

# BASIC ASSESSMENT REPORT 2023

**PREPARED FOR: WONDERBOOM NORITE (PTY)**

GP 30/5/1/1/2/10473 MP

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# mineral resources & energy

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

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## BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

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<b>NAME OF APPLICANT:</b>	Wonderboom Norite (Pty) Ltd
<b>TELEPHONE NUMBER:</b>	012 548 0317
<b>FAX NUMBER:</b>	086 607 3097
<b>POSTAL ADDRESS:</b>	934 Stangeria Road, Montana Park, Pretoria, 0182
<b>PHYSICAL ADDRESS:</b>	934 Stangeria Road, Montana Park, Pretoria, 0182
<b>FLIE REFERENCE NUMBER:</b>	GP 30/5/1/1/2/10473 MP

## 1. IMPORTANT NOTICE

- In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.
- Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation, or damage to the environment.
- In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable, or instructions or guidance provided by the competent authority to the submission of applications.
- It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.
- It is furthermore an instruction that the Environment 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.

## 2. Objective of the basic assessment process

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

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

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# TABLE OF CONTENTS

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1	Contact Person and correspondence address .....	6
1.1	Details of the EAP .....	6
1.2	The qualifications and Expertise of the EAP and Pas Experience.....	7
2	Location of the overall Activity. ....	7
3	Locality map .....	8
4	Description of the scope of the proposed overall activity. ....	9
4.1	Listed and specified activities .....	10
4.2	Description of the activities to be undertaken .....	10
5	Policy and Legislative Context .....	10
6	Need and desirability of the proposed activities. ....	11
7	Motivation for the overall preferred site, activities, and technology alternative. ....	11
8	Full description of the process followed to reach the proposed preferred alternatives within the site.....	11
8.1	Details of the development footprint alternatives considered.....	11
8.1.1	the property on which or location where it is proposed to undertake the activity. ....	12
8.1.2	the type of activity to be undertaken. ....	12
8.2	the design or layout of the activity. ....	12
8.2.1	the technology to be used in the activity. ....	12
8.2.2	the operational aspects of the activity; and .....	12
8.2.3	the option of not implementing the activity.....	13
8.3	Details of the Public Participation Process Followed .....	13
8.4	Summary of issues raised by I&As .....	14
8.5	The Environmental attributes associated with the alternatives. (The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical, and biological aspects) .....	16
8.5.1	Baseline Environment.....	16
8.6	Impacts and risks identified including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts can be mitigated. ....	18
8.7	Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks.....	19
8.7.1	Extent .....	19
8.7.2	Duration.....	19
8.7.3	Severity.....	20
8.7.4	Degree of certainty.....	20
8.7.5	Probability .....	20
8.7.6	Significance.....	20
8.8	The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.....	22
8.9	The possible mitigation measures that could be applied and the level of risk. ....	23
8.9.1	Mitigation and management measures for bio-physical issues:.....	24
9	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. ....	28
10	Assessment of each identified potentially significant impact and risk. ....	29
11	Summary of specialist reports. ....	41
12	Environmental impact statement.....	41
12.1	Summary of the key findings of the environmental impact assessment. ....	41
12.2	Final Site Map.....	41

12.3	Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.....	41
13	Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr.....	42
13.1	Ecological environment.....	42
13.2	Landforms and soils.....	42
13.3	Surface water:.....	43
13.4	Groundwater:.....	44
13.5	Aesthetic environment:.....	44
13.6	Noise:.....	44
13.7	Air quality:.....	45
13.8	Health, safety, and security hazards:.....	45
14	Aspects for inclusion as conditions of Authorisation.....	45
15	Description of any assumptions, uncertainties, and gaps in knowledge.....	46
16	Reasoned opinion as to whether the proposed activity should or should not be authorised.....	46
16.1	Reasons why the activity should be authorized or not.....	46
16.2	Conditions that must be included in the authorisation.....	46
17	Period for which the Environmental Authorisation is required.....	46
18	Undertaking.....	46
19	Financial Provision.....	46
19.1	Explain how the aforesaid amount was derived.....	46
19.2	Confirm that this amount can be provided for from operating expenditure.....	46
20	Specific information required by the competent authority.....	46
20.1	Compliance with the provisions of sections 24(4)(a) and (b) read with section 24(3)(a) and (7) of the National Environmental Management Act, 107 of 1998. The EIA report must include the:.....	46
20.1.1	Impact on the Socio-economic conditions of any directly affected person.....	47
20.1.2	Impact on any National Estate referred to in section 3(2) of the National Heritage Resources Act 25 of 1999.....	47
21	Other matters required in terms of sections 24(4)(a) and (b) of the Act.....	47
1	Details of the EAP.....	48
2	Description of the Aspects of the Activity.....	48
3	Composite Map.....	48
4	Description of Impact management objectives including management statements.....	48
4.1	Determination of closure objectives.....	48
4.2	Volumes and rate of water use required for the operation.....	48
4.3	Has a water use licence has been applied for?.....	48
4.4	Impacts to be mitigated in their respective phases.....	49
4.5	Impact Management Outcomes.....	56
4.6	Impact Management Actions.....	67
5	Financial Provision.....	75
5.1	Determination of the amount of Financial Provision.....	75
5.2	Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.....	75
5.3	Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.....	75
5.4	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.....	75
5.5	Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.....	75
5.6	Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.....	75
5.7	Confirm that the financial provision will be provided as determined.....	75

5.7.1	Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including. ....	76
6	Indicate the frequency of the submission of the performance assessment/ environmental audit report. ....	78
6.1	Internal Performance Audits .....	78
6.2	External Compliance Audits.....	78
7	Environmental Awareness Plan .....	78
7.1	Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work. ....	78
7.2	Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment. ....	79
8	Specific information required by the Competent Authority .....	79
9	Undertaking.....	79

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# PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

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## 1 Contact Person and correspondence address

### 1.1 Details of the EAP

Name of The Practitioner: Corrie Retief

Cell : 0828522134

e-mail address: corrieretief2@gmail.com

#### **Summary of the EAP's past experience.**

Corrie Retief is an Environmental Scientist with more than 16 years of experience in applying the principles of Integrated Environmental Management, and in applying the Environmental Legislation to a number of development projects and initiatives in Southern Africa. He has co-ordinated and managed a number of diverse projects and programs related to the Environment and Waste within both the public and private sectors for national, multi-national and international companies. His interpersonal and organisational skills have enabled him to efficiently direct these projects from initiation to implementation. Furthermore his training in sustainability and sustainable project delivery has helped him to deliver profitable sustainability into customers operations throughout the asset lifecycle.

A significant element of public participation is required throughout the life cycle of an EIA process. Corrie has successfully liaised with interested and affected parties, ensuring that all communication procedures and dialogues are open and transparent, and that capacity building is conducted where necessary. His proficient report-writing skills have been utilised for the compilation of a wide variety of reports, which include but is not limited to Basic Assessment Reports, Scoping and Environmental Impact Assessment Reports, Environmental Management Plans (Planning, Construction, Operation and Closure), Environmental Audit Reports, Opportunities and Constraints Analyses, Feasibility studies, Waste License Applications, Water-Use Application Reports and Mining Right Applications.

The EAP has experience in the following disciplines:

- Environmental risk assessments;
- Environmental site screening, investigation and evaluations;
- Environmental legal screenings;
- Environmental feasibility studies;
- Environmental impact assessments;
- Basic assessments;
- Environmental compliance auditing;

- Compilation, implementation and monitoring of environmental management plans;
- Waste Management;
- Waste Disposal site selection screenings;
- Waste license applications;
- Water-Use License Applications;
- Mining Right applications; and
- Managing and facilitating public participation.

## 1.2 The qualifications and Expertise of the EAP and Pas Experience

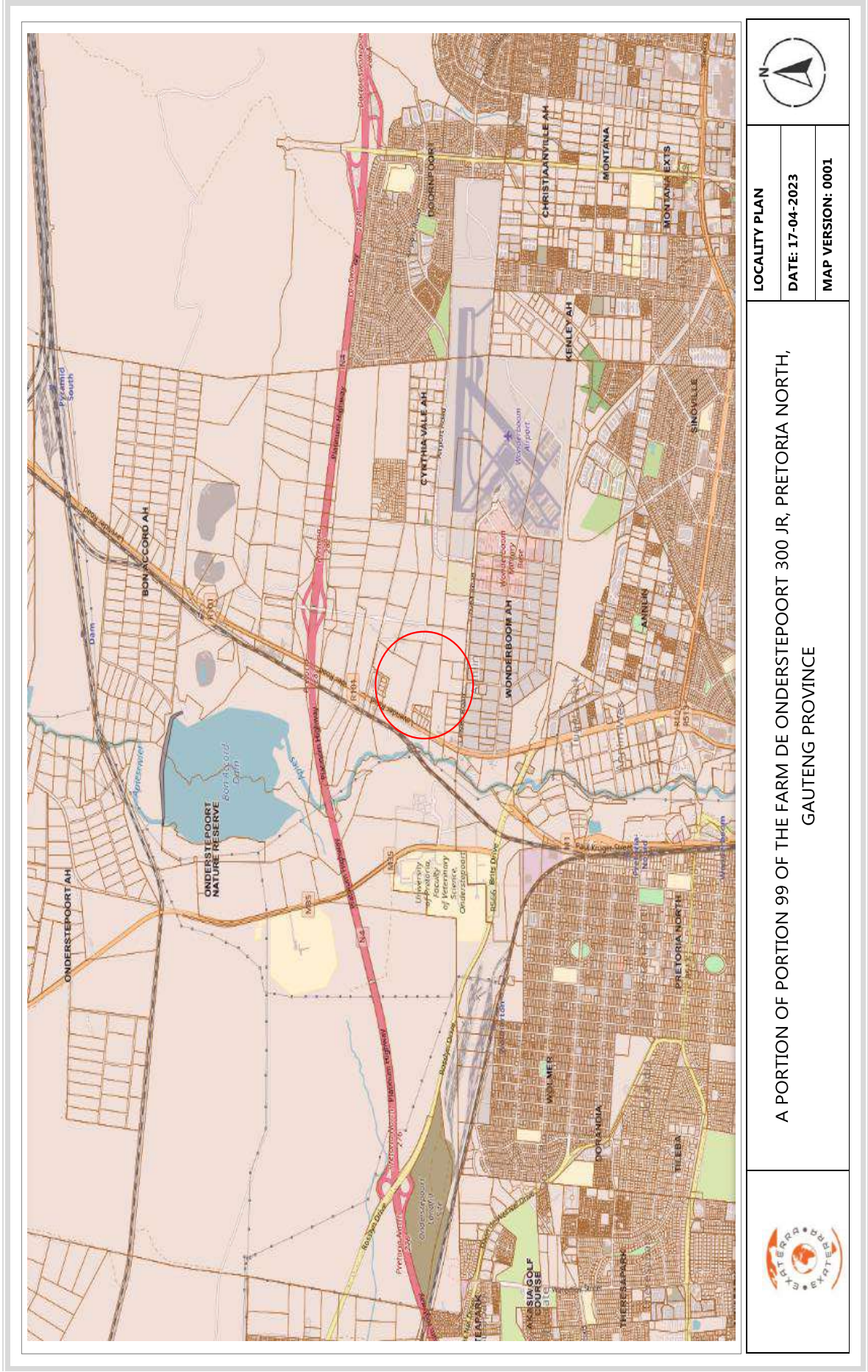
The qualifications and expertise as well as past experience if the EAP is contained in the complete declaration attached hereto as **Annexure 1**.

## 2 Location of the overall Activity.

Farm Name:	A Portion of Portion 99 of the farm De Onderstepoort 300JR
Application area (Ha)	5ha
Magisterial district:	Annlin
Distance and direction from nearest town	Annlin (City of Tshwane Metropolitan Municipality)
21-digit Surveyor General Code for each farm portion	TOJR00000000009900300



3 Locality map



**LOCALITY PLAN**  
**DATE: 17-04-2023**  
**MAP VERSION: 0001**

A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEPOORT 300 JR, PRETORIA NORTH,  
 GAUTENG PROVINCE

Figure 1 - Locality Map

4 Description of the scope of the proposed overall activity.



Figure 2 - Site Layout Map



#### 4.1 Listed and specified activities

Name of activity	Aerial extent of the activity Ha or m <sup>2</sup>	Listed Activity Mark with an X.	Applicable listing notice
Excavation - The applicant is submitting an application for a mining permit for 5ha for norite, aggregate, and gravel in terms of section 27 of the MPRDA in respect of a Portion of Portion 99 of the farm De Onderstepoort 300 JR.	5ha	X	Listing Notice 1 Activity 21 GNR983

#### 4.2 Description of the activities to be undertaken

The applicant is applying for a Mining Permit in terms of Section 27(2) of the MPRDA. The proposed licence application will be 5ha. A quarry will be dug adjacent to the current mine bordering the property to a total mining area of 5ha. No permanent surface infrastructure will be constructed on site. Access to the site currently exists via Lavender Road and the K97 located east and west of the property boundaries. During the mining and excavation process the area will be partially backfilled concurrently with mining. The end land use will be the subdivision of the property into 3 new properties that will be developed for commercial use.

The following activities will take at the proposed development site:

- Use of existing access road.
- Mine site demarcation.
- Clearing of vegetation for the establishment of the open pit.
- Separation of topsoil and subsoil storage mounds within the proposed site boundary.
- Establishment of the open pit and mining of sand.
- Movement of vehicles for the purpose of dust abatement, transport of fuel and equipment, waste removal, sewage removal and transport of material from site.
- Concurrent site rehabilitation
- No staff will be staying on the site.

#### 5 Policy and Legislative Context

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context
Mineral Petroleum Development Resources Act	Part A1(k) Part B1(e)	A mining right in terms of Section 27 of the MPRDA has been applied for.
National Environmental Management Act	Part A1(k) Part B1(e)	An application for Environmental Authorisation has been submitted and a Basic Assessment Report has been completed.
National Environmental Management: Air Quality Act	Part A1(k) Part B1(e, f, g, h)	No Atmospheric Emissions Licence will be required. Dust monitoring at the site will be necessary and is written into the EMPr
National Environmental Management: Waste Act	Part A1(k) Part B1(e)	No waste licence will be required.
National Water Act	Part A1(k) Part B1(d) Part B1(e)	No water licence will be required.
National Heritage Resources Act	Part A1(k) Part B1(e)	No permits in terms of the NHRA will be required.
National Dust Control Regulations, 2013 (published in GNR 827 in GG 36974 of 1 November 2013),	Part A1(k) Part B1(e, f, g, h)	Dust control and monitoring at the site will continue to follow these regulations.

## 6 Need and desirability of the proposed activities.

NEED:			
1.	Was the relevant provincial planning department involved in the application?	YESV	NO
2.	Does the proposed land use fall within the relevant provincial planning framework?	YESV	NO

DESIRABILITY:			
1.	Does the proposed land use / development fit the surrounding area?	YESV	NO
2.	Does the proposed land use / development conform to the relevant structure plans, SDF, and planning visions for the area?	YESV	NO
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YESV	NO
4.	Will the proposed land use / development impact on the sense of place?	YES	NOV
5.	Will the proposed land use / development set a precedent?	YES	NOV
6.	Will any person's rights be affected by the proposed land use / development?	YES	NOV
7.	Will the proposed land use / development compromise the "urban edge"?	YES	NOV

BENEFITS:			
1.	Will the land use / development have any benefits for society in general?	YESV	NO
2.	The material is used for road construction and building material.		
3.	Will the land use / development have any benefits for the local communities where it will be located?	YESV	NO
4.	At least 3 people are employed by the operation.		

## 7 Motivation for the overall preferred site, activities, and technology alternative.

The proposed site was chosen due to its location within an industrial area. The site has been degraded due to illegal dumping. Research also showed that the sand at the proposed site is suitable for use in the building and road construction industries.

