockpiles against losses by water- and wind erosion. Position stockpiles so it is not vulnerable to erosion by wind and water. The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion.</li> </ul>	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> <li>■ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

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			<ul style="list-style-type: none"> <li>➤ Ensure that topsoil heaps do not exceed 1.5 m and not sloped more than 1:2 to avoid collapse.</li> <li>➤ Keep temporary topsoil stockpiles free of invasive plant species.</li> <li>➤ Vegetate the topsoil heaps to be stored longer than 3 months with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season.</li> <li>➤ Divert storm- and runoff water around the on-site stockpile area to prevent erosion.</li> <li>➤ Spread the topsoil evenly, to a depth of 300 mm, over the rehabilitated area upon closure of the site.</li> <li>➤ Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season.</li> <li>➤ Plant a grass layer (indigenous) immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the grass layer for optimum production. Rehabilitation extends until the first grass layer is well established.</li> <li>➤ Control run-off water with temporary banks, where necessary, to prevent accumulation of run-off causing down-slope erosion.</li> <li>➤ Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement.</li> </ul>	

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<ul style="list-style-type: none"> <li>➤ Stripping and stockpiling of topsoil and/or overburden;</li> <li>➤ Excavation, loading and material from site.;</li> <li>➤ Stockpiling and transporting of material.</li> <li>➤ Cumulative impacts.</li> </ul>	<p><u>Air and Noise Quality:</u></p> <ul style="list-style-type: none"> <li>➤ Dust nuisance because of the disturbance of soil.</li> <li>➤ Dust nuisance due to excavation and from loading and vehicles transporting the material.</li> <li>➤ Cumulative dust nuisance when borrow pit and stockpile area operate.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Gravimetric dust monitoring equipment.</li> <li>➤ Dust suppression equipment such as a water car, and water dispenser.</li> <li>➤ Signage that clearly reduce the speed on the access roads.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>➤ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>➤ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>➤ Control the liberation of dust into the surrounding environment using; inter alia, water spraying and/or other dust-allaying agents.</li> <li>➤ Daily assess the efficiency of all dust suppression equipment.</li> <li>➤ Limit speed on the haul roads to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust.</li> <li>➤ Minimise areas devoid of vegetation, and only remove vegetation immediately prior to mining.</li> <li>➤ Flatten loads to prevent spillage during transportation on public roads.</li> <li>➤ Consider weather conditions upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts.</li> <li>➤ Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA, 2004 and ASTM D1739 (SANS 1137:2012).</li> </ul>	<p>Applicable throughout site establishment-, and operational phases.</p> <ul style="list-style-type: none"> <li>➤ Daily compliance monitoring by site management.</li> <li>➤ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

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			<ul style="list-style-type: none"> <li>■ Implement best practice measures during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.</li> <li>■ Implement monthly fallout-dust monitoring at the site for the duration of the activities and ensure that the results comply with the standards of the National Dust Control Regulations, 2013.</li> </ul>	
<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, loading and transporting material from site;</li> <li>■ Stockpiling and transporting of material.</li> <li>■ Cumulative impacts.</li> </ul>	<p><u>Air and Noise Quality:</u></p> <ul style="list-style-type: none"> <li>■ Noise nuisance generated by earthmoving machinery.</li> <li>■ Noise nuisance because of the mining activities.</li> <li>■ Cumulative noise nuisance when borrow pit and stockpile area operate.</li> </ul>	<ul style="list-style-type: none"> <li>■ Personal noise exposure monitoring equipment.</li> <li>■ Signage indicating noise zones.</li> <li>■ Silencers fitted to all project related vehicles, and the use of vehicles that are in road worthy condition in terms of the National Road Traffic Act, 1996.</li> <li>■ Noise mufflers fitted to generators.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Ensure that employees and staff conduct themselves in an acceptable manner while on site.</li> <li>■ No loud music may be permitted at the mining area.</li> <li>■ Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996.</li> <li>■ Contract a qualified occupational hygienist to quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring must be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM: AQA 2004, SANS 10103:2008.</li> </ul>	<p>Applicable throughout site establishment-, and operational phases.</p> <ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> </ul> <p>Annual compliance monitoring of site by an Environmental Control Officer.</p>

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			<ul style="list-style-type: none"> <li>✦ Minimise the noise caused by generators. Maintain and equip all generators with sound mufflers, and if possible, point the generators away from the neighbouring land users. Place all generators on a level area/footing to minimise vibration noise.</li> <li>✦ Implement best practice measures to minimise potential noise impacts.</li> </ul>	
<ul style="list-style-type: none"> <li>✦ Stripping and stockpiling of topsoil and/or overburden;</li> <li>✦ Stockpiling and transporting of material.</li> <li>✦ Cumulative impacts.</li> <li>✦ Sloping and landscaping during rehabilitation.</li> </ul>	<p><u>Terrestrial biodiversity, conservation areas and groundcover:</u></p> <ul style="list-style-type: none"> <li>✦ Infestation of the topsoil heaps and mining area with weeds or invader plant species.</li> <li>✦ Infestation of the area with invader plant species.</li> <li>✦ Cumulative impact of invader plants in both the borrow pit and stockpile footprints.</li> <li>✦ Infestation of the reinstated areas by weeds and invader plant species.</li> </ul>	<ul style="list-style-type: none"> <li>✦ Designated team to cut or pull out invasive plant species that germinated on site.</li> <li>✦ Herbicide application equipment.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>✦ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>✦ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>✦ Implement an invasive plant species management plan to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. Do weed/alien ongoing clearing on throughout the life of the mining activities.</li> <li>✦ Do not allow planting or importing of any alien species to the site for landscaping, rehabilitation, or any other purpose.</li> <li>✦ Keep all stockpiles (topsoil &amp; overburden) free of invasive plant species.</li> <li>✦ Control declared invader or exotic species on the rehabilitated areas.</li> </ul>	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> <li>✦ Daily compliance monitoring by site management.</li> <li>✦ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

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			<ul style="list-style-type: none"> <li>➤ Only use herbicides that are certified safe for use in aquatic environments by an independent testing authority.</li> </ul>	
<ul style="list-style-type: none"> <li>➤ Stripping and stockpiling of topsoil and/or overburden.</li> <li>➤ Excavation, loading and hauling material from site</li> <li>➤ Stockpiling and transporting of material.</li> <li>➤ Sloping and landscaping during rehabilitation.</li> </ul>	<p><u>Hydrology:</u></p> <ul style="list-style-type: none"> <li>➤ Potential change of natural runoff and drainage patterns.</li> <li>➤ Removal of mean annual precipitation from the catchment due to control of runoff water.</li> <li>➤ Alteration of hydrological and geomorphological process.</li> <li>➤ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic).</li> <li>➤ Direct Physical loss or medication of freshwater habitat</li> <li>➤ Impacts to water quality</li> <li>➤ Potential change of natural runoff and drainage patterns.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Storm water management structures such as berms to direct storm- and runoff water around the stockpiled topsoil area.</li> <li>➤ Schedule for the visual monitoring of the buffer zone and water units.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>➤ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>➤ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>➤ Implement a stormwater management plan for the duration of the mining activities.</li> <li>➤ Undertake construction during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible.</li> <li>➤ Place vegetation clearing on hold when heavy rains are expected.</li> <li>➤ Divert stormwater around the topsoil heaps and mining areas to prevent erosion.</li> <li>➤ Protect stockpiles from erosion and store it on flat areas surrounded by appropriate berms where possible.</li> <li>➤ Ensure that adequate slope protection is provided when mining within steep slopes.</li> <li>➤ Control the outflow of run-off water from the mining excavation to prevent down-slope erosion, by constructing temporary banks and ditches that will direct run-off water (if needed). These must be in place</li> </ul>	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> <li>➤ Daily compliance monitoring by site management.</li> </ul> <p>Annual compliance monitoring of site by an Environmental Control Officer.</p>

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	<ul style="list-style-type: none"> <li>▀ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects).</li> </ul>		<p>at any points where overflow out of the excavation might occur.</p> <ul style="list-style-type: none"> <li>▀ Install a silt fence at the bottom of the perimeter fence to catch sediment carried by surface runoff from bare surfaces at the site. All demarcation must be signed off by the ECO before any work commences.</li> <li>▀ Do not discharge dirty water emanating from the borrow pit into the natural environment or any watercourse. Channel all runoff into the stormwater system.</li> <li>▀ Regularly monitor roads and other disturbed areas within the project for erosion and ensure problem areas receive follow-up monitoring to assess the success of the remediation.</li> <li>▀ Rectify erosion problems within the mining area because of the mining activities immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur.</li> <li>▀ Use silt/sediment traps/barriers where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other sensitive areas. Regularly maintain and clear the sediment/silt barriers to ensure effective drainage of the areas.</li> <li>▀ Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWS.</li> <li>▀ Contain all fuels and chemicals stored or used on site in fit for purpose containers and store within designated storage areas. Ensure the designated storage areas</li> </ul>	