The applicant is applying for a Mining Permit in terms of Section 27(2) of the MPRDA. The proposed licence application will be 5ha. A quarry will be dug adjacent to the current mine bordering the property to a total mining area of 5ha. No permanent surface infrastructure will be constructed on site. Access to the site currently exists via Lavender Road and the K97 located east and west of the property boundaries. During the mining and excavation process the area will be partially backfilled concurrently with mining. The end land use will be the subdivision of the property into 3 new properties that will be developed for commercial use.

The proposed mining will take place through the establishment of a quarry, utilising an excavator and a front-end loader. Due to the small size of the proposed development, it is not practical or economical to make use of larger and more expensive equipment.

The screening tool was used in determining the location of the final site layout. The screening tool assessment as attached hereto as **Annexure 2**.

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

### 8.1 Details of the development footprint alternatives considered.

With reference to the site plan provided in figure 2 above 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

### **8.1.1 the property on which or location where it is proposed to undertake the activity.**

The proposed activity will take place on a Portion of Portion 99 of the farm De Onderstepoort 300JR. This property was chosen for the following reasons:

- The sand at this location is suitable for the mining process and suitable for use in the building industry.
- Access to the site already exist.
- Temporary infrastructure for storage exist at the adjacent portion belonging to the applicant and no infrastructure will be erected.
- The vegetation at the site is completely transformed.

### **8.1.2 the type of activity to be undertaken.**

The proposed activity will entail the excavation of an open pit. This activity was chosen above other methods for the following reasons:

- The site to be mined is relatively small.
- The site is currently heavily impacted by illegal dumping and alien vegetation. It will be more economical for the owner to excavate the open pit and then rehabilitate the site to a level that is compatible with the proposed end land use.

### **8.2 the design or layout of the activity.**

The proposed site layout consist only of a open pit and storing of topsoil.

#### **8.2.1 the technology to be used in the activity.**

The proposed mining will take place through excavation of an open pit. The total open pit area will be approximately 5ha in extent. Vegetation will be cleared from the site. Any seed and plant material will be mulched into the topsoil. Topsoil will be stripped to a depth of 200mm and stockpiled separately from other soil layers in piles not exceeding 1.8m in height. The open pit will be excavated by means of an excavator and loaded directly onto haul trucks. The material will be transported directly to areas for construction where it will be used. The open pit will be mined to a maximum depth of 8m (measured from ground level to terrace level) in order to prevent any possible damage to geology and interference with underground water. This operational procedure was chosen for the following reasons:

- Enough room exist on site for topsoil to be safely stacked and reused for rehabilitation.
- The site is relatively small and not suitable for other mining practices.
- All the excavated sand will be removed from the premises therefore no waste is generated on the site.
- The open pit will be excavated to a maximum of 8m in depth to prevent breaching the water table.

#### **8.2.2 the operational aspects of the activity; and**

The duration of the project will be 4 to 6 years. During this time general activities will include refuse removal from the site, movement of vehicles and heavy equipment and servicing of vehicle and equipment. The operation of the project be divided into the following phases:

- Site establishment (Pre-construction Phase) – The boundaries of the proposed mining site will be clearly demarcated and fenced to establish a safe working environment.
- Excavation – (Construction / Operational Phase) – Vegetation and topsoil will be removed to a depth of 200mm and stockpiled at the site in piles no higher than 1.8m. This will be done ongoing as mining continues and not once-off to prevent erosion and excessive dust. Material will be loosened using a ripper if necessary and an excavator will be used to remove the material. Markers will be used continuously to indicate the vertical and horizontal mining limits. A vertical slope of 1v:3h will of unmined soil will be maintained along the edge of the open pit at all times. Topsoil will be stockpiled only in designated areas. Backfilling of the open pit with any unused material will occur simultaneously with mining in order to prevent erosion and excessive dust.

- Rehabilitation (Decommissioning Phase) – During the final rehabilitation the backfilled material will be graded, and topsoil will be ameliorated and spread evenly. The site will be left in a state that is compatible with the proposed land use, the construction of an aboveground and underground storage facility. The rehabilitation activities can be summarised as follow:
- Unused material and subsoil will be replaced into the open pit as mining progresses during the excavation phase. During rehabilitation the remaining subsoil and material will be placed in what remains of the open pit and the soil will be levelled and graded to a state that is compatible with the end land use.
- The remainder of the property that will not be used for the mining and the subsequent development will undergo clearing of alien vegetation and an ongoing alien eradication programme will be established.
- Monitoring of the site after rehabilitation will continue until the site has been establishment to the satisfaction of the ECO.

### **8.2.3 the option of not implementing the activity.**

If the proposed activity is not implemented, the site will continue to be used for the cultivation of grass. This will have a minimal environmental impact but will have less of an economic advantage to the owner.

### **8.3 Details of the Public Participation Process Followed**

Interested and Affected parties as well as Stakeholders were informed of the proposed project by email on 22 February 2023, which email included the contact details of the appointed EAP, the location, and proposed activities to be conducted and a request to register as an interested and or affected party or stakeholder to ensure that the application is transparent and that it is properly circulated for commenting purposes.

A newspaper advertisement was placed in the Beeld newspaper that appeared in the newspaper on 28 February 2023 to further notify all potential interested and or affected parties and or stakeholders of the proposed project and information on how to register and obtain further information.

A site notice with all the above information was place at the two main entrances to the property on 22 February 2023 namely: On the western boundary of the property next to Lavender Road and on the eastern boundary of the property next to the K97 road.

An interested and affected persons and stakeholder database was generated to include all comments received and addressed.

The complete public participation process documents are attached to this report as **Annexure 3**.

## 8.4 Summary of issues raised by I&Aps

Interested and Affected Parties	Date Comments Received	Issues raised	EAP response to issues as mandated by the applicant	Section of reference in this report
<b>Affected parties</b>				
<b>Landowner/s</b>				
Prospect SA Investments 106 (Pty) Ltd	X 22-02-2023	No objection to the mining permit application and consented to the application	None	None
<b>Lawful occupier/s of the land</b>				
Prospect SA Investments 106 (Pty) Ltd	X 22-02-2023	No objection to the mining permit application and consented to the application	None	None
<b>Landowners or lawful occupiers on adjacent properties</b>				
Mr J Booysen 631 Lavender Road De Onderstepoort 0182	X 22-02-2023	None	None	None
Dynamic Diesel Investments (Pty) Ltd 393 Kariëga Street Erasmuskloof 0181	X 22-02-2023	None	None	None
Mr HS Steyn 91 Linvelt Road Onderstepoort 0182	X 22-02-2023	None	None	None
Mr G.A.Geddie 89 Linvelt Road Onderstepoort 0182	X 22-02-2023	None	None	None
Westroute Trading 172 CC Portion 90 of the Farm De Onderstepoort 0182	X 22-02-2023	None	None	None
<b>Municipal councillor</b>				
Mrs L Breytenbach	X 22-02-2023	None	None	None
Mr Ge Breytenbach 082 436 9069 cotward96@gmail.com	X 23-03-2023	None	None	None
<b>Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA)</b>				
Department of Water & Sanitation	X 22-02-2023	None	None	None

Interested and Affected Parties	Date Comments Received	Issues raised	EAP response to issues as mandated by the applicant	Section of reference in this report
Sediberg House 185 Francis Baard Street Pretoria 0001				
South African Heritage Resources Agency Office 101, 1st Floor, Suncardia Mall 541 Madiba Street Pretoria 0001	22-02-2023	None	None	None
Gauteng Department of Agriculture and Rural Development 56 Eloff Street Umnotho House Johannesburg 2000	22-02-2023	None	None	None
Department of Environmental Affairs Environmental House 473 Steve Biko Road Arcadia 0083	22-02-2023	None	None	None



**8.5 The Environmental attributes associated with the alternatives. (The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical, and biological aspects)**

**8.5.1 Baseline Environment**

**8.5.1.1 Type of environment affected by the proposed activity.**

**Locality**

The study area is located on Portion 99 (Portion of Portion 97) of the farm De Onderstepoort 300JR in Tshwane Metropolitan District, Gauteng Province. The site is located approximately 4km north of Onderstepoort Nature Reserve and 1.5km east of the M35. The precise location is 25°34'32.1" S; 28°10'35.4" E.

**Land Uses**

The study area is situated within an area of smallholdings directly north of Annlin. The area is mostly used for small scale agricultural and industrial purposes. The property is currently not being used, except for illegal dumping activities. The proposed mining will take place in a corner of the property that has been transformed by dumping and small-scale industrial uses.

**Climate**

The site falls within climate zone 580S. The area receives an average rainfall of 573mm annually with January being the wettest month (average - 110mm) and June the driest (average - 0mm). Maximum temperature ranges from lowest average in June (18.3°C) to highest average in January (27.5°C). Minimum temperature is at its lowest average in July (1.7°C). Mean annual evaporation is between 1 600 and 1 800mm. The main wind direction is from the Northeast and the average wind speed is 1.96m/s. The relative humidity of the study area at 14:00 fluctuates between 33% in July and 48% in February.

**Vegetation**

The proposed development site falls within the Marikana Thornveld (Mucina and Rutherford, 2006) which is considered an Endangered vegetation type. It should be noted that the 5ha that forms part of the application has been largely transformed and is suffering from heavy alien vegetation infestation.

**Sensitive habitats**

The proposed site is classified as an Ecological Support Area and the vegetation type that would naturally occur at the site is classified as Endangered. It should be noted that the 5ha that forms part of the application has been largely transformed and is suffering from heavy alien vegetation infestation. The area under application is located 750m east of the Apies River. It is however separated from the river by the R101 and with adequate storm water management should have an impact on the river.

**Topography**

The site is located within an area classified as a moderately undulating plain.

**Surface Water**

The study area is located within the quaternary drainage region A23E, situated within the Crocodile (West) and Marico Catchment Management area. The site drains mainly by means of surface run-off with surface water flowing towards the external road infrastructure and the R101. It is located 750m east of the Apies River and is separated from the Apies River by the R101. The flat terrain and mining activities occurring on site will cause localised ponding of water after precipitation events. A proper surface storm water management system will be required, should the mining operations be approved. The applicant will need to abide by the

approved EMP conditions regarding the storage of hazardous materials and handling of spillages to ensure that possible contamination is prevented.

#### **Groundwater**

Approximately 350m<sup>3</sup> per month of water is needed for dust control at the site. This water will mainly be sourced from rainwater collecting in the current open pit. If additional water is necessary from boreholes, this water use will need to be registered with the Department of Water and Sanitation.

#### **Geology and soils**

The area falls entirely within Land Type Fa4, and geology consist predominantly of red granite of the Bushveld Complex. It does not reflect any risk for the formation of sinkholes or subsidence caused by the presence of water-soluble rocks (dolomite or limestone). The majority of the site is typified by the presence of Glenrosa and / or Mispah soil forms.

#### **Noise**

The site is situated in an area which is mainly used for agriculture and industrial developments. The noise level in the area is not excessive and can be characterised as typical for a community of this size. Operations at the site will be restricted to normal working hours, Monday to Friday.

#### **Air quality**

Air quality should not be impacted as long as adequate dust control measures are put in place. It will however be necessary to monitor air quality regularly and include findings in six-monthly audit reports.

#### **Historical and archaeological environment**

No objects of historical or archaeological importance could be seen at the site. Should any such objects be discovered during the proposed activity, all operation within 100m of such object should cease immediately and an expert called in to access the situation and advice on the correct action.

#### **Aesthetic environment**

Refer to **Annexure 4**.

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

Potential impact	Significance		Probability	Duration	Status
	Without mitigation	With mitigation			
Construction / Operational Phase					
Acceleration of erosion and loss of topsoil at cleared areas	Low	Very low	Probable	Short	Negative
Soil pollution caused by leakages and spills from vehicles and littering	Low	Very low	Probable	Short	Negative
Contamination of soils as a result of leaks or spills from temporary storage area for oil and chemicals	Low	Very low	Probable	Short	Negative
Increased turbidity as a result of storm water run-off from cleared areas and roads	Low	Very low	Probable	Short	Negative
Contamination of surface water caused by the storage and disposal of construction and domestic waste	Low	Very low	Improbable	Short	Negative
Chemical pollution of water as a result of leaks or spills from vehicles	Low	Very low	Probable	Short	Negative
Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material) by means of wind and rain	Low	Very low	Probable	Short	Negative
Added pressure on water resources	Low	Very low	Probable	Short	Negative
Loss of sense of place	Low	Very low	Probable	Short	Negative
Visual disturbance to surrounding residents as a result of the temporary structures and mining activities	Low	Very low	Probable	Short	Negative
Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route	Low	Very low	Probable	Short	Negative
Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property	Low	Very low	Probable	Short	Negative
Increased levels of noxious gas emissions from construction vehicles and machinery	Low	Very low	Probable	Short	Negative
Increase in dust levels, especially during the dry and windy season	Low	Very low	Probable	Short	Negative
Loss of human lives as a result of mining activities and the movement of construction vehicles on site	Medium	Low	Improbable	Temporary	Negative
Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site	Medium	Low	Probable	Temporary	Negative
Increased criminal activities	Low	Very low	Improbable	Short	Negative
Increasing environmental awareness by educating community and contractors on the outlines of the EMP	Medium	N/A	Highly probable	Short	Positive
Degradation of access road	Low	Low	Probable	Short	Negative
Loss of available agricultural land	Very low	Very low	Improbable	Temporary	Negative
DECOMMISSIONING PHASE					
The introduction and spreading of exotic invasive weed species at cleared areas	Medium	Low	Probable	Medium	Negative
The rehabilitation process will enhance the scenic beauty of the area	Very high	N/A	Probable	Long	Positive
Excessive dust generation along access roads and rehabilitated areas because of erosion etc.	Low	Very low	Probable	Temporary	Negative

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

A detailed methodology for the assessment of impact significance is provided in section 9 of this report. The nature of each impact will detail any environmental loss/deterioration and the resulting social impacts. The assessment will consider the following aspects:

- 1) Extent
- 2) Duration
- 3) Intensity.
- 4) Probability.
- 5) Degree of certainty.
- 6) Significance.

In the process of identifying and describing impacts, one must recognise that the determination of impact significance is inherently a concept that centres on the impact or influence it will have on mankind and society. In order to ensure uniformity, a standard impact assessment methodology has been utilised so that a wide range of impacts can be compared.

A combined quantitative and qualitative methodology was used to describe impacts in accordance with each of the criteria mentioned above. The impact assessment methodology makes provision for the assessment of impacts against the following criteria: Extent; Duration; Intensity; Probability; Degree of certainty; Significance and Status of the Impact.

A combined quantitative and qualitative methodology was used to describe impacts in accordance with each of the criteria mentioned above. A detailed description of each of the assessment criteria is given in the following sections.

**8.7.1 Extent**

The extent of the impact refers to the spatial dimension to which an impact will be felt (i.e., site, study area, local, regional, or national scale).

Table 1: Extent of Impact

Extent					
Rating	1	2	3	4	5
Description	On site or the impact will be restricted to its immediate area	Study area or the impact will be restricted to the site or route	Local or the impact will affect an area up to 5 km from the site and route	Regional/Provincial or the impact will be felt on a Local, district municipal or	National/International or the maximum extent of any impact

**8.7.2 Duration**

In order to accurately describe the impact, it is necessary to understand the duration and persistence of an impact in the environment.

Table 2: Duration of Impact

Duration					
Rating	1	2	3	4	5
Description	Temporary or the impact will occur very sporadically or less than 1 year from commencement of activity	Short-term or the impact will continue to occur for a period between 1 to 5 years from	Medium term or the impact will continue to occur for a period between 5 to 10 years from commencement	Long term or the impact will continue to occur for a period longer than 10 years from commencement of	Permanent or the impact will be continued until the conclusion of activity

### 8.7.3 Severity

A description must be given as to whether an impact is destructive, or benign. It determines whether the intensity of the impact on the natural environment or society is permanently, significantly changes its functionality, or slightly alters it. The mitigation potential must be determined for each impact. If limited information or expertise exists, estimates based on experience will be made.