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			<p>are situated on an impermeable surface with a perimeter bund and a drainage sump. Size the volume of the bund and sump to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. Ensure that the storage areas have a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently.</p> <ul style="list-style-type: none"> <li>■ Re-vegetate all exposed/bare surfaces and embankments once shaped. If revegetation of exposed surfaces cannot take place immediately, temporary erosion, and sediment control measures must be installed and maintained until such time that revegetation can commence.</li> <li>■ Monitor all erosion and sediment control measures weekly for the life of the operation and repaired immediately when damaged. Only remove the erosion and sediment control structures once vegetation cover has successfully recolonised the affected areas.</li> <li>■ After heavy rainfall events, check the site for erosion damage and rehabilitate this damage immediately. Fill in erosion rills and gullies with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.</li> <li>■ Check settlement ponds every month to assess the amount of sediment collected. Remove sediment at a predetermined depth of sediment and stockpiled separately.</li> </ul>	

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<ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, loading and transporting material from site.;</li> <li>■ Stockpiling and transporting of material;</li> <li>■ Sloping and landscaping during rehabilitation.</li> </ul>	<p><u>General:</u></p> <ul style="list-style-type: none"> <li>■ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages.</li> <li>■ Soil contamination from hydrocarbon spills and/or littering.</li> <li>■ Potential contamination of environment due to improper waste management.</li> <li>■ Potential impact associated with litter/waste left at the mining area.</li> </ul>	<ul style="list-style-type: none"> <li>■ Oil spill kit.</li> <li>■ Sealed drip trays.</li> <li>■ Formal waste disposal system with waste registers.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Ensure regular vehicle maintenance, repairs and services only take place at an off-site workshop and service area. Ensure drip trays are present if emergency repairs are needed on equipment not able to move to the workshop. Dispose all waste products in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. Treat this as hazardous waste and dispose of it at a registered hazardous waste handling facility, alternatively arrange collection by a registered hazardous waste handling contractor. File safe disposal certificates for auditing purposes.</li> <li>■ If a diesel bowser is used on site, always equip it with a drip tray. Use drip trays during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.</li> <li>■ Ensure mixing and/or decanting of all chemicals and hazardous substances take place on an impermeable surface that is protected from the ingress and egress of stormwater.</li> </ul>	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> </ul> <p>Annual compliance monitoring of site by an Environmental Control Officer.</p>

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			<ul style="list-style-type: none"> <li>■ Ensure drip trays are cleaned after each use. Do not allow dirty drip trays to be used on site. Dispose of dirty rags used to clean the drip trays as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system.</li> <li>■ Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and remove it from the site, either for resale or for appropriate disposal at a registered facility. File proof.</li> <li>■ Obtain an oil spill kit and train the employees in the emergency procedures to follow when a spill occurs as well as the application of the spill kit.</li> <li>■ Clean spills immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMRE) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a registered facility. File proof.</li> <li>■ Ensure suitable covered receptacles are always available and conveniently placed for the disposal of general waste.</li> <li>■ Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., in a container with a closable lid at a collecting point to be collected at least once a month and disposed of at a recognized landfill site. Take specific precautions to prevent refuse from being dumped on or in the vicinity of the mine area. File proof of disposal.</li> <li>■ Handle biodegradable refuse as indicated above.</li> </ul>	

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			<ul style="list-style-type: none"> <li>■ Encourage re-use or recycling of waste products.</li> <li>■ Do not bury or burn waste on the site.</li> <li>■ Provide ablution facilities in the form of a chemical toilet/s. Anchor the chemical toilet (to prevent blowing/falling over) and arrange that it is serviced at least once a week for the duration of the mining activities by a registered liquid waste handling contractor. File the safe disposal certificates.</li> <li>■ Ensure that the use of any temporary, chemical toilet facilities do not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately.</li> <li>■ Do not discharge water containing waste into the natural environment.</li> <li>■ Implement measures to contain the wastewater and safely dispose thereof.</li> <li>■ Report any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities to the Department of Water and Sanitation and other relevant authorities.</li> <li>■ Implement the use of waste registers to keep record of the waste generated and removed from the mining area.</li> </ul>	
<ul style="list-style-type: none"> <li>■ Site establishment and</li> </ul>	<u>Hydrology:</u>	<ul style="list-style-type: none"> <li>■ General Authorisation approved by the DWS.</li> </ul>	<u>Responsibility:</u> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> </ul>	Applicable throughout site establishment-, and operational phases.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<p>infrastructure development.</p> <ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Cumulative impacts.</li> </ul>	<ul style="list-style-type: none"> <li>■ Potential change of natural runoff and drainage patterns.</li> <li>■ Removal of mean annual precipitation from the catchment due to control of runoff water.</li> <li>■ Alteration of hydrological and geomorphological process.</li> <li>■ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic).</li> <li>■ Direct Physical loss or medication of freshwater habitat</li> <li>■ Impacts to water quality</li> <li>■ Potential change of natural runoff and drainage patterns.</li> <li>■ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects).</li> </ul>	<ul style="list-style-type: none"> <li>■ Stormwater Management Plan.</li> </ul>	<ul style="list-style-type: none"> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Undertake construction during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible.</li> <li>■ Maintain a 40 m buffer around the seep- and valley bottom wetland areas throughout the lifespan of the mining activities and manage it as a no-go area.</li> <li>■ Prior to the commencement of the site stake the outer edge of the delineated watercourse (wetlands) and associated buffer zone (by surveyor; to be signed off by the ECO) before work commences (if allowed by the landowner). Maintain the demarcations for the duration of the site.</li> <li>■ Do not locate any equipment laydown or storage areas within 40 m of any watercourse and/or within the 1:100-year flood line, whichever is greater in width.</li> <li>■ Keep the clearing of natural and semi-natural grasslands to the approved area and to a minimum.</li> <li>■ Keep the clearing of natural and semi-natural grasslands to a minimum.</li> <li>■ Where it is necessary to remove surface water from the borrow pit site; pump the water to a site where it will not negatively influence the natural environment through erosion of permanent flooding, possibly the non-perennial stream.</li> </ul>	<ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> <li>■ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<ul style="list-style-type: none"> <li>➤ Redirect stormwater (and road-surface run-off) towards remaining wetland features to increase groundwater infiltration, thereby providing sufficient soil moisture to support wetland species (ensure that this water is slowed down, not channelized and spread out across the surface in order to prevent this water flow from causing erosion – where erosion signs are present prompt actions and measures should be taken to rehabilitate these areas and prevent erosion from occurring in these areas in the future),</li> <li>➤ To prevent an increase in surface water flow velocity: <ul style="list-style-type: none"> <li>▪ Ensure that an approved storm water plan is implemented.</li> <li>▪ Ensure that the diameters of storm water pipes are sufficient to not result in overly high flow velocities during rainfall events.</li> <li>▪ Moderate the flow of storm water onto the buffer and wetland features.</li> </ul> </li> <li>➤ To prevent the contamination of the aquatic environment: <ul style="list-style-type: none"> <li>▪ Notify the CM and ECO immediately of any pollution incidents on site.</li> <li>▪ Prevent discharge of any pollutants, such as cement, concrete, lime chemicals and fuels into any water source.</li> </ul> </li> <li>➤ Ensure that structures like berms are built to prevent soil from entering wetlands as this can result in sedimentation.</li> <li>➤ No lights must be established within the construction area near the buffer zones.</li> </ul>	