Table 3: Severity of Impact

Severity					
Rating	1	2	3	4	5
Description	Temporary impact easily reversible. Insignificant change/deterioration or disturbance or improvement of natural and social environments	Short-term impact. Low cost to mitigate Small. Moderate change/deterioration or disturbance or improvement of natural and social environments	Medium term impact, which require substantial cost to mitigate. Potential to mitigate and potential to reverse impact. Significant change/deterioration	Long term impact. High cost to mitigate. Possible to mitigate. Very significant change/deterioration or disturbance or improvement of natural and social environments	Permanent impact. Prohibitive cost to mitigate. Little or no mechanism to mitigate. Irreversible. Disastrous change/deterioration/ disturbance or improvement of

### 8.7.4 Degree of certainty

As with all studies it is not possible to be 100% certain of all facts and for this reason a standard “Degree of certainty” scale is used as discussed in Table 4.

Table 4: Degree of certainty of impact occurrence

Degree of certainty					
Rating	1	2	3	4	5
Description	Definite or more than 90% sure of a particular fact.	Probable or between 70 and 90% sure of a particular fact, or of the likelihood of that impact occurring.	Possible or between 40 and 70% sure of a particular fact or of the likelihood of an impact occurring	Unsure or less than 40% sure of a particular fact or the likelihood of an impact occurring.	Unknown or the consultant or specialist believes an assessment is not possible even with additional research.

### 8.7.5 Probability

The criteria used for rating the likelihood of impact occurrence are described in more detail in Table 5.

Table 5: Probability of impact occurrence

Probability					
Rating	1	2	3	4	5
Description	Impossible or the impact will not occur	Improbable or the possibility of the impact occurring is very low	Probable or there is a possibility that the impact will occur, provision must be made therefore	Highly probable or it is most likely that the impact will occur at some stage	Definite or the impact will take place regardless of any prevention plans, and there can only be relied on mitigation measures to contain the impact

### 8.7.6 Significance

Evaluating the significance of environmental impacts is a critical component of impact analysis. The significance of impacts will be determined by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process.

The matrix uses the consequence and the probability of the different activities and associated impacts to determine the significance of the impacts. Consequence is determined by the total of criteria like extent, duration and severity, degree of certainty of impact as well as compliance to applicable legislation. Values of 1- 5 are assigned to each of the different criteria to determine the overall consequence, which is divided by 3 to give a criterion rating.

The overall consequence and probability rating are multiplied to give a final significance rating.

The values as shown in the following table are then used to rank the significance. It must be said however that in the end, a subjective judging of an impact can still be done, but the reasons for doing so must be qualified.

Table 6: Impact significance matrix

Significance					
Rating	Very Low	Low	Medium	High	Very high
	1-4	5-10	11-15	16-20	21-25+
Description	There is little or no impact at all	Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts: mitigation and/or remedial activity is either easily achieved or little will be required, or both. In the case of beneficial impacts, alternative means for achieving this benefit are likely to be easier, cheaper, more effective, less time	Impact is real but not substantial in relation to other impacts, which might take effect within the bounds of those which could occur. In the case of adverse impacts: mitigation and/or remedial activity are both feasible and easily possible. In the case of beneficial impacts: other means of achieving this benefit are	Impact is of substantial order within the bounds of impacts, which could occur. In the case of adverse impacts: mitigation and/or remedial activity is feasible but difficult, expensive, time-consuming or some combination of these. In the case of beneficial impacts, other means of achieving this benefit are feasible but they	Of the highest order possible within the bounds of impacts which could occur. In the case of adverse impacts: there is no possible mitigation and/or remedial activity which could offset the impact. In the case of beneficial impacts, there is no real alternative to achieving this benefit.

CONSEQUENCE	Very High	5	10	15	20	25+
	High	4	8	12	16	20
	Medium	3	6	9	12	15
	Very Low	2	4	6	8	10
	Low	1	2	3	4	5
	Value level description	Impossible	Improbable	Probable	Highly probable	Definite
	PROBABILITY					

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

The following impacts were assessed during site determination.

Impact	Advantage of site layout	Disadvantage of site layout
Habitat loss caused by vegetation clearance.	The 5ha chosen for the mining permit application has been impacted on by industrial activity, illegal dumping, and alien vegetation	
Introduction and spreading of exotic invasive weed species.	Alien vegetation will be removed as part of the mining process and an alien eradication programme will be initialised on the entire property.	
Disturbance of breeding and feeding habits of wild animals.	The remainder of the property provides habitat in a much better condition and, should any breeding animal occur on the site, it can freely move to this area.	
The loss of indigenous fauna in the area through poisoning and capturing	The site has been heavily impacted alien vegetation due to industrial activities.	
Loss of biodiversity caused by veld fires and wood harvesting		The area between the mining permit application and the RIOI consist of natural vegetation (Marikana Thornveld, classified as Endangered) in a relatively good condition and forms part of and Ecological Support Area.
Loss of indigenous flora populations caused by vegetation clearance.		The area between the mining permit application and the RIOI consist of natural vegetation (Marikana Thornveld, classified as Endangered) in a relatively good condition and forms part of and Ecological Support Area.
Acceleration of erosion and loss of topsoil caused by cleared areas.	Site is fairly level.	
Soil pollution caused by leakages and spills from vehicles and littering.	Vehicles are serviced off site.	
Contamination of soils as a result of leaks or spills from temporary storage area for oil and chemicals.	Chemicals are stored at existing site	
Increased turbidity as a result of storm water run-off from cleared areas and roads.		Storm water plan needs to be developed for entire site including existing site
Contamination of surface water caused by the storage and disposal of construction and domestic waste.	Waste is removed daily from current site.	
Chemical pollution of water as a result of leaks or spills from vehicles.	Vehicles are serviced off site.	
Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material) by means of wind or rain.	Dust control is already in place	
Added pressure on sub-surface water resources.	Water for dust control is available from rainwater in the existing open pit	
Loss of sense of place.	There is an existing open pit next to the site	
Visual disturbance to surrounding residents as a result of the temporary structures and activities.	Temporary structures at the existing site will be used. No new structures will be erected	
Elevated noise levels in the area as a result of front-end loader and the movement of hauling trucks through the site.	Activities be only taking place during working hours	
Nuisance to the surrounding residents caused by excessive movement of construction vehicles or machinery on the property.	Activities be only taking place during working hours	

Impact	Advantage of site layout	Disadvantage of site layout
Increased levels of noxious gas emissions from construction vehicles and machinery.		The site is located near houses and activities be only take place during working hours
Increase in dust levels, especially during the windy season.		
Loss of human lives as a result of construction activities and the movement of construction vehicles on site.		
Injuries to residents, road users and construction workers as a result of construction activities and the movement of construction vehicles on site.		
Increase of criminal activities.	No workers will be staying on site	
Damage to or loss of cultural and historic resources.	No historic or archaeological resources were noted at the site	
The degradation of the access road.		
Temporary loss of agricultural land.	The site is not located on cultivated land	
Increasing environmental awareness by educating community and contractors.		

**8.9 The possible mitigation measures that could be applied and the level of risk.**  
General impacts and associated mitigation:

Activity	Impact	Mitigation
Servicing of all equipment and vehicles on site.	The possible loss of topsoil and water due to the impact of pollution.	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans. Spill kits be readily available on site and in every vehicle.
Accommodation for personnel.	No accommodation facilities will be required.	No housing facilities should be erected on site.
On site sanitation	Toilet facilities are needed to prevent impacts and to ensure compliance to health and safety standards.	Ensure that the number of toilets needed is provided. Location of toilet facilities should be outside the mining area. Any spills occurring should be remediated immediately. Servicing of units is done regularly.
Refuelling (with fuel)	Refuelling of vehicles and equipment used in the mining could cause spills of fuels and oils.	Spill prevention materials should be in place at all times. Spill kits for the remediation of spills should be readily available
Refilling of water used for dust abatement	Refilling of water with the use of a water bowser	Water quality and rate of flow should be monitored regularly



## **8.9.1 Mitigation and management measures for bio-physical issues:**

### **8.9.1.1 Ecological environment**

- The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.
- Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must be kept as small as possible and must be rehabilitated as soon as possible.
- All reasonable measures should be taken to ensure that trees are not damaged. No uncontrolled collection of firewood may be allowed on the property.
- Alien invasive plants should be removed from all disturbed and subsequently rehabilitated areas.
- No open fires are allowed outside designated cooking areas.
- Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.
- No worker may disturb, hunt, set traps / snares, utilise dead or alive fauna / livestock, collect or remove firewood or medicinal plants or other plants / crops / fruit.
- Disciplinary action must be taken in the event that any flora or fauna is wilfully disturbed or killed. The landowner should also be compensated for loss of livestock.
- No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).
- Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.
- The cleared vegetation should not be burned at the site but taken to the nearest available municipal disposal site or made available to the landowner for use in a controlled manner.
- Solid waste must be kept in adequate animal proof waste bins at mining site.
- Regular clean-up programs should be put into effect along the access road and throughout the premises to limit the impact of littering caused by mining activities.
- No mining activity will be conducted within 100m buffer zone of any water course.

### **8.9.1.2 Landforms and soils**

- The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPr.
- Any electrical or petrol driven pump, used for dispensing purposes, must be equipped, and positioned so as not to present danger of ignition of the product. If fuel is to be dispensed from 200ℓ (or bigger) drums, proper dispensing equipment will need to be used (e.g., drums must not be tipped to dispense fuel).
- Refuelling can be undertaken from a mobile bowser. Small equipment, such as generators, must be refuelled in a drip tray. Refuelling operations must be avoided in sensitive areas, in particular, no refuelling operation should take place within 100m of any watercourse or dam.
- Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling.
- Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.
- The existing road infrastructure as indicated in the land use map should be used, where possible.
- The telephone number and contact details of a 24-hour response hazardous material clean-up company shall also be on site, in the unlikely event of large spills taking place.
- All hydrocarbons will be stored in leak-proof containers on drip trays. Diesel must be kept in a mobile bowser (also on drip trays) in a lockable and secured area.

- To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).
- Rehabilitation of the disturbed area will be ongoing as the project proceeds in order to prevent the erosion of soils during rainy events. Cut slopes will not be steeper than 1:2 (V:H) and must be rounded off at the top edge.
- During rehabilitation the following measures should be strictly adhered to:
- Topsoil must only be used for rehabilitation purposes and not for any other use example i.e., construction of roads.
- Topsoil must be stored on site for it to be used for rehabilitation purposes (e.g., preparation of seed bank on levelled or cleared areas). If necessary, a mixture of treated compost can be applied to assist re-growth.
- All stockpiles should be kept <1.8 m with slopes not exceeding 18 degrees.
- The duration of storage of the topsoil should be minimised as much as possible.
- The topsoil must be uniformly redistributed in a manner that assures placement and compaction compatible with the needs of the species that will be used to restore the disturbed area.
- Stockpiles / redistributed topsoil can also be kept wet to prevent fine particles being removed by wind. This should be done to prevent erosion and to prevent the wash-away of valuable topsoil resulting in the sedimentation of streams.
- Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.
- The existing road infrastructure as indicated in the land use map should be used, where possible.
- The telephone number and contact details of a 24-hour response hazardous material clean-up company shall also be on site, in the unlikely event of large spills taking place.
- All hydrocarbons will be stored in leak-proof containers on drip trays. Diesel must be kept in a mobile bowser (also on drip trays) in a lockable and secured area.
- To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).
- Rehabilitation of the disturbed area will be ongoing as the project proceeds in order to prevent the erosion of soils during rainy events. Cut slopes will not be steeper than 1:2 (V:H) and must be rounded off at the top edge.

#### **8.9.1.3 Surface water:**

- The storage and maintenance yard must be situated at least 100 m from any watercourse or dam.
- All hazardous substances should be stored in suitable containers. The containers should be clearly marked to indicate contents, quantities, and safety requirements. All storage areas must be bunded. The bunded area should be of sufficient capacity to contain a spill / leak from the stored containers. An Alphabetical Hazardous Chemical Substance (HCS) control sheet should be drawn up and kept up to date on a continuous basis. All hazardous chemicals that will be used on site should have Material Safety Data Sheets (MSDS). All employees working with HCS should be trained in the safe use of the substance and according to the safety data sheet.
- In the event of oil/ fuel spillages spill kits or absorbents must be kept at the site.
- A bund wall should be constructed around the diesel-powered generators and generators should be kept in a drip tray. The run-off should be disposed of at the nearest approved fuel recycling collection point.
- Drip pans must be used when refuelling and servicing vehicles or equipment.

- Solid waste must be kept in adequate bins and taken to the nearest available municipal dumping site.
- Regular clean-up programs must be put into effect throughout the site to limit the impact of littering caused by mining activities.
- The measures contained in the previous section of this report and the rehabilitation plan should be adhered to, to ensure that stockpile material are not transported to surface streams by wind or rain.
- Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.
- Chemical sanitation facilities should be used on site and regularly serviced by appropriate companies to ensure that no spills or leaks from toilets to groundwater or surface water take place.
- Chemical sanitation facilities should not be positioned closer than 100m from the edge of non-perennial surface streams. The ratio of one toilet for every 15 workers on site should be maintained.
- Please refer to Landforms and Soils; for a detailed description of the hydrocarbon mitigation and management measures, and how spills of oil, grease, diesel, acid, or hydraulic fluid will be dealt with.
- Cut off trenches must be provided to divert and slow down the run-off from upslope areas around the site. A drainage trench must be provided along the south-western corner of the site.

#### **8.9.1.4 Groundwater:**

- Water should be used sparingly, and it should be ensured that no water is wasted e.g., regular inspection of pipes to ensure that no leaks occur.
- Water tanks should be regularly inspected to ensure that no leaks occur.
- Water uses needs to be registered with the Department of Water and Sanitation.

#### **8.9.1.5 Aesthetic environment:**

- Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices.
- Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site.
- The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.

#### **8.9.1.6 Noise:**

- Vehicles and construction equipment must be well serviced so that they do not produce excessive noise.
- Mining should only take place between 08h00 and 17h00 from Monday to Friday.
- It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise.
- Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.

#### **8.9.1.7 Air quality:**

- Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.
- It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust. Mining areas can be damped to prevent excessive dust formation.

- The cleared topsoil must be stockpiled and re-used for rehabilitation purposes. The stockpiles must be covered and banded to prevent transportation by wind or rain. It must also be ensured that the topsoil horizon is not mixed with the other horizons.
- No open fires are allowed outside designated cooking areas.
- The cleared vegetation should not be burned along the different mining areas but made available to the landowner or taken to the nearest available municipal disposal site.

#### **8.9.1.8 Health, safety, and security hazards:**

- The mining area must be clearly marked.
- Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.
- Strict access control must be exercised to ensure that no unauthorised persons enter the property.
- The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.
- Workers may not receive any visitors while they are within the property.
- Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.
- Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.
- Any damage to public or private property, including roads, storm water systems, fences, gates, buildings and other structures, pipes, lines and other utilities or infrastructure and movable properties, should be repaired, replaced, or otherwise compensated for as agreed with the affected person.
- The applicant must arrange for a discussion session with the surrounding access route users with regard to the maintenance of the access road.
- No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).
- Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.
- It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.
- A complaints register should be maintained to log complaints by landowners, occupants and other Interested and Affected Parties, and response to such complaints. The complaints register should be provided to DMR on an annual basis and at any point in time if requested by the DMR.

#### **8.9.1.9 Motivation where no alternative sites were considered.**

- The site and the layout was determined due to the availability of material and accessibility of the site.

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

- The site and the layout was determined due to the availability of material and accessibility of the site. The site was placed on the area of the property where the vegetation was already impacted on by industrial activity, illegal dumping, and alien vegetation.

**9 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.**

Various site visits were conducted by the EAP and information was gathered regarding the nature of the process and the baseline environment. Comments were also gathered from I&APs in order to identify additional possible impacts that may have been overlooked. The following impacts were identified and assessed.