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<ul style="list-style-type: none"> <li>✦ Excavation, loading and transporting of material;</li> <li>✦ Sloping and landscaping during rehabilitation.</li> </ul>	<p><u>Health and Safety:</u></p> <ul style="list-style-type: none"> <li>✦ Health and safety risk posed by mining activities.</li> <li>✦ Unsafe working environment for employees.</li> <li>✦ Safety risk posed by un-sloped areas.</li> </ul>	<ul style="list-style-type: none"> <li>✦ Stocked first aid box.</li> <li>✦ Level 1 certified first aider.</li> <li>✦ All appointments in terms of the Mine Health and Safety Act, 1996.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>✦ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>✦ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>✦ Properly fence the mining area to prevent incursion by livestock and humans.</li> <li>✦ Ensure that workers have access to the correct PPE as required by law.</li> <li>✦ Locate sanitary facilities within 100 m from any point of work.</li> <li>✦ Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).</li> </ul>	<p>Applicable throughout operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> <li>✦ Daily compliance monitoring by site management.</li> <li>✦ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>
<ul style="list-style-type: none"> <li>✦ Mining of gravel.</li> </ul>	<p><u>Existing Infrastructure:</u></p> <ul style="list-style-type: none"> <li>✦ Potential damage to Eskom power lines.</li> </ul>	<ul style="list-style-type: none"> <li>✦ Contact number of an Eskom representative.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>✦ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>✦ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>✦ Implement or comply with the following requirements of Eskom: Building Restrictions for the 11kV Overhead Power Line:</li> </ul>	<p>Applicable throughout operational phase.</p> <ul style="list-style-type: none"> <li>✦ Daily compliance monitoring by site management.</li> <li>✦ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<ul style="list-style-type: none"> <li>■ No building or structures may be erected or installed above or below the surface of the ground, neither may any material which might endanger the safety of this power line be placed within 12 (twelve) metres from the centre line of this power line, or either side (overall servitude width 24 metres).</li> <li>■ The applicant will adhere to all relevant environmental legislation. Dimensions and specifics will be in accordance with Eskom standards to not obstruct Eskom's existing infrastructure in any way.</li> <li>■ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work.</li> <li>■ The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded electrically live and therefore dangerous at all times.</li> <li>■ Mining and the use of explosives of any type within 500 metres of Eskom's services shall only occur with</li> <li>■ Any third-party servitudes encroaching on Eskom land shall be registered against Eskom's Notaries deed at the applicant's own cost.</li> </ul>	

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<ul style="list-style-type: none"> <li>■ Prior any construction activities, the applicant is required to contact Eskom and detailed Surveyed Plans are to be submitted to this office.</li> <li>■</li> </ul>	
<ul style="list-style-type: none"> <li>■ Stockpiling and transporting of material.</li> </ul>	<p><u>Existing Infrastructure:</u></p> <ul style="list-style-type: none"> <li>■ Overloading of trucks impacting road infrastructure.</li> <li>■ Degradation of the access road.</li> </ul>	<ul style="list-style-type: none"> <li>■ Grader to restore the road surface when needed.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Prevent access to and from the mining area from the N11, unless authorised by SANRAL.</li> <li>■ Divert storm water around the access road to prevent erosion.</li> <li>■ Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed areas.</li> <li>■ Repair rutting and erosion of the access road caused as a direct result of the mining activities.</li> <li>■ Prevent the overloading of the trucks and file proof of load weights for auditing by relevant officials.</li> <li>■ Restrict the speed of all mining equipment/vehicles to 40 km/h on the access roads.</li> </ul>	<p>Applicable throughout operational phase.</p> <ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> <li>■ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>
<ul style="list-style-type: none"> <li>■ Site establishment &amp;</li> </ul>	<p><u>Fire Management</u></p>	<ul style="list-style-type: none"> <li>■ Fire fighting equipment.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> </ul>	<p>Applicable throughout site establishment, and operational phase.</p>

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<p>infrastructure development.</p> <ul style="list-style-type: none"> <li>■ Stripping and stockpiling of topsoil and/or overburden.</li> <li>■ Excavation, loading and hauling material from site.</li> <li>■ Stockpiling and transporting of material.</li> <li>■ Sloping and landscaping during rehabilitation phase.</li> </ul>		<ul style="list-style-type: none"> <li>■ Fire fighting training for employees.</li> </ul>	<ul style="list-style-type: none"> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Do not permit open fires on site. Only make fires within the areas and for purposes approved by the ECO.</li> <li>■ Ensure fire prevention facilities are present at all hazardous storage facilities.</li> <li>■ Ensure adequate fire-fighting equipment is available and train workers on how to use it.</li> <li>■ Ensure that all workers on site know the proper procedure in case of a fire occurring on site.</li> <li>■ Do not permit smoking in areas considered to be a fire hazard.</li> </ul>	<ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> <li>■ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>
<ul style="list-style-type: none"> <li>■ Sloping and landscaping during rehabilitation.</li> </ul>	<p><u>Topography:</u></p> <ul style="list-style-type: none"> <li>■ Landscaping of mining area.</li> </ul>	<ul style="list-style-type: none"> <li>■ Earthmoving equipment to reinstate mined-out areas.</li> <li>■ Indigenous grass mix to be established on reinstated area.</li> </ul>	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> <li>■ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.</li> <li>■ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.</li> </ul> <p><u>Role:</u></p> <ul style="list-style-type: none"> <li>■ Use the excavated area for the final depositing of overburden.</li> </ul>	<p>Applicable throughout decommissioning phase.</p> <ul style="list-style-type: none"> <li>■ Daily compliance monitoring by site management.</li> <li>■ Annual compliance monitoring of site by an Environmental Control Officer.</li> </ul>