Risk or impact	Significance	Can impact be avoided? (Y/N)	Can impact be mitigated? (Y/N)	Significance after mitigation
<b>Construction / Operational Phase</b>				
Acceleration of erosion and loss of topsoil at cleared areas.	Low	N	Y	Very low
Soil pollution caused by leakages and spills from vehicles and littering	Low	Y	Y	Very low
Contamination of soils as a result of leaks or spills from temporary storage area for oil and chemicals	Low	Y	Y	Very low
Increased turbidity as a result of storm water run-off from cleared areas and roads	Low	N	Y	Very low
Contamination of surface water caused by the storage and disposal of construction and domestic waste	Low	Y	Y	Very low
Chemical pollution of water as a result of leaks or spills from vehicles	Low	Y	Y	Very low
Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material) by means of wind and rain	Low	N	Y	Very low
Added pressure on water resources	Low	Y	Y	Very low
Loss of sense of place	Low	N	Y	Very low
Visual disturbance to surrounding residents as a result of the temporary structures and mining activities	Low	N	Y	Very low
Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route	Low	N	Y	Very low
Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property	Low	N	Y	Very low
Increased levels of noxious gas emissions from construction vehicles and machinery	Low	N	Y	Very low
Increase in dust levels, especially during the dry and windy season	Low	N	Y	Very low
Loss of human lives as a result of mining activities and the movement of construction vehicles on site	Very high	Y	Y	Very low
Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site	Medium	Y	Y	Very low
Increased criminal activities	Low	Y	Y	Very low
Increasing environmental awareness by educating community and contractors on the outlines of the EMP	Very High	N (Positive impact)	N (Positive impact)	Very high (Positive impact)
Degradation of the access road	Low	N	Y	Very low
Temporary loss of available agricultural land	Low	N	Y	Very low
<b>DECOMMISSIONING PHASE</b>				
The introduction and spreading of exotic invasive weed species at cleared areas	Low	N	Y	Very low
The rehabilitation process will enhance the scenic beauty of the area	Very high	N (Positive impact)	N (Positive impact)	Very high (Positive impact)
Excessive dust generation along access roads and rehabilitated areas because of erosion etc. at rehabilitated	Low	N	Y	Very low

10 Assessment of each identified potentially significant impact and risk.

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
Use of access roads	Drainage disturbance	Increased turbidity as a result of storm water run-off from cleared areas and roads	Pre-construction, Construction, Operational and Decommissioning Phases	Low	To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Very Low
	Surface water pollution	Chemical pollution of water as a result of leaks or spills from vehicles		Low	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans. Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Very Low
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route		Low	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Very Low
Mine site establishment	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property	Pre-construction and Construction Phase	Low	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Very Low
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Low	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Very Low
	Air pollution	Increase in dust levels, especially during the dry and windy season		Low	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Very Low
	Soil pollution	Soil pollution caused by leakages and spills from vehicles and littering		Low	Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling. The existing road infrastructure as indicated in the land use map should be used, where possible.	
	Surface water pollution	Contamination of surface water caused by the storage and disposal of construction and domestic waste		Low	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Very Low
	Disturbance of landforms and soils	Acceleration of erosion and loss of topsoil at cleared areas		Low	Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must be kept as small as possible and must be rehabilitated as soon as possible. The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPF. Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.	Very Low
	Drainage disturbance	Increased turbidity as a result of storm water run-off from cleared areas and roads		Low	To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Very Low
	Surface water pollution	Chemical pollution of water as a result of leaks or spills from vehicles		Low	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Very Low
	Surface water pollution	Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material by means of wind and rain		Low	Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover. To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					(including but not limited to scouring, sedimentation, erosion, and undercutting).	
	Groundwater pollution	Added pressure on water resources		Low	Water should be used sparingly, and it should be ensured that no water is wasted e.g., regular inspection of pipes to ensure that no leaks occur. Water tanks should be regularly inspected to ensure that no leaks occur.	Very Low
	Disturbance of aesthetic environment	Loss of sense of place		Low	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Very Low
	Disturbance of aesthetic environment	Visual disturbance to surrounding residents as a result of the temporary structures and mining activities		Low	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Very Low
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route		Low	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Very Low
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Low	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Very Low
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Low	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Very Low
	Air pollution	Increase in dust levels, especially during the dry and windy season		Low	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Very Low



NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
	Health, safety, and security problems	Loss of human lives as a result of mining activities and the movement of construction vehicles on site		Very high	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	Very Low
	Health, safety, and security problems	Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site		Medium	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p>	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					<p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
	Health, safety, and security problems	Increased criminal activities		Low	<p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p>	Very Low
	Environmental protection	Increasing environmental awareness by educating community and contractors on the outlines of the EMP		Very high (Positive Impact)	N/A	N/A
	Disturbance	Degradation of the access road		Low	<p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>Any damage to public or private property, including roads, storm water systems, fences, gates, buildings and other structures, pipes, lines and other utilities or infrastructure and movable properties, should be repaired,</p>	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					replaced, or otherwise compensated for as agreed with the affected person. The applicant must arrange for a discussion session with the surrounding access route users with regard to the maintenance of the access road. A complaints register should be maintained to log complaints by landowners, occupants and other interested and Affected Parties, and response to such complaints. The complaints register should be provided to DMR on an annual basis and at any point in time if requested by the DMR.	
	Disturbance of landforms and soils	Loss of available agricultural land		Low	Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must be kept as small as possible and must be rehabilitated as soon as possible.	Very Low
Topsoil storage	Disturbance of landforms and soils	Acceleration of erosion and loss of topsoil at cleared areas	Pre-construction and Construction Phase	Low	Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.	Very low
	Surface water pollution	Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material by means of wind and rain		Low	Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover. To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Very Low Low
	Air pollution	Increase in dust levels, especially during the dry and windy season		Low	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Very Low
Chemical and fuel transportation and storage	Soil pollution	Contamination of soils as a result of leaks or spills from temporary storage area for oil and chemicals	Construction and Operational Phases	Low	The storage and maintenance yard must be situated at least 100 m from any watercourse or dam. All hazardous substances should be stored in suitable containers. The containers should be clearly marked to indicate contents, quantities, and safety requirements. All storage areas must be bunded. The bunded area should be of sufficient capacity to contain a spill / leak from the stored containers. An Alphabetical Hazardous Chemical Substance (HCS) control sheet should be drawn up and kept up to date on a continuous basis. All hazardous chemicals that will be used on site should have Material Safety Data Sheets (MSDS). All employees working with HCS should be trained in the safe use of the substance and according to the safety data sheet. In the event of oil/ fuel spillages spill kits or absorbents must be kept at the site.	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					A bund wall should be constructed around the diesel-powered generators and generators should be kept in a drip tray. The run-off should be disposed of at the nearest approved fuel recycling collection point. The telephone number and contact details of a 24-hour response hazardous material clean-up company shall also be on site, in the unlikely event of large spills taking place	
Equipment transportation	Soil pollution	Soil pollution caused by leakages and spills from vehicles and littering	Construction and Operational Phases	Low	Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling. The existing road infrastructure as indicated in the land use map should be used, where possible.	Very Low
	Surface water pollution	Chemical pollution of water as a result of leaks or spills from vehicles		Low	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Very Low
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Low	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Very Low
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Low	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Very Low
Excavation of the open pit	Disturbance of aesthetic environment	Loss of sense of place	Operational Phase	Low	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Very Low
	Disturbance of aesthetic environment	Visual disturbance to surrounding residents as a result of the temporary structures and mining activities		Low	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices.	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route		Low	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Very Low
	Health, safety, and security	Loss of human lives as a result of mining activities and the movement of construction vehicles on site		Very high	The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas. Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times. No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas). Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof. Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times. Strict access control must be exercised to ensure that no unauthorised persons enter the property. The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining. Workers may not receive any visitors while they are within the property. Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs. Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g.,	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					<p>vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
	Health, safety, and security	Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site		Medium	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	Very Low
Waste removal and disposal	Soil pollution	Soil pollution caused by littering	Operational Phase	Low	<p>Solid waste must be kept in adequate animal proof waste bins at mining site.</p> <p>Regular clean-up programs should be put into effect along the access road and throughout the premises to limit the impact of littering caused by mining activities.</p>	Very low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated	
Sewage removal and disposal	Surface water pollution	Contamination of surface water caused by the storage and disposal of domestic waste		Low	Regular clean-up programs must be put into effect throughout the site to limit the impact of littering caused by mining activities.	Very/low	
	Surface water pollution	Contamination of surface water caused by the storage and disposal of domestic waste	Operational Phase	Low	Chemical sanitation facilities should be used on site and regularly serviced by appropriate companies to ensure that no spills or leaks from toilets to groundwater or surface water take place. Chemical sanitation facilities should not be positioned closer than 100m from the edge of non-perennial surface streams. The ratio of one toilet for every 15 workers on site should be maintained.	Very low	
General site levelling and re-instatement	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route	Decommissioning and Rehabilitation Phase	Low	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Very Low	
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Low	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Very Low	
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Low	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Very Low	
	Air pollution	Increase in dust levels, especially during the dry and windy season		Low	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Very Low	
	Health, safety, and security	Loss of human lives as a result of mining activities and the movement of construction vehicles on site		Very high	The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas. Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times. No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).	Very Low	

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					<p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof. Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
	<p>Health, safety, and security</p>	<p>Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site</p>		<p>Medium</p>	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p>	<p>Very Low</p>



NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
Soil amelioration and revegetation	Ecological disturbance	The introduction and spreading of exotic invasive weed species at cleared areas	Decommissioning and Rehabilitation Phases	Low	Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs. Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas. It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.	Very Low
	Aesthetic environment	The rehabilitation process will enhance the scenic beauty of the area		Low	N/A	Very Low
	Air pollution	Excessive dust generation along access roads and rehabilitated areas		Low	Topsoil must only be used for rehabilitation purposes and not for any other use example i.e., construction of roads. Topsoil must be stored on site for it to be used for rehabilitation purposes (e.g., preparation of seed bank on levelled or cleared areas). If necessary, a mixture of treated compost can be applied to assist re-growth. All stockpiles should be kept <1.8 m with slopes not exceeding 18 degrees. The duration of storage of the topsoil should be minimised as much as possible. The topsoil must be uniformly redistributed in a manner that assures placement and compaction compatible with the needs of the species that will be used to restore the disturbed area. Stockpiles / redistributed topsoil can also be kept wet to prevent fine particles being removed by wind. This should be done to prevent erosion and to prevent the wash-away of valuable topsoil resulting in the sedimentation of streams. Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover. The existing road infrastructure as indicated in the land use map should be used, where possible. Rehabilitation of the disturbed area will be ongoing as the project proceeds in order to prevent the erosion of soils during rainy events. Cut slopes will not be steeper than 1:2 (V:H) and must be rounded off at the top edge.	Very low

The supporting impact assessment conducted by the EAP is attached as **Annexure 5**.

## 11 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.
No specialist studies were undertaken. Air quality monitoring should be put in place.	Due to the ecological sensitivity and vegetation type occurring on the site, a baseline vegetation assessment should be done in order to ensure that no threatened vegetation species occur on the site.	X	1(a)5

## 12 Environmental impact statement

### 12.1 Summary of the key findings of the environmental impact assessment.

- The impacts with a rating of High and Very High are impacts, which are regarded as potentially significant, rated without any mitigation measures. In this impact assessment, none of the identified impacts can be classified as potentially significant for the activities that have been identified during the different phases of the mining.
- Irrespective of the fact that no potentially significant impacts have been identified, the applicant must ensure that the mitigation measures are adhered to on site, in order that the cumulative and residual impacts associated with the mining activity are kept to the minimum.
- Mining activities are not expected to have significant impacts on agricultural land or any sensitive habitats after rehabilitation. The affected areas will therefore revert back to their former land use, namely agriculture.

### 12.2 Final Site Map

See Annexure 6

### 12.3 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.

Potential impact	Status
Acceleration of erosion and loss of topsoil at cleared areas	Negative
Soil pollution caused by leakages and spills from vehicles and littering	Negative
Contamination of soils as a result of leaks or spills from temporary storage area for oil and chemicals	Negative
Increased turbidity as a result of storm water run-off from cleared areas and roads	Negative
Contamination of surface water caused by the storage and disposal of construction and domestic waste	Negative
Chemical pollution of water as a result of leaks or spills from vehicles	Negative
Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material by means of wind and rain	Negative
Added pressure on water resources	Negative
Loss of sense of place	Negative
Visual disturbance to surrounding residents as a result of the temporary structures and mining activities	Negative
Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route	Negative
Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property	Negative
Increased levels of noxious gas emissions from construction vehicles and machinery	Negative
Increase in dust levels, especially during the dry and windy season	Negative
Loss of human lives as a result of mining activities and the movement of construction vehicles on site	Negative
Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site	Negative
Increased criminal activities	Negative
Increasing environmental awareness by educating community and contractors on the outlines of the EMPr	Positive
Degradation of the access road	Negative
Loss of available agricultural land	Negative
The introduction and spreading of exotic invasive weed species at cleared areas	Negative

The rehabilitation process will enhance the scenic beauty of the area	Positive
Excessive dust generation along access roads and rehabilitated areas because of erosion etc.	Negative

### 13 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr.

#### 13.1 Ecological environment

- The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.
- Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must be kept as small as possible and must be rehabilitated as soon as possible.
- All reasonable measures should be taken to ensure that trees are not damaged. No uncontrolled collection of firewood may be allowed on the property.
- Alien invasive plants should be removed from all disturbed and subsequently rehabilitated areas.
- No open fires are allowed outside designated cooking areas.
- Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.
- No worker may disturb, hunt, set traps / snares, utilise dead or alive fauna / livestock, collect or remove firewood or medicinal plants or other plants / crops / fruit.
- Disciplinary action must be taken in the event that any flora or fauna is wilfully disturbed or killed. The landowner should also be compensated for loss of livestock.
- No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).
- Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.
- The cleared vegetation should not be burned at the site but taken to the nearest available municipal disposal site or made available to the landowner for use in a controlled manner.
- Solid waste must be kept in adequate animal proof waste bins at mining site.
- Regular clean-up programs should be put into effect along the access road and throughout the premises to limit the impact of littering caused by mining activities.
- No mining activity will be conducted within 100m buffer zone of any water course.

#### 13.2 Landforms and soils

- The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPr.
- Any electrical or petrol driven pump, used for dispensing purposes, must be equipped, and positioned so as not to present danger of ignition of the product. If fuel is to be dispensed from 200ℓ (or bigger) drums, proper dispensing equipment will need to be used (e.g., drums must not be tipped to dispense fuel).
- Refuelling can be undertaken from a mobile bowser. Small equipment, such as generators, must be refuelled in a drip tray. Refuelling operations must be avoided in sensitive areas, in particular, no refuelling operation should take place within 100m of any watercourse or dam.
- Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling.
- Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.

- The existing road infrastructure as indicated in the land use map should be used, where possible.
- The telephone number and contact details of a 24-hour response hazardous material clean-up company shall also be on site, in the unlikely event of large spills taking place.
- All hydrocarbons will be stored in leak-proof containers on drip trays. Diesel must be kept in a mobile bowser (also on drip trays) in a lockable and secured area.
- To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).
- Rehabilitation of the disturbed area will be ongoing as the project proceeds in order to prevent the erosion of soils during rainy events. Cut slopes will not be steeper than 1:2 (V:H) and must be rounded off at the top edge.
- During rehabilitation the following measures should be strictly adhered to:
- Topsoil must only be used for rehabilitation purposes and not for any other use example i.e., construction of roads.
- Topsoil must be stored on site for it to be used for rehabilitation purposes (e.g., preparation of seed bank on levelled or cleared areas). If necessary, a mixture of treated compost can be applied to assist re-growth.
- All stockpiles should be kept <1.8 m with slopes not exceeding 18 degrees.
- The duration of storage of the topsoil should be minimised as much as possible.
- The topsoil must be uniformly redistributed in a manner that assures placement and compaction compatible with the needs of the species that will be used to restore the disturbed area.
- Stockpiles / redistributed topsoil can also be kept wet to prevent fine particles being removed by wind. This should be done to prevent erosion and to prevent the wash-away of valuable topsoil resulting in the sedimentation of streams.
- Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.
- The existing road infrastructure as indicated in the land use map should be used, where possible.
- The telephone number and contact details of a 24-hour response hazardous material clean-up company shall also be on site, in the unlikely event of large spills taking place.
- All hydrocarbons will be stored in leak-proof containers on drip trays. Diesel must be kept in a mobile bowser (also on drip trays) in a lockable and secured area.
- To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).
- Rehabilitation of the disturbed area will be ongoing as the project proceeds in order to prevent the erosion of soils during rainy events. Cut slopes will not be steeper than 1:2 (V:H) and must be rounded off at the top edge.

### 13.3 Surface water:

- The storage and maintenance yard must be situated at least 100 m from any watercourse or dam.
- All hazardous substances should be stored in suitable containers. The containers should be clearly marked to indicate contents, quantities, and safety requirements. All storage areas must be bunded. The bunded area should be of sufficient capacity to contain a spill / leak from the stored containers. An Alphabetical Hazardous Chemical Substance (HCS) control sheet should be drawn up and kept up to date on a continuous basis. All hazardous chemicals that will be used on site should have Material Safety Data Sheets (MSDS). All

employees working with HCS should be trained in the safe use of the substance and according to the safety data sheet.

- In the event of oil/ fuel spillages spill kits or absorbents must be kept at the site.
- A bund wall should be constructed around the diesel-powered generators and generators should be kept in a drip tray. The run-off should be disposed of at the nearest approved fuel recycling collection point.
- Drip pans must be used when refuelling and servicing vehicles or equipment.
- Solid waste must be kept in adequate bins and taken to the nearest available municipal dumping site.
- Regular clean-up programs must be put into effect throughout the site to limit the impact of littering caused by mining activities.
- The measures contained in the previous section of this report and the rehabilitation plan should be adhered to, to ensure that stockpile material are not transported to surface streams by wind or rain.
- Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.
- Chemical sanitation facilities should be used on site and regularly serviced by appropriate companies to ensure that no spills or leaks from toilets to groundwater or surface water take place.
- Chemical sanitation facilities should not be positioned closer than 100m from the edge of non-perennial surface streams. The ratio of one toilet for every 15 workers on site should be maintained.
- Please refer to Landforms and Soils; for a detailed description of the hydrocarbon mitigation and management measures, and how spills of oil, grease, diesel, acid, or hydraulic fluid will be dealt with.
- Cut off trenches must be provided to divert and slow down the run-off from upslope areas around the site. A drainage trench must be provided along the south-western corner of the site.

#### **13.4 Groundwater:**

- Water should be used sparingly, and it should be ensured that no water is wasted e.g., regular inspection of pipes to ensure that no leaks occur.
- Water tanks should be regularly inspected to ensure that no leaks occur.
- Water uses needs to be registered with the Department of Water Affairs.

#### **13.5 Aesthetic environment:**

- Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices.
- Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site.
- The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.

#### **13.6 Noise:**

- Vehicles and construction equipment must be well serviced so that they do not produce excessive noise.
- Mining should only take place between 08h00 and 17h00 from Monday to Friday.
- It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise.
- Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.

### **13.7 Air quality:**

- Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.
- It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust. Mining areas can be damped to prevent excessive dust formation.
- The cleared topsoil must be stockpiled and re-used for rehabilitation purposes. The stockpiles must be covered and banded to prevent transportation by wind or rain. It must also be ensured that the topsoil horizon is not mixed with the other horizons.
- No open fires are allowed outside designated cooking areas.
- The cleared vegetation should not be burned along the different mining areas but made available to the landowner or taken to the nearest available municipal disposal site.

### **13.8 Health, safety, and security hazards:**

- The mining area must be clearly marked.
- Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.
- Strict access control must be exercised to ensure that no unauthorised persons enter the property.
- The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.
- Workers may not receive any visitors while they are within the property.
- Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.
- Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.
- Any damage to public or private property, including roads, storm water systems, fences, gates, buildings and other structures, pipes, lines and other utilities or infrastructure and movable properties, should be repaired, replaced, or otherwise compensated for as agreed with the affected person.
- The applicant must arrange for a discussion session with the surrounding access route users with regard to the maintenance of the access road.
- No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).
- Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.
- It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.
- A complaints register should be maintained to log complaints by landowners, occupants and other Interested and Affected Parties, and response to such complaints. The complaints register should be provided to DMR on an annual basis and at any point in time if requested by the DMR.

### **14 Aspects for inclusion as conditions of Authorisation.**

- The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPr.
- Environmental audits should be conducted every two months during the Construction Phase and every six months during the Operational Phase.
- Rehabilitation monitoring should be conducted according to the EMPr.

- Rehabilitation should be ongoing while operation is taking place.

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

- It is assumed the development of the new site will be done in the same manner as the development at the existing site.

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

**16.1 Reasons why the activity should be authorized or not.**

The proposed development will take place on an area that has been impacted on by industrial activity, illegal dumping, and alien vegetation. It will be critical to implement the mitigation and management measures proposed. It is necessary to ensure that any threatened vegetation species are removed from the site prior to commencement of the activity. If proper management and mitigation is implemented, the impact can be kept fairly low and temporary. The site should be rehabilitated to be able to a level that is compatible with the end land use, while the remainder of the property should be restored by implementing an alien eradication programme. It is recommended that the activity should be authorised.

**16.2 Conditions that must be included in the authorisation.**

- The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPr.
- Environmental audits should be conducted every two months during the Construction Phase and every six months during the Operational Phase.
- Rehabilitation monitoring should be conducted according to the EMPr.
- Rehabilitation should be ongoing while operation is taking place.

**17 Period for which the Environmental Authorisation is required.**

Approximately 10 years

**18 Undertaking**

Undertaking is provided at the end of the EMPr and is applicable to both the Basic Assessment Report and the Environmental Management Programme.

**19 Financial Provision**

Total cost of rehabilitation estimated at R187 341,26

**19.1 Explain how the aforesaid amount was derived.**

Quarterly cost for all skills necessary to conduct technical duties were calculated. No equipment hire or purchase is budgeted for since the owner has an earthmoving company and will be using her own equipment. All cost related to excavating, blasting, stockpiles, discard of material, loading, hauling and transport of material, as well as the rehabilitation related to these activities were calculated.

**19.2 Confirm that this amount can be provided for from operating expenditure.**

The amount required for rehabilitation and management is into account as part of the budget and operating cost for the proposed development.

**20 Specific information required by the competent authority.**

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

**20.1.1 Impact on the Socio-economic conditions of any directly affected person.**

No report was generated for the purposes of the socio-economic conditions, however the following impacts might affect the community:

- Potential water and soil pollution resulting from hydrocarbon spills and soil erosion.
- Noise due to the construction and operational activities.
- Poor access control resulting in impacts on people movement.
- Influx of job seekers.
- Impacts on visual aesthetics

The measures to mitigate these impacts have been included in the EMPr.

**20.1.2 Impact on any National Estate referred to in section 3(2) of the National Heritage Resources Act 25 of 1999.**

In terms of the requirements of Section 38 (c)(i) of the National Heritage Resources Act (NHRA), a Heritage Assessment is required if a development exceeds 5 000m<sup>2</sup> in extent. Though the study area does exceed 5 000m<sup>2</sup> in extent the area including adjoining farm portions have been previously disturbed through agricultural activities, and it is therefore highly unlikely that any graves, heritage, or archaeological artefacts and/or resources remain on site. A Heritage Assessment was therefore not undertaken, however detailed mitigation measures with regards to any arising potential impacts have been discussed in detail in Part B (Environmental Management Programme Report)

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

Alternatives has been assessed in section 2.6.2.1 of this report.



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## PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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**1 Details of the EAP**

Details are covered in Part A, Section 1(a) as required.

**2 Description of the Aspects of the Activity**

Aspects are described in Part A, Section 1(h) as required.

**3 Composite Map**

See figure 2.

**4 Description of Impact management objectives including management statements**

**4.1 Determination of closure objectives**

The objective is to rehabilitate the site back to its current state, described as the Baseline Environment in Part A Section 1(h)(vi)(1). To obtain the closure objective the following goals are set:

- Soil levelling should be consistent with the intended end land use consisting of the construction of an above ground and underground storage facility.
- Replacement of soil should concur to the sequence of removal.
- All forms of pollution on site to be removed.
- Access roads (excluding public roads) must be rehabilitated.
- Soil erosion combated at the mining site.
- Excessive compacting of soil avoided.
- An alien eradication programmed should be instituted on the remainder of the property.

**4.2 Volumes and rate of water use required for the operation.**

Between 8 000 and 10 000 litres of water will be required daily from Monday to Friday on days with no rainfall for dust control. The majority of this water should be available from the open pit. If groundwater from boreholes should be needed, this water use will need to be registered with the Department of Water and Sanitation.

**4.3 Has a water use licence has been applied for?**

No. However if water is needed for dust suppression, this water will be obtained from the municipal take-off point on site.

**4.4 Impacts to be mitigated in their respective phases.**  
Measures to rehabilitate the environment affected by the undertaking of any listed activity.

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
Use of access roads	Pre-construction, Construction, Operational and Decommissioning Phases	50m	<p>To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).</p> <p>In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle.</p> <p>Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.</p> <p>Vehicles and construction equipment must be well serviced so that they do not produce excessive noise.</p> <p>Mining should only take place between 08h00 and 17h00 from Monday to Friday.</p> <p>It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise.</p> <p>Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.</p>	Compliance should be monitored against mitigation measures stipulated in Part 1 Section 1(h)(viii) as well as the Storm Water Management Plan and Rehabilitation Plan	From onset of Construction Phase throughout duration of Operation until completion of Decommissioning Phase
Mine site establishment	Pre-construction and Construction Phase	Sha	<p>Drip Trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling.</p> <p>The existing road infrastructure as indicated in the land use map should be used, where possible.</p> <p>In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle.</p> <p>Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.</p> <p>Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must be kept as small as possible and must be rehabilitated as soon as possible.</p>	Compliance should be monitored against mitigation measures stipulated in Part 1 Section 1(h)(viii) as well as the Storm Water Management Plan and Rehabilitation Plan	From onset of Construction Phase throughout duration of Operation until completion of Decommissioning Phase

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			<p>The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPr.</p> <p>Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.</p> <p>To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).</p> <p>Water should be used sparingly, and it should be ensured that no water is wasted e.g., regular inspection of pipes to ensure that no leaks occur.</p> <p>Water tanks should be regularly inspected to ensure that no leaks occur.</p> <p>Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices.</p> <p>Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site.</p> <p>The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.</p> <p>Vehicles and construction equipment must be well serviced so that they do not produce excessive noise.</p> <p>Mining should only take place between 08h00 and 17h00 from Monday to Friday.</p> <p>It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise.</p> <p>Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.</p> <p>Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.</p> <p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p>		

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
			<p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>Any damage to public or private property, including roads, storm water systems, fences, gates, buildings and other structures, pipes, lines and other utilities or infrastructure and movable properties, should be repaired, replaced, or otherwise compensated for as agreed with the affected person.</p> <p>The applicant must arrange for a discussion session with the surrounding access route users with regard to the maintenance of the access road.</p> <p>A complaints register should be maintained to log complaints by landowners, occupants and other interested and Affected Parties, and response to such complaints. The complaints register should be provided to DMR on an annual basis and at any point in time if requested by the DMR.</p>		
Topsoil storage	Pre-construction and Construction Phase	5ha	<p>Any stockpiles that start to erode significantly or cause dust problems, should be covered withessian or a plastic cover.</p> <p>To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).</p> <p>It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.</p>	Compliance should be monitored against mitigation measures stipulated Part 1 Section 1(h)(viii) as well as the Storm Water Management Plan	Upon completion of vegetation clearing

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
Chemical and fuel transportation and storage	Construction and Operational Phases	50m	<p>The storage and maintenance yard must be situated at least 100 m from any watercourse or dam.</p> <p>All hazardous substances should be stored in suitable containers. The containers should be clearly marked to indicate contents, quantities, and safety requirements. All storage areas must be bunded. The bunded area should be of sufficient capacity to contain a spill / leak from the stored containers. An Alphabetical Hazardous Chemical Substance (HCS) control sheet should be drawn up and kept up to date on a continuous basis. All hazardous chemicals that will be used on site should have Material Safety Data Sheets (MSDS). All employees working with HCS should be trained in the safe use of the substance and according to the safety data sheet.</p> <p>In the event of oil/ fuel spillages spill kits or absorbents must be kept at the site.</p> <p>A bund wall should be constructed around the diesel-powered generators and generators should be kept in a drip tray. The run-off should be disposed of at the nearest approved fuel recycling collection point.</p> <p>The telephone number and contact details of a 24-hour response hazardous material clean-up company shall also be on site, in the unlikely event of large spills taking place</p>	Compliance should be monitored against mitigation measures stipulated Part 1 Section 1(h)(viii)	Upon completion of vegetation clearing
Equipment transportation	Construction and Operational Phases	on site	<p>Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling.</p> <p>In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle.</p> <p>Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.</p> <p>Mining should only take place between 08h00 and 17h00 from Monday to Friday.</p> <p>Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.</p>	Compliance should be monitored against mitigation measures stipulated Part 1 Section 1(h)(viii)	Upon completion of vegetation clearing
Excavation of the open pit	Operational Phase	5ha	<p>Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices.</p> <p>Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site.</p> <p>The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.</p> <p>Vehicles and construction equipment must be well serviced so that they do not produce excessive noise.</p>	Compliance should be monitored against mitigation measures stipulated Part 1 Section 1(h)(viii)	Upon completion of site preparation, vegetation clearing and topsoil storage

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
Waste removal and disposal	Operational Phase	off site	<p>Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly. demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas. Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times. No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas). Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof. Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times. Strict access control must be exercised to ensure that no unauthorised persons enter the property. The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining. Workers may not receive any visitors while they are within the property. Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs. Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas. It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p> <p>Solid waste must be kept in adequate animal proof waste bins at mining site. Regular clean-up programs should be put into effect along the access road and throughout the premises to limit the impact of littering caused by mining activities.</p>	Compliance should be monitored against mitigation measures stipulated Part 1 Section 1(h)(vii)	Upon completion of site preparation, vegetation clearing and topsoil storage

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
Sewage removal and disposal	Operational Phase	off site	<p>Chemical sanitation facilities should be used on site and regularly serviced by appropriate companies to ensure that no spills or leaks from toilets to groundwater or surface water take place.</p> <p>Chemical sanitation facilities should not be positioned closer than 100m from the edge of non-perennial surface streams. The ratio of one toilet for every 15 workers on site should be maintained.</p>	Compliance should be monitored against mitigation measures stipulated Part 1 Section 1(h)(viii)	Upon completion of site preparation, vegetation clearing and topsoil storage
General site levelling and re-instatement	Decommissioning and Rehabilitation Phase	5ha	<p>Vehicles and construction equipment must be well serviced so that they do not produce excessive noise.</p> <p>Mining should only take place between 08h00 and 17h00 from Monday to Friday.</p> <p>It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise.</p> <p>Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.</p> <p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p>	Compliance should be monitored against mitigation measures stipulated Part 1 Section 1(h)(viii) and the Rehabilitation Plan	Upon completion of the excavation of the open pit

Activities	Phase	Size and scale of disturbance	Mitigation measures	Compliance with standards	Time period for implementation
Soil amelioration and revegetation	Decommissioning and Rehabilitation Phase	5ha	<p>It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p> <p>Alien invasive plants should be removed from all disturbed and subsequently rehabilitated areas.</p> <p>Topsoil must only be used for rehabilitation purposes and not for any other use example i.e., construction of roads.</p> <p>Topsoil must be stored on site for it to be used for rehabilitation purposes (e.g., preparation of seed bank on levelled or cleared areas). If necessary, a mixture of treated compost can be applied to assist re-growth.</p> <p>All stockpiles should be kept &lt;1.8 m with slopes not exceeding 18 degrees.</p> <p>The duration of storage of the topsoil should be minimised as much as possible.</p> <p>The topsoil must be uniformly redistributed in a manner that assures placement and compaction compatible with the needs of the species that will be used to restore the disturbed area.</p> <p>Stockpiles / redistributed topsoil can also be kept wet to prevent fine particles being removed by wind. This should be done to prevent erosion and to prevent the wash-away of valuable topsoil resulting in the sedimentation of streams.</p> <p>Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.</p> <p>The existing road infrastructure as indicated in the land use map should be used, where possible.</p> <p>Rehabilitation of the disturbed area will be ongoing as the project proceeds in order to prevent the erosion of soils during rainy events. Cut slopes will not be steeper than 1:2 (V:H) and must be rounded off at the top edge.</p>	Compliance should be monitored against mitigation measures stipulated Part 1 Section 1(h)(viii) and the Rehabilitation Plan	Upon completion of the excavation of the open pit