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
		<ul style="list-style-type: none"> <li>■ Erosion control infrastructure (when needed).</li> </ul>	<ul style="list-style-type: none"> <li>■ Dump rocks and coarse material removed from the excavation into the excavation.</li> <li>■ Remove coarse natural material used for the construction of ramps and dump it into the excavations.</li> <li>■ Remove stockpiles during the decommissioning phase, rip the area and return the topsoil to its original depth to provide a growth medium.</li> <li>■ Do not permit any waste to be deposited into the excavations.</li> <li>■ Return the previously stored topsoil to its original depth, once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures.</li> <li>■ If necessary, fertilize the area to allow vegetation to establish rapidly. Seed the site with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within six months from closure of the site.</li> <li>■ If required by the Regional Manager (DMRE) the soil must be analysed and any deleterious effects on the soil arising from the mining operation must be corrected and the area be seeded with a vegetation seed mix to his/her specification.</li> <li>■ On completion of operations, deal with all structures or objects in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).</li> <li>■ On completion of mining operations, scarify the surface of all plant-, stockpiling-, and/or office areas, if</li> </ul>	

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<p>compacted due to hauling and dumping operations, to a depth of at least 200mm and graded it to an even surface condition. Where applicable/possible return topsoil to its original depth over the area.</p> <ul style="list-style-type: none"> <li>■ Align the rehabilitation with the guidelines proposed in the 2023 TBIA.</li> </ul>	

**l) Indicate the frequency of the submission of the performance assessment/environmental audit report.**

The Environmental Audit Report in accordance with Appendix 7 as prescribed in Regulation 34 of the EIA Regulations, 2014 (as amended) will annually be submitted to DMRE for compliance monitoring purposes or in accordance with the period stipulated by the Environmental Authorisation.

**m) Environmental Awareness Plan**

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

Once the Applicant received the mining permit and may commence with the proposed activity, a copy of the Environmental Management Programme will be handed to the site manager for his perusal. Issues such as the mining boundaries, fire principals and hazardous waste handling will be discussed.

An induction meeting will be held with all the site workers to inform them of the Basic Rules of Conduct regarding the environment.

**ii) Manner in which risk will be dealt with in order to avoid pollution or the degradation of the environment.**

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

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

**Site Management:**

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

**Water Management and Erosion:**

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

### **Waste Management:**

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

### **Hazardous Waste Management (Petrol, Oil, Diesel, Grease)**

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

### **Discoveries:**

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

### **Air Quality:**

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

### **Driving and Noise:**

- Use only approved access roads.
- Respect speed limits.
- Only use turn-around areas – no crisscrossing through undisturbed areas.
- Avoid unnecessary loud noises.

- Report or repair noisy vehicles.

■ **Vegetation and Animal life:**

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

■ **Fire Management:**

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

**n) Specific information required by the Competent Authority**

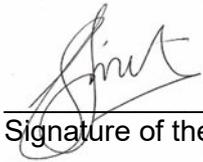
(Among others, confirm that the financial provision will be reviewed annually)

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

## 2. 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&AP's
- c) the inclusion of inputs and recommendations from the specialist reports where relevant, a
- d) that the information provided by the EAP to interested and affected parties and any response by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein



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Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

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Name of Company:

6 May 2024

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Date:

# UNDERTAKING

I..... the undersigned and duly authorised thereto by.....*Raubex KZN (Pty) Ltd*.....

Company / ~~Closed Corporation~~ / Municipality or Council  
(Delete whichever is not applicable)

hereby undertake to implement all the aspects contained in the BAR and EMPR / ~~EIA and EMPR~~ and accept full responsibility, therefore.  
(Delete whichever is not applicable)

SIGNED at ..... this ..... day ..... 2023

## **FINAL DOCUMENT TO BE SIGNED BY APPLICANT**

---

SIGNATURE

### **WITNESSES:**

1.....

2.....

---

Official use

### **APPROVAL**

Approved in terms of the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998), as amended.

SIGNED at ..... this ..... day ..... 202.....