#### 4.5 Impact Management Outcomes

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

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Use of access roads	Drainage disturbance	Increased turbidity as a result of storm water run-off from cleared areas and roads	Pre-construction, Operational and Decommissioning Phases	To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Impact avoided
	Surface water pollution	Chemical pollution of water as a result of leaks or spills from vehicles		In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Impact avoided
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route		Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Noise levels to not be a disturbance to any neighbours outside of working areas
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Minimising the disturbance of neighbours
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Not to exceed Air Quality Standards
	Air pollution	Increase in dust levels, especially during the dry and windy season		It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Not to exceed Air Quality Standards

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Mine site establishment	Soil pollution	Soil pollution caused by leakages and spills from vehicles and littering.	Pre-construction and Construction Phase	Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling. The existing road infrastructure as indicated in the land use map should be used, where possible.	Impact to be avoided.
	Surface water pollution	Contamination of surface water caused by the storage and disposal of construction and domestic waste		In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Impact to be avoided.
	Disturbance of landforms and soils	Acceleration of erosion and loss of topsoil at cleared areas		Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must be kept as small as possible and must be rehabilitated as soon as possible. The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPr. Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.	Impact to be avoided.
	Drainage disturbance	Increased turbidity as a result of storm water run-off from cleared areas and roads		To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Impact to be avoided.
	Surface water pollution	Chemical pollution of water as a result of leaks or spills from vehicles		In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Impact to be avoided.
	Surface water pollution	Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material) by means of wind and rain		Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover. To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Impact to be avoided.
	Groundwater pollution	Added pressure on water resources		Water should be used sparingly, and it should be ensured that no water is wasted e.g., regular inspection of pipes to ensure that no leaks occur.	Impact to be avoided.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	Disturbance of aesthetic environment	Loss of sense of place		Water tanks should be regularly inspected to ensure that no leaks occur. Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Impact to be kept low and temporary
	Disturbance of aesthetic environment	Visual disturbance to surrounding residents as a result of the temporary structures and mining activities		Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Impact to be kept low and temporary
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route		Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	No noise disturbance outside of normal working hours
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Mining should only take place between 08h00 and 17h00 from Monday to Friday.	No noise disturbance outside of normal working hours
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Not to exceed Air Quality Standards
	Air pollution	Increase in dust levels, especially during the dry and windy season		It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Not to exceed Air Quality Standards
	Health, safety, and security problems	Loss of human lives as a result of mining activities and the movement of construction vehicles on site		The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas. Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.	Impact to be avoided and quickly and efficiently handled in the event of an accident

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				<p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
Health, safety, and security problems		Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site		<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p>	Impact to be avoided and quickly and efficiently handled in the event of an accident

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				<p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, shares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas. It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
Health, safety, and security problems	Increased criminal activities			<p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, shares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p>	Impact to be avoided and quickly and efficiently handled in the event of an occurrence
Environmental protection	Increasing environmental awareness by educating community and contractors on the outlines of the EMP			N/A	Increasing environmental awareness
Disturbance	Degradation of the access road			<p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>Any damage to public or private property, including roads, storm water systems, fences, gates, buildings and other structures, pipes, lines and other utilities or infrastructure and movable properties, should be repaired, replaced, or otherwise compensated for as agreed with the affected person.</p> <p>The applicant must arrange for a discussion session with the surrounding access route users with regard to the maintenance of the access road.</p> <p>A complaints register should be maintained to log complaints by landowners, occupants and other Interested and Affected Parties, and response to such complaints. The complaints register should be provided to DMR on an annual basis and at any point in time if requested by the DMR.</p>	Impact should be at a level that is acceptable to other road users
Disturbance of landforms and soils	Loss of available agricultural land				Impact to be temporary

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Topsoil storage	Disturbance of landforms and soils	Acceleration of erosion and loss of topsoil at cleared areas	Pre-construction and Construction Phase	Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.	Impact to be avoided
	Surface water pollution	Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material) by means of wind and rain		Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover. To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Impact to be avoided and quickly and efficiently handled in the event of an accident
	Air pollution	Increase in dust levels, especially during the dry and windy season	Construction and Operational Phases	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust. The storage and maintenance yard must be situated at least 100 m from any watercourse or dam. All hazardous substances should be stored in suitable containers. The containers should be clearly marked to indicate contents, quantities, and safety requirements. All storage areas must be bunded. The bunded area should be of sufficient capacity to contain a spill / leak from the stored containers. An Alphabetical Hazardous Chemical Substance (HCS) control sheet should be drawn up and kept up to date on a continuous basis. All hazardous chemicals that will be used on site should have Material Safety Data Sheets (MSDS). All employees working with HCS should be trained in the safe use of the substance and according to the safety data sheet. In the event of oil/ fuel spillages spill kits or absorbents must be kept at the site. A bund wall should be constructed around the diesel-powered generators and generators should be kept in a drip tray. The run-off should be disposed of at the nearest approved fuel recycling collection point. The telephone number and contact details of a 24-hour response hazardous material clean-up company shall also be on site, in the unlikely event of large spills taking place	Not to exceed Air Quality Standards Impact to be avoided
Chemical and fuel transportation and storage	Soil pollution	Contamination of soils as a result of leaks or spills from temporary storage area for oil and chemicals	Construction and Operational Phases	Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling. The existing road infrastructure as indicated in the land use map should be used, where possible.	Impact to be avoided
	Soil pollution	Soil pollution caused by leakages and spills from vehicles and littering			
Equipment transportation	Soil pollution	Chemical pollution of water as a result of leaks or spills from vehicles	Construction and Operational Phases	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans. Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes	Impact to be avoided
	Surface water pollution				

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Excavation of the open pit				and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Mining should only take place between 08h00 and 17h00 from Monday to Friday.	No noise disturbance or visual disturbance outside of normal working hours
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Not to exceed Air Quality Standards
	Disturbance of aesthetic environment	Loss of sense of place	Operational Phase	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Impact to be temporary
	Disturbance of aesthetic environment	Visual disturbance to surrounding residents as a result of the temporary structures and mining activities		Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Impact to be temporary
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route		Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly. The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas. Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times. No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).	No noise disturbance outside of normal working hours
	Health, safety, and security	Loss of human lives as a result of mining activities and the movement of construction vehicles on site			Impact to be avoided and handled quickly and efficiently in the event of an occurrence

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				<p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
	Health, safety, and security	Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site		<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p>	Impact to be avoided and handled quickly and efficiently in the event of an occurrence



ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Waste removal and disposal	Soil pollution	Soil pollution caused by littering	Operational Phase	Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas. It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site. Solid waste must be kept in adequate animal proof waste bins at mining site. Regular clean-up programs should be put into effect along the access road and throughout the premises to limit the impact of littering caused by mining activities.	Impact to be avoided
Sewage removal and disposal	Surface water pollution	Contamination of surface water caused by the storage and disposal of domestic waste	Operational Phase	Regular clean-up programs must be put into effect throughout the site to limit the impact of littering caused by mining activities.	Very low
	Surface water pollution	Contamination of surface water caused by the storage and disposal of domestic waste		Chemical sanitation facilities should be used on site and regularly serviced by appropriate companies to ensure that no spills or leaks from toilets to groundwater or surface water take place. Chemical sanitation facilities should not be positioned closer than 100m from the edge of non-perennial surface streams. The ratio of one toilet for every 15 workers on site should be maintained.	Very low
General site levelling and re-instatement	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route	Decommissioning and Rehabilitation Phase	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	No noise disturbance outside of normal working hours
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Mining should only take place between 08h00 and 17h00 from Monday to Friday.	No noise disturbance outside of normal working hours
Air pollution	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery	Decommissioning and Rehabilitation Phase	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Not to exceed Air Quality Standards
	Air pollution	Increase in dust levels, especially during the dry and windy season		It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Not to exceed Air Quality Standards

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	Health, safety, and security	Loss of human lives as a result of mining activities and the movement of construction vehicles on site		<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	Impact to be avoided and handled quickly and efficiently in the event of an occurrence
	Health, safety, and security	Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site		<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p>	Impact to be avoided and handled quickly and efficiently in the event of an occurrence

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Soil amelioration and revegetation	Ecological disturbance	The introduction and spreading of exotic invasive weed species at cleared areas	Decommissioning and Rehabilitation Phases	The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining. Workers may not receive any visitors while they are within the property. Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, shares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs. Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas. It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.	Impact to be managed on an ongoing basis
	Aesthetic environment	The rehabilitation process will enhance the scenic beauty of the area		N/A	
	Air pollution	Excessive dust generation along access roads and rehabilitated areas		<p>Topsoil must only be used for rehabilitation purposes and not for any other use example i.e., construction of roads.</p> <p>Topsoil must be stored on site for it to be used for rehabilitation purposes (e.g., preparation of seed bank on levelled or cleared areas). If necessary, a mixture of treated compost can be applied to assist re-growth.</p> <p>All stockpiles should be kept &lt;1.8 m with slopes not exceeding 18 degrees.</p> <p>The duration of storage of the topsoil should be minimised as much as possible.</p> <p>The topsoil must be uniformly redistributed in a manner that assures placement and compaction compatible with the needs of the species that will be used to restore the disturbed area.</p> <p>Stockpiles / redistributed topsoil can also be kept wet to prevent fine particles being removed by wind. This should be done to prevent erosion and to prevent the wash-away of valuable topsoil resulting in the sedimentation of streams.</p> <p>Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.</p> <p>The existing road infrastructure as indicated in the land use map should be used, where possible.</p> <p>Rehabilitation of the disturbed area will be ongoing as the project proceeds in order to prevent the erosion of soils during rainy events. Cut slopes will not be steeper than 1:2 (V:H) and must be rounded off at the top edge.</p>	

## 4.6 Impact Management Actions

Activity	Potential impact	Mitigation type	Standard to be achieved
Use of access roads	Drainage disturbance	To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Impact avoided
	Surface water pollution	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Impact avoided
	Noise	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Noise levels to not be a disturbance to any neighbours outside of working areas
	Disturbance	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Minimising the disturbance of neighbours
	Air pollution	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Not to exceed Air Quality Standards
	Air pollution	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Not to exceed Air Quality Standards
	Soil pollution	Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling. The existing road infrastructure as indicated in the land use map should be used, where possible.	Impact to be avoided
	Surface water pollution	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Impact to be avoided
	Disturbance of landforms and soils	Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must be kept as small as possible and must be rehabilitated as soon as possible. The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPr. Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.	Impact to be avoided
	Drainage disturbance	To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Impact to be avoided

Activity	Potential impact	Mitigation type	Standard to be achieved
	Surface water pollution	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans. Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Impact to be avoided
	Surface water pollution	Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover. To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Impact to be avoided.
	Groundwater pollution	Water should be used sparingly, and it should be ensured that no water is wasted e.g., regular inspection of pipes to ensure that no leaks occur. Water tanks should be regularly inspected to ensure that no leaks occur.	Impact to be avoided.
	Disturbance of aesthetic environment	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Impact to be kept low and temporary
	Disturbance of aesthetic environment	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Impact to be kept low and temporary
	Noise	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	No noise disturbance outside of normal working hours
	Disturbance	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	No noise disturbance outside of normal working hours
	Air pollution	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Not to exceed Air Quality Standards
	Air pollution	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Not to exceed Air Quality Standards
	Health, safety, and security problems	The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas. Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times. No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).	Impact to be avoided and quickly and efficiently handled in the event of an accident

Activity	Potential impact	Mitigation type	Standard to be achieved
		<p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
	Health, safety, and security problems	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	Impact to be avoided and quickly and efficiently handled in the event of an accident
	Health, safety, and security problems	<p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p>	Impact to be avoided and quickly and efficiently handled in the event of an occurrence
	Environmental protection	N/A	Increasing environmental awareness

Activity	Potential impact	Mitigation type	Standard to be achieved
	Disturbance	<p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>Any damage to public or private property, including roads, storm water systems, fences, gates, buildings and other structures, pipes, lines and other utilities or infrastructure and movable properties, should be repaired, replaced, or otherwise compensated for as agreed with the affected person.</p> <p>The applicant must arrange for a discussion session with the surrounding access route users with regard to the maintenance of the access road.</p> <p>A complaints register should be maintained to log complaints by landowners, occupants and other interested and Affected Parties, and response to such complaints. The complaints register should be provided to DMR on an annual basis and at any point in time if requested by the DMR.</p>	Impact should be at a level that is acceptable to other road users
	Disturbance of landforms and soils	<p>Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must be kept as small as possible and must be rehabilitated as soon as possible.</p>	Impact to be temporary
Topsoil storage	Disturbance of landforms and soils Surface water pollution	<p>Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.</p> <p>Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.</p> <p>To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).</p>	Impact to be avoided Impact to be avoided and quickly and efficiently handled in the event of an accident
	Air pollution	<p>It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.</p>	Not to exceed Air Quality Standards
Chemical and fuel transportation and storage	Soil pollution	<p>The storage and maintenance yard must be situated at least 100 m from any watercourse or dam.</p> <p>All hazardous substances should be stored in suitable containers. The containers should be clearly marked to indicate contents, quantities, and safety requirements. All storage areas must be bunded. The bunded area should be of sufficient capacity to contain a spill / leak from the stored containers. An Alphabetical Hazardous Chemical Substance (HCS) control sheet should be drawn up and kept up to date on a continuous basis. All hazardous chemicals that will be used on site should have Material Safety Data Sheets (MSDS). All employees working with HCS should be trained in the safe use of the substance and according to the safety data sheet.</p> <p>In the event of oil/ fuel spillages spill kits or absorbents must be kept at the site.</p> <p>A bund wall should be constructed around the diesel-powered generators and generators should be kept in a drip tray. The run-off should be disposed of at the nearest approved fuel recycling collection point.</p> <p>The telephone number and contact details of a 24-hour response hazardous material clean-up company shall also be on site, in the unlikely event of large spills taking place</p>	Impact to be avoided
Equipment transportation	Soil pollution	<p>Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling.</p> <p>The existing road infrastructure as indicated in the land use map should be used, where possible.</p>	Impact to be avoided
	Surface water pollution	<p>In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle.</p>	Impact to be avoided

Activity	Potential impact	Mitigation type	Standard to be achieved
		Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes. Mining should only take place between 08h00 and 17h00 from Monday to Friday.	No noise disturbance or visual disturbance outside of normal working hours
	Air pollution	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Not to exceed Air Quality Standards
Excavation of the quarry	Disturbance of aesthetic environment	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Impact to be temporary
	Disturbance of aesthetic environment	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Impact to be temporary
	Noise	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	No noise disturbance outside of normal working hours
	Health, safety, and security	The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas. Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times. No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas). Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof. Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times. Strict access control must be exercised to ensure that no unauthorised persons enter the property. The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining. Workers may not receive any visitors while they are within the property. Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs. Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas. It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.	Impact to be avoided and handled quickly and efficiently in the event of an occurrence



Activity	Potential Impact	Mitigation Type	Standard to be achieved
	Health, safety, and security	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	Impact to be avoided and handled quickly and efficiently in the event of an occurrence
Waste removal and disposal	Soil pollution	Solid waste must be kept in adequate animal proof waste bins at mining site.	Impact to be avoided
	Surface water pollution	Regular clean-up programs should be put into effect throughout the site to limit the impact of littering caused by mining activities.	Very low
Sewage removal and disposal	Surface water pollution	<p>Chemical sanitation facilities should be used on site and regularly serviced by appropriate companies to ensure that no spills or leaks from toilets to groundwater or surface water take place.</p> <p>Chemical sanitation facilities should not be positioned closer than 100m from the edge of non-perennial surface streams. The ratio of one toilet for every 15 workers on site should be maintained.</p>	Very low
General site levelling and re-instatement	Noise	<p>Vehicles and construction equipment must be well serviced so that they do not produce excessive noise.</p> <p>Mining should only take place between 08h00 and 17h00 from Monday to Friday.</p> <p>It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise.</p> <p>Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.</p>	No noise disturbance outside of normal working hours
	Disturbance	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	No noise disturbance outside of normal working hours
	Air pollution	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Not to exceed Air Quality Standards
	Air pollution	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Not to exceed Air Quality Standards

Activity	Potential impact	Mitigation type	Standard to be achieved
	Health, safety, and security	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	Impact to be avoided and handled quickly and efficiently in the event of an occurrence
	Health, safety, and security	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that all a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	Impact to be avoided and handled quickly and efficiently in the event of an occurrence
Soil amelioration and vegetation	Ecological disturbance	Alien invasive plants should be removed from all disturbed and subsequently rehabilitated areas.	Impact to be managed on an on-going basis
	Aesthetic environment	N/A	N/A
	Air pollution	Topsoil must only be used for rehabilitation purposes and not for any other use example i.e., construction of roads.	Not to exceed Air Quality Standards

Activity	Potential impact	Mitigation type	Standard to be achieved
		<p>Topsoil must be stored on site for it to be used for rehabilitation purposes (e.g., preparation of seed bank on levelled or cleared areas). If necessary, a mixture of treated compost can be applied to assist re-growth.</p> <p>All stockpiles should be kept &lt;1.8 m with slopes not exceeding 18 degrees.</p> <p>The duration of storage of the topsoil should be minimised as much as possible.</p> <p>The topsoil must be uniformly redistributed in a manner that assures placement and compaction compatible with the needs of the species that will be used to restore the disturbed area.</p> <p>Stockpiles / redistributed topsoil can also be kept wet to prevent fine particles being removed by wind. This should be done to prevent erosion and to prevent the wash-away of valuable topsoil resulting in the sedimentation of streams.</p> <p>Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.</p> <p>The existing road infrastructure as indicated in the land use map should be used, where possible.</p> <p>Rehabilitation of the disturbed area will be on-going as the project proceeds in order to prevent the erosion of soils during rainy events.</p> <p>Cut slopes will not be steeper than 1:2 (V:H) and must be rounded off at the top edge.</p>	

## **5 Financial Provision**

### **5.1 Determination of the amount of Financial Provision.**

Total cost of rehabilitation estimated at R187 341,26

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

The objective is to rehabilitate the site back to its current state, described as the Baseline Environment in Part A Section 1(h)(vi)(1). To obtain the closure objective the following goals are set:

- Soil levelling should be consistent with the intended end land use consisting of the construction of an above ground and underground storage facility.
- Replacement of soil should concur to the sequence of removal.
- All forms of pollution on site to be removed.
- Access roads (excluding public roads) must be rehabilitated.
- Soil erosion combated at the mining site.
- Excessive compacting of soil avoided.
- An alien eradication programmed should be instituted on the remainder of the property.
- Fortification of soils using fertilizers.

If deemed as required on a site (by the ECO) the establishment of treated grass seeds is mandatory after the adequate preparation has been completed.

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

This was done as part of the Public Participation Process described in Part A, Section 1(h) as copies of the Draft BAR was circulated to all the I&APs

### **5.4 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.**

See Annexure 6

### **5.5 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.**

The plan shows that the entire mining area will be rehabilitated back to cultivated land at the time of closure.

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

The calculation for the quantum for financial provision was done using the guideline as published by the DMRE and escalating the CPI figure from date of publication on an annual basis to determine a new base rate.

The calculation is based on an area of 5hectares opencast rehabilitation only as no associated infrastructure will be located on the mining permit area at all.

Refer to Annexure 7.

### **5.7 Confirm that the financial provision will be provided as determined.**

The amount required for rehabilitation and management is into account as part of the budget and operating cost for the proposed development.

- 5.7.1 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including.
  - 5.7.1.1 Monitoring of Impact Management Actions
  - 5.7.1.2 Monitoring and Reporting Frequency
    - 5.7.1.3 Responsible Person
    - 5.7.1.4 Time Period for Implementing Impact Management Actions
    - 5.7.1.5 Mechanisms for Monitoring Compliance

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
Mining activities i.e., excavations and potential groundwater seepage	Potential impacts on groundwater quality	Groundwater monitoring must be undertaken on a quarterly basis in accordance with a monitoring program and positions provided.	The ECO is responsible for the overall water management. A consultant will undertake the quarterly samples and submit to an accredited laboratory for analysis. ECO to ensure corrective actions and compliance is undertaken.	Quarterly monitoring and reporting.
Mining, loading, and hauling.	Impact on ambient air quality	Air quality monitoring for fugitive dust PM10 must be undertaken in accordance with a Dust Monitoring Program.	The ECO is responsible for the overall air quality monitoring program and reporting. A consultant or the ECO must undertake establishing of dust buckets at various locations and collect the samples on a monthly basis to be sent to an accredited laboratory for analysis. The ECO must ensure corrective actions and inform the dust suppression schedule.	Monthly monitoring and reporting.
Mining, loading, and hauling	Generation of noise	Noise monitoring is to be conducted on a quarterly basis throughout the life of mine to determine the impact of the noise levels.	Noise monitoring to be undertaken intermittently during the month and at various locations by the ECO. A report must be compiled monthly.	A report must be compiled monthly and submitted to management to ascertain compliance with the required standards. Mine management should be advised of any significant increase in the ambient sound level as operations continue.
Stockpiling of overburden and topsoil	Soil erosion on stockpiles	Visual inspections need to be undertaken on the stockpile area and storm water berms/infrastructure to assess any signs of erosion.	The ECO is responsible for visual inspections on stockpiles, storm water infrastructure. ECO will conduct random inspections to ensure all storm water management infrastructures are functioning and no leaks are occurring. ECO will compile a monthly report on the status of the site.	ECO will conduct intermittent inspections to ensure all storm water management berms/infrastructure are functioning and no leaks are occurring. ECO will compile a monthly report on the status of the site.

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
Rehabilitation	Rehabilitation effectiveness, re-vegetation and spreading of alien invasive plant species.	<p>Visual inspections need to be undertaken over the entire rehabilitated site.</p> <p>The soil fertility needs to be checked, signs of erosion need to be checked, pooling of water, the effectiveness of plant growth needs to be checked.</p> <p>Signs of alien invasive vegetation must be checked and all alien invasives removed.</p>	The ECO will conduct inspections at least every week/fortnight during the rehabilitation period and provide a report on the effectiveness of rehabilitation and any signs of concerns.	ECO will provide a monthly report on the effectiveness and progress of rehabilitation.

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

**6.1 Internal Performance Audits**

It is recommended that the site manager undertake regular performance audits in accordance with the approved EMPr in which each environmental management specification will be rated in terms of the following criteria:

- Full Compliance (no action required)
- Satisfactory Performance (Some remedial/preventative actions required)
- Unsatisfactory performance (Remedial actions required)

The performance monitoring report must incorporate all compliance issues as well as corrective actions taken, permits, licenses and all contract documentation's conditions. These reports must be made available to the appointed Environmental Control Officer (ECO).

**6.2 External Compliance Audits**

An independent qualified ECO must be appointed to monitor the site and operations for compliance in accordance with the approved EMPr. The external compliance audits must be conducted on a two monthly basis during construction and a six-monthly basis during operation of the open pit.

The ultimate aim is that each environmental management specification be checked by means of a system in which a score may be allocated for:

- Full compliance
- Satisfactory performance
- Unsatisfactory performance
- No action

**7 Environmental Awareness Plan**

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

Environmental awareness is done as part of the induction training completed by all personnel working on the mine site, and associated site of the mining team (at the accommodation or office). To ensure the training is always updated, placards containing information about environmental aspects are regularly updated and distributed. If the ECO in his own discretion or the discretion of the mine manager decide to update any environmental awareness training, he/ she are able to do so at their own discretion.

It is recommended that the environmental awareness training be presented at least every 6 months to ensure the update of environmental goals in relation to current activities is communicated to the personnel.

The ability of the mining team to contain any environmental incidents is dependent on the management efficiency of the mine manager on site, and his ability to train and ensure his employees are knowledgeable about environmental impacts.

The contractor and applicant must ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. The environmental training should, as a minimum, include the following:

- Explanation of the importance of complying with the EMP.
- The construction must take place in ecological sound manner, taking due cognisance of the sensitive ecological areas in close vicinity of the site (i.e., drainage channel/streams).
- The need to protect and preserve the historical and archaeological heritage of the site.
- The importance of conformance with all environmental policies and procedures.
- The significant environmental impacts, actual or potential, as a result of their activities.

- The environmental benefits of improved personal performance.

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

Before the commencement of any new operation or site, the ECO and/or the mine manager must inform the employee of the status and impact of the required work expected from the employee. If the employee refuses to do the work, the employer may not force that person to do the job or replace the employee. Basic environmental awareness is provided to the employees as part of the induction training completed by all personnel working on the mine site, and associated site of the mining team (for example, at the accommodation or site office). To ensure the training is always updated, placards containing information about environmental aspects are regularly updated and distributed. If the ECO in his own discretion or the discretion of the mine manager decide to update any environmental awareness training, he/ she are able to do so at their own discretion.

The solution to the risks involved with prospect mining is to have all the appropriate information and planning in place before the incident occurs. This is important to ensure the correct procedures and reporting structures are followed, and the appropriate remediation steps are followed. The approved EMP shall be available on site.

This EMP contains all the management plans necessary to prevent or mitigate pollution or degradation of the environment.

**8 Specific information required by the Competent Authority**

It is confirmed that the financial provisioning will be reviewed annually and submitted for approval.

It is confirmed that an Environmental Assessment Report will be conducted annually and submitted for approval.

**9 Undertaking**

The EAP herewith confirms.

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



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CORRIE REEF  
02-05-2013



# ANNEXURE 1

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DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER, DECLARATION OF INTEREST  
AND UNDERTAKING UNDER OATH

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Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended.

PROJECT TITLE

BASIC ASSESSMENT REPORT FOR WONDERBOOM NORITE (PTY) LTD IN TERMS OF THE  
NATIONAL ENVIRONMENTAL MANAGEMENT ACT, ACT NO. 107 OF 1998, AS AMENDED AND  
THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS ,2014 AS AMENDED

1. I, Corrie Retief, declare under oath that the information provided in these reports are true and correct and that–
  - 1.1 I act as the independent environmental practitioner / auditor for this assessment.
  - 1.2 I will perform the work relating to the assessment in an objective manner, even if this results in views and findings that are not favourable to the applicant.
  - 1.3 I declare that there are no circumstances that may compromise my objectivity in performing such work.
  - 1.4 I have expertise in conducting environmental audits, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity.
  - 1.5 I will comply with the Act, Regulations and all other applicable legislation.
  - 1.6 I will take into account, to the extent possible; the matters listed in regulation 13 of the Regulations when preparing the application and any report relating to the application.

- 1.7 I have not, and will not engage in, conflicting interests in the undertaking of the activity.
- 1.8 I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority, unless that access to information is protected by law, in which case it will be indicated that such information exists and will be provided to the Competent Authority.
- 1.9 I will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- 1.10 I am aware of what constitutes an offence in terms of Regulation 48 and that a person convicted of an offence in terms of Regulation 48(1) is liable to the penalties as contemplated in Section 49B of the Act.
2. Disclosure of Vested Interest
- 2.1 I declare that I do not have and will not have any vested interest (either business, financial, personal, or other) in the assessment other than remuneration for work performed in terms of the Regulations.
- 2.2 I declare that I am employed by Exaterra (Pty) Ltd, Mining Land Use Management Agents, as its independent environmental assessment practitioner who conduct environmental related work on behalf of its clients.
- 2.3 I declare that the opinions expressed in this report are my own and a true reflection of my professional expertise and that there are no circumstances that may compromise my objectivity in performing such work
3. Qualifications
- 3.1 I declare that my qualifications attached hereto are a true copy of the original.

3.2 I declare that my attached and *curriculum vitae* reflects my competence and experience as an environmental assessment practitioner.

3.3 I declare that I am in good standing with the South African Council for Natural Scientific Professionals and have never been found guilty of any offence in terms of this or any other Act.

SIGNED AT PRETORIA ON THIS 2<sup>ND</sup> DAY OF MAY 2023



Deponent

Signature of Environmental Assessment Practitioner

I CERTIFY THAT the deponent acknowledged that she knew and understood the contents of the above declaration, that I duly administered the oath as prescribed by Regulation No 1258 of the 21 July 1972 (as amended) and that thereafter the deponent in my presence, signed the Declaration at:

SIGNED AT PRETORIA ON THIS 2<sup>ND</sup> DAY OF MAY 2023



COMMISSIONER OF OATHS

**COMMISSIONER OF OATHS (RSA)**  
Christie-Marie Briel  
Attorney at Law  
9 Pickard Street  
Annlin, Pretoria, 0182

**Environmental Assessment  
Practitioners Association  
of South Africa**



Registration No. 2019/1513

***Herewith certifies that***

**Cornelius Retief**

***is registered as an***

**Environmental Assessment Practitioner**

***Registered in accordance with the prescribed criteria of Regulation 15. (1)  
of the Section 24H Registration Authority Regulations  
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the  
National Environmental Management Act (NEMA), Act No. 107 of 1998, as  
amended).***

Effective: 01 March 2023

Expires: 29 February 2024

Chairperson

Registrar



# SACNASP

South African Council for Natural Scientific Professions

**herewith certifies that**  
**Cornelius Johannes Retief**  
Registration Number: 113960  
**is a registered scientist**

in terms of section 20(3) of the Natural Scientific Professions Act, 2003  
(Act 27 of 2003)  
in the following field(s) of practice (Schedule 1 of the Act)

Environmental Science (Professional Natural Scientist)