---

**REGIONAL MANAGER  
KWAZULU-NATAL**

Undertaking/eg

**-END-**

**APPENDIX A**  
**REGULATION 2(2) MINE MAP**



# APPENDIX B

## LOCALITY AND LAND USE MAP



# APPENDIX C

## SITE ACTIVITIES PLAN



# APPENDIX D

## REHABILITATION PLAN



**APPENDIX E1 & E2**  
**COMMENTS AND RESPONSE REPORT**  
**&**  
**PROOF OF PUBLIC PARTICIPATION**



# APPENDIX F

## SUPPORTING IMPACT ASSESSMENT



## ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, herewith please receive an environmental impact statement that summarises the impact that the proposed activity may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

<b>ENVIRONMENTAL IMPACT STATEMENT</b>			
<b>SITE ESTABLISHMENT &amp; INFRASTRUCTURE DEVELOPMENT</b>			
<u><b>TYPE OF IMPACT</b></u>	<u><b>DURATION</b></u>	<u><b>LIKELIHOOD</b></u>	<u><b>SIGNIFICANCE</b></u>
<ul style="list-style-type: none"> <li>■ Loss of agricultural land for duration of mining.</li> <li>■ Alteration of natural environment and habitat loss.</li> <li>■ Visual intrusion because of site establishment.</li> <li>■ New job opportunities because of the mining operation (Positive Impact)</li> </ul>	<b>Duration of site establishment phase (±1 month)</b>	<b>Definite</b> <b>Definite</b> <b>Definite</b> <b>Definite (+)</b>	<b>Medium Concern</b> <b>Low Concern</b> <b>Low-Medium Concern</b> <b>High (+)</b>
<b>STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN</b>			
<ul style="list-style-type: none"> <li>■ Visual intrusion caused by mining activities.</li> <li>■ Loss of stockpiled topsoil during mining and stockpiling.</li> <li>■ Dust nuisance because of the disturbance of soil.</li> <li>■ Noise nuisance generated by earthmoving machinery.</li> <li>■ Infestation of the topsoil heaps and mining area with weeds or invader plant species.</li> <li>■ Potential increase in runoff from bare areas and associated accelerated erosion.</li> <li>■ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages.</li> </ul>	<b>Duration of site establishment phase (±1 month)</b>	<u><b>LIKELIHOOD</b></u>  <b>Definite</b> <b>Low Possibility</b> <b>Low Possibility</b>  <b>Low Possibility</b>  <b>Low Possibility</b>  <b>Low Possibility</b>  <b>Low Possibility</b>	<u><b>SIGNIFICANCE</b></u>  <b>Low-Medium Concern</b> <b>Low Concern</b> <b>Low Concern</b>  <b>Low Concern</b>  <b>Low Concern</b>  <b>Low Concern</b>
<b>EXCAVATION, LOADING AND TRANSPORTING OF MATERIAL</b>			
<ul style="list-style-type: none"> <li>■ Visual intrusion associated with the excavation activities.</li> </ul>	<b>Duration of operational phase</b>	<u><b>LIKELIHOOD</b></u>  <b>Definite</b>  <b>Low Possibility</b>	<u><b>SIGNIFICANCE</b></u>  <b>Medium-High Concern</b>  <b>Low-Medium Concern</b>

**ENVIRONMENTAL IMPACT STATEMENT**

**SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT**

<ul style="list-style-type: none"> <li>■ Dust nuisance due to excavation and from loading and vehicles transporting the material.</li> <li>■ Noise nuisance because of the mining activities.</li> <li>■ Unsafe working environment for employees.</li> <li>■ Soil contamination from hydrocarbon spills and/or littering.</li> <li>■ Facilitation of erosion due to mining activities.</li> </ul>	<p><b>(5 years maximum)</b></p>	<p><b>Low Possibility</b></p> <p><b>Low Possibility</b></p> <p><b>Low Possibility</b></p> <p><b>Low Possibility</b></p>	<p><b>Low-Medium Concern</b></p> <p><b>Low Concern</b></p> <p><b>Low Concern</b></p> <p><b>Low Concern</b></p>
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**STOCKPILING AND TRANSPORTING OF MATERIAL**

		<b><u>LIKELIHOOD</u></b>	<b><u>SIGNIFICANCE</u></b>
<ul style="list-style-type: none"> <li>■ Dust nuisance generated at the due to stockpiling and transporting of material.</li> </ul>	<p><b>Duration of operational phase</b></p>	<p><b>Possible</b></p>	<p><b>Low-Medium Concern</b></p>
<ul style="list-style-type: none"> <li>■ Noise nuisance stemming from stockpiling and transporting of material.</li> </ul>	<p><b>(5 years maximum)</b></p>	<p><b>Low Possibility</b></p>	<p><b>Low-Medium Concern</b></p>
<ul style="list-style-type: none"> <li>■ Potential contamination of environment due to improper waste management.</li> </ul>		<p><b>Low Possibility</b></p>	<p><b>Low Concern</b></p>
<ul style="list-style-type: none"> <li>■ Infestation of the area with invader plant species.</li> </ul>		<p><b>Low Possibility</b></p>	<p><b>Low Concern</b></p>
<ul style="list-style-type: none"> <li>■ Potential increase in runoff from bare areas and associated accelerated erosion.</li> </ul>		<p><b>Low Possibility</b></p>	<p><b>Low Concern</b></p>
<ul style="list-style-type: none"> <li>■ Potential change of natural runoff and drainage patterns.</li> </ul>		<p><b>Low Possibility</b></p>	<p><b>Low Concern</b></p>
<ul style="list-style-type: none"> <li>■ Overloading of trucks impacting road infrastructure.</li> </ul>		<p><b>Low Possibility</b></p>	<p><b>Low Concern</b></p>
<ul style="list-style-type: none"> <li>■ Degradation of the access road.</li> </ul>		<p><b>Low Possibility</b></p>	<p><b>Low Concern</b></p>

**CUMULATIVE IMPACTS**

		<b><u>LIKELIHOOD</u></b>	<b><u>SIGNIFICANCE</u></b>
<p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> <li>■ Cumulative dust nuisance when borrow pit and approved spoiling area operate.</li> </ul>	<p><b>Duration of operational phase</b></p>	<p><b>Possible</b></p>	<p><b>Low-Medium Concern</b></p>
<ul style="list-style-type: none"> <li>■ Cumulative noise nuisance when borrow pit and approved spoiling area operate.</li> </ul>	<p><b>(5 years maximum)</b></p>	<p><b>Possible</b></p>	<p><b>Medium Concern</b></p>
<ul style="list-style-type: none"> <li>■ Cumulative visual impact when borrow pit and approved spoiling area are developed.</li> </ul>		<p><b>Definite</b></p>	<p><b>Medium Concern</b></p>
<ul style="list-style-type: none"> <li>■ Cumulative impact of invader plants in both the borrow pit and approved spoiling area footprints.</li> </ul>		<p><b>Low Possibility</b></p>	<p><b>Low-Medium Concern</b></p>

**ENVIRONMENTAL IMPACT STATEMENT**

**SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT**

**SLOPING AND LANDSCAPING DURING REHABILITATION**

	<b>Duration of decommissioning phase (±1 month)</b>	<b><u>LIKELIHOOD</u></b>	<b><u>SIGNIFICANCE</u></b>
<ul style="list-style-type: none"> <li>■ Safety risk posed by un-sloped areas.</li> <li>■ Erosion of returned topsoil after rehabilitation.</li> <li>■ Infestation of the reinstated areas by weeds and invader plant species.</li> <li>■ Exposed disturbed area with no indigenous vegetation upon closure.</li> <li>■ Potential impact associated with litter/waste left at the mining area.</li> <li>■ Return of the mining area to agricultural use upon closure (Positive Impact)</li> </ul>		<p><b>Low Possibility</b></p> <p><b>Low Possibility</b></p> <p><b>Low Possibility</b></p> <p><b>Low Possibility</b></p> <p><b>Low Possibility</b></p> <p><b>Definite (+)</b></p>	<p><b>Low Concern</b></p> <p><b>Low Concern</b></p> <p><b>Low Concern</b></p> <p><b>Low Concern</b></p> <p><b>Low Concern</b></p> <p><b>Medium-High (+)</b></p>

**APPENDIX G**  
**FINANCIAL AND TECHNICAL**  
**COMPETENCE**



# APPENDIX K

## CLOSURE PLAN



**APPENDIX H**  
**INVASIVE PLANT SPECIES MANAGEMENT**  
**PLAN**



# APPENDIX I

## PHOTOGRAPHS OF THE PROPOSED SITE



**APPENDIX J**  
**CV AND EXPERIENCE RECORD OF EAP**



# APPENDIX K

## CLOSURE PLAN



**APPENDIX L**  
**NOTICE OF INTENT TO DEVELOP**



# **APPENDIX M**

## **SCREENING REPORT**