Effective 9 March 2016

Expires 31 March 2024



Chairperson

Chief Executive Officer



To verify this certificate scan this code

# ANNEXURE 2

## SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

**EIA Reference number:** TBC - DMRE

**Project name:** Wonderboom Norite

**Project title:** Application for a mining permit for the extraction of norite as an aggregate product

**Date screening report generated:** 10/02/2023 10:53:53

**Applicant:** Wonderboom Norite (Pty) Ltd

**Compiler:** J.P. Nortje, Pr.Sci.Nat

**Compiler signature:**



**Application Category:** Mining|Mining Permit

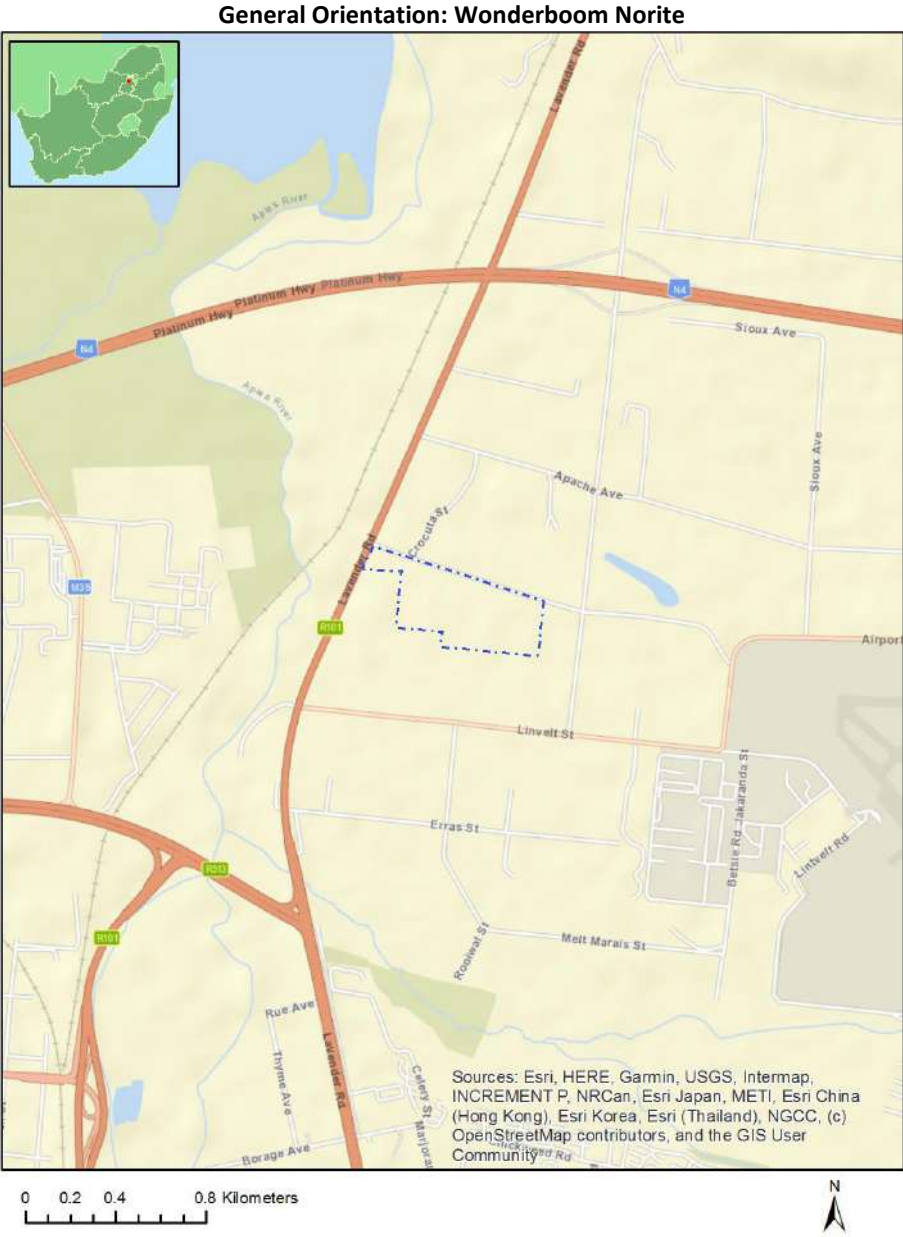
# Table of Contents

- Proposed Project Location ..... 3
  - Orientation map 1: General location ..... 3
- Map of proposed site and relevant area(s) ..... 4
  - Cadastral details of the proposed site ..... 4
  - Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area ..... 5
  - Environmental Management Frameworks relevant to the application ..... 5
- Environmental screening results and assessment outcomes ..... 6
  - Relevant development incentives, restrictions, exclusions or prohibitions ..... 6
- Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones ..... 7
  - Proposed Development Area Environmental Sensitivity ..... 7
  - Specialist assessments identified ..... 8
- Results of the environmental sensitivity of the proposed area ..... 10
  - MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY ..... 10
  - MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY ..... 11
  - MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY ..... 12
  - MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY ..... 13
  - MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY ..... 14
  - MAP OF RELATIVE DEFENCE THEME SENSITIVITY ..... 15
  - MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY ..... 16
  - MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY ..... 17



# Proposed Project Location

Orientation map 1: General location





## Map of proposed site and relevant area(s)



## Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	ONDERSTEPOORT	245	0	25°38'55.55S	28°11'39.13E	Erven
2	DE ONDERSTEPOORT	300	0	25°37'47.89S	28°11'4.23E	Farm
3	DE ONDERSTEPOORT	300	88	25°39'10.14S	28°12'2.77E	Farm Portion
4	DE ONDERSTEPOORT	300	101	25°38'57.55S	28°12'12.21E	Farm Portion
5	DE ONDERSTEPOORT	300	99	25°38'59.21S	28°11'51.97E	Farm Portion
6	DE ONDERSTEPOORT	300	98	25°38'58.08S	28°11'39.43E	Farm Portion
7	DE ONDERSTEPOORT	300	100	25°38'52.65S	28°12'0.76E	Farm Portion

Development footprint<sup>1</sup> vertices:  
No development footprint(s) specified.

<sup>1</sup> “development footprint”, means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

## Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	14/12/16/3/3/1/743	Solar PV	Approved	10.8
2	14/12/16/3/3/1/491	Solar PV	Approved	26.8
3	14/12/16/3/3/2/850	Solar PV	Approved	28.5
4	12/12/20/2543	Solar PV	Approved	10.8
5	12/12/20/2172	Solar PV	Approved	24.3
6	14/12/16/3/3/1/492	Solar PV	Approved	26.8

## Environmental Management Frameworks relevant to the application



<b>Environmental Management Framework</b>	<b>LINK</b>
Gauteng EMF	<a href="https://screening.environment.gov.za/ScreeningDownloads/EMF/GPEMF_2021_Gazette_and_summary.pdf">https://screening.environment.gov.za/ScreeningDownloads/EMF/GPEMF_2021_Gazette_and_summary.pdf</a>

## Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is:

**Mining | Mining Permit.**

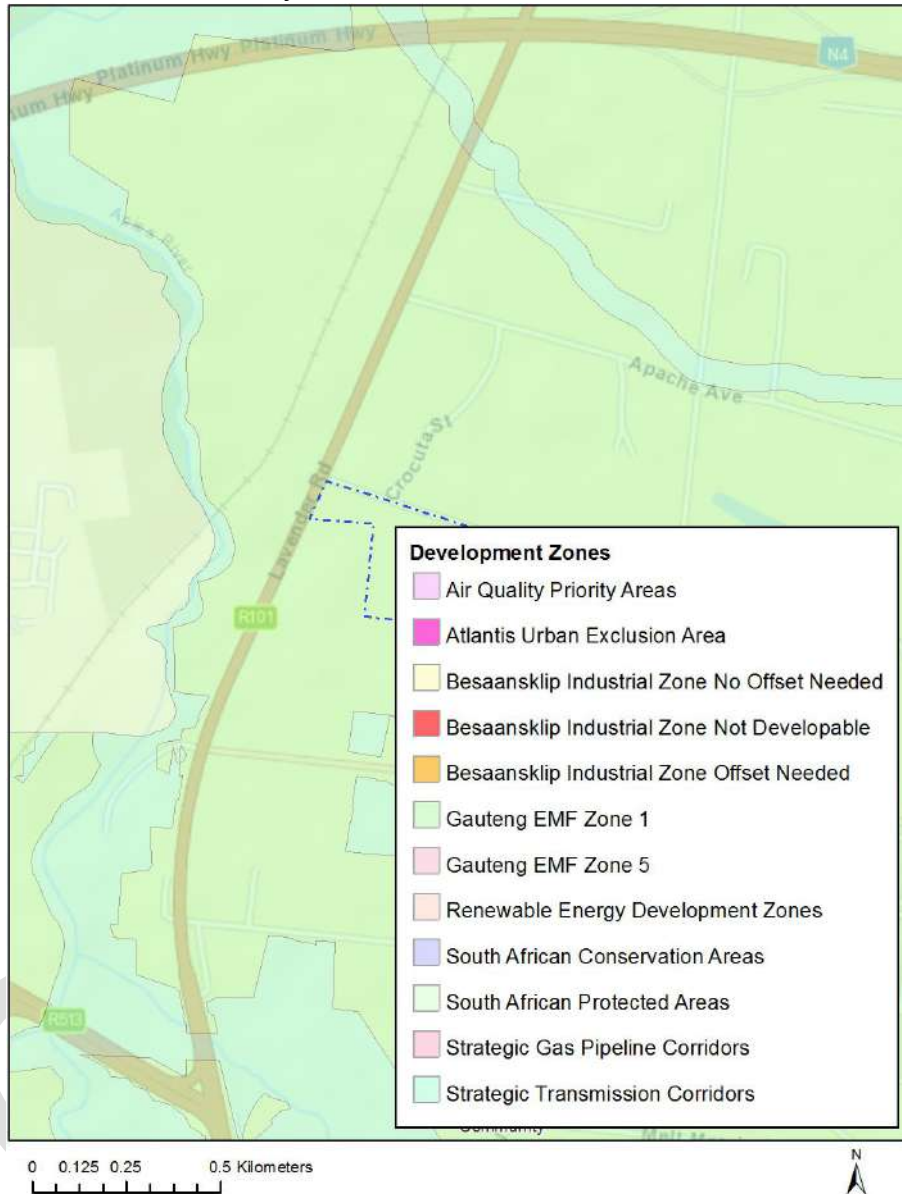
### Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Strategic Transmission Corridor-Central corridor	<a href="https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_EGI.pdf">https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_EGI.pdf</a>
Gauteng EMF-Urban development zone 1	<a href="https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Zone1_2021.pdf">https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Zone1_2021.pdf</a>

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones

**Project Location: Wonderboom Norite**



### Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme		X		

Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme		X		
Defence Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

### Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

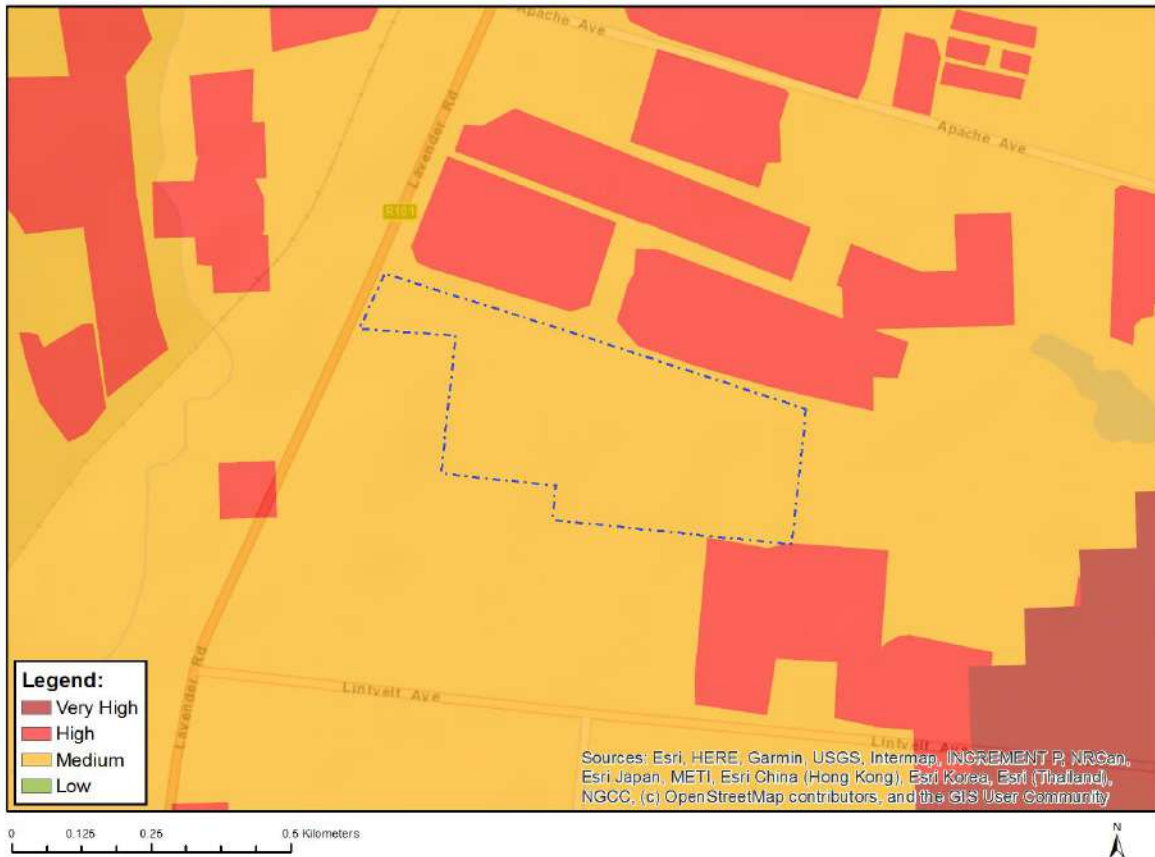
N o	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf</a>
2	Archaeological and Cultural Heritage Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>
3	Palaeontology Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>
4	Terrestrial Biodiversity Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf</a>
5	Aquatic Biodiversity Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf</a>
6	Hydrology Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>

7	Noise Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf</a>
8	Radioactivity Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>
9	Traffic Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>
10	Geotechnical Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>
11	Socio-Economic Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>
12	Plant Species Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf</a>
13	Animal Species Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf</a>

## Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

### MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

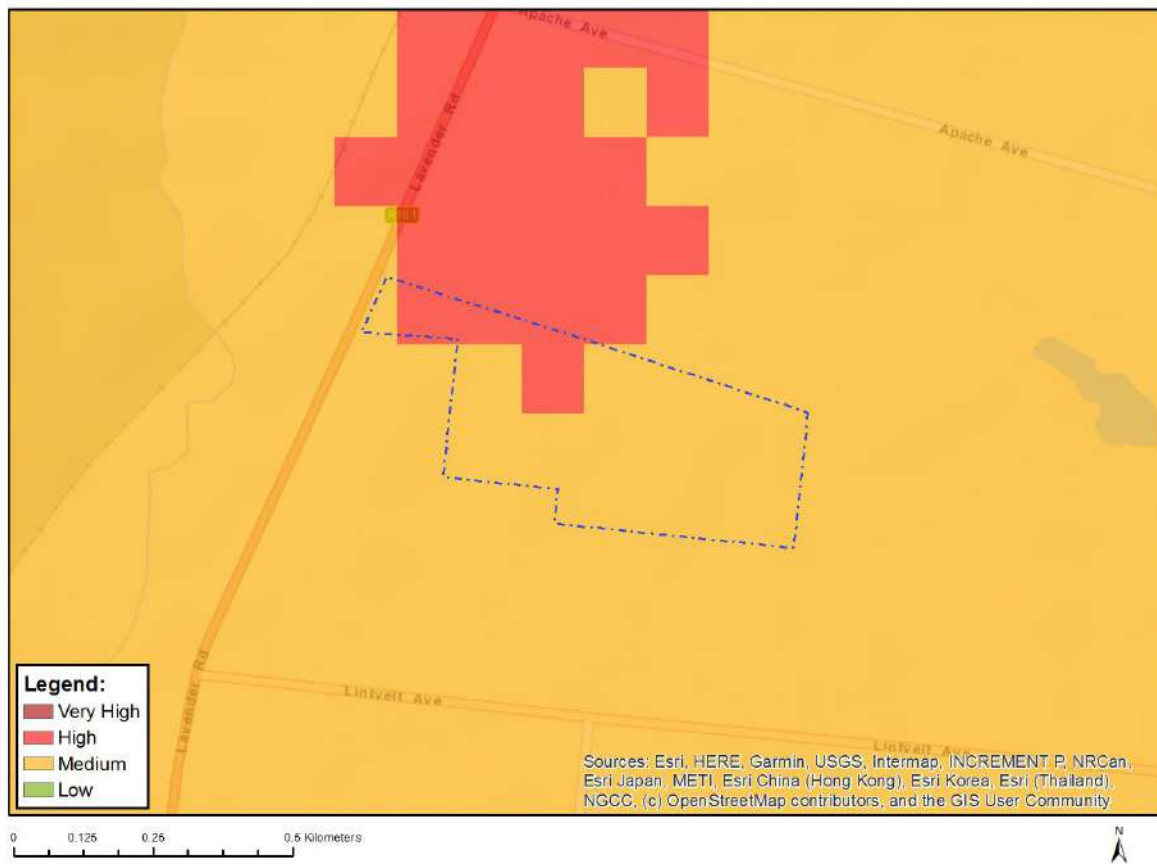


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

#### Sensitivity Features:

Sensitivity	Feature(s)
High	Annual Crop Cultivation / Planted Pastures Rotation; Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate
Medium	Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate

## MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at [eiadatarequests@sanbi.org.za](mailto:eiadatarequests@sanbi.org.za) listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

### Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Mycteria ibis
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Neamblysomus julianae
Medium	Reptilia-Kinixys lobatsiana



## MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

### Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

# MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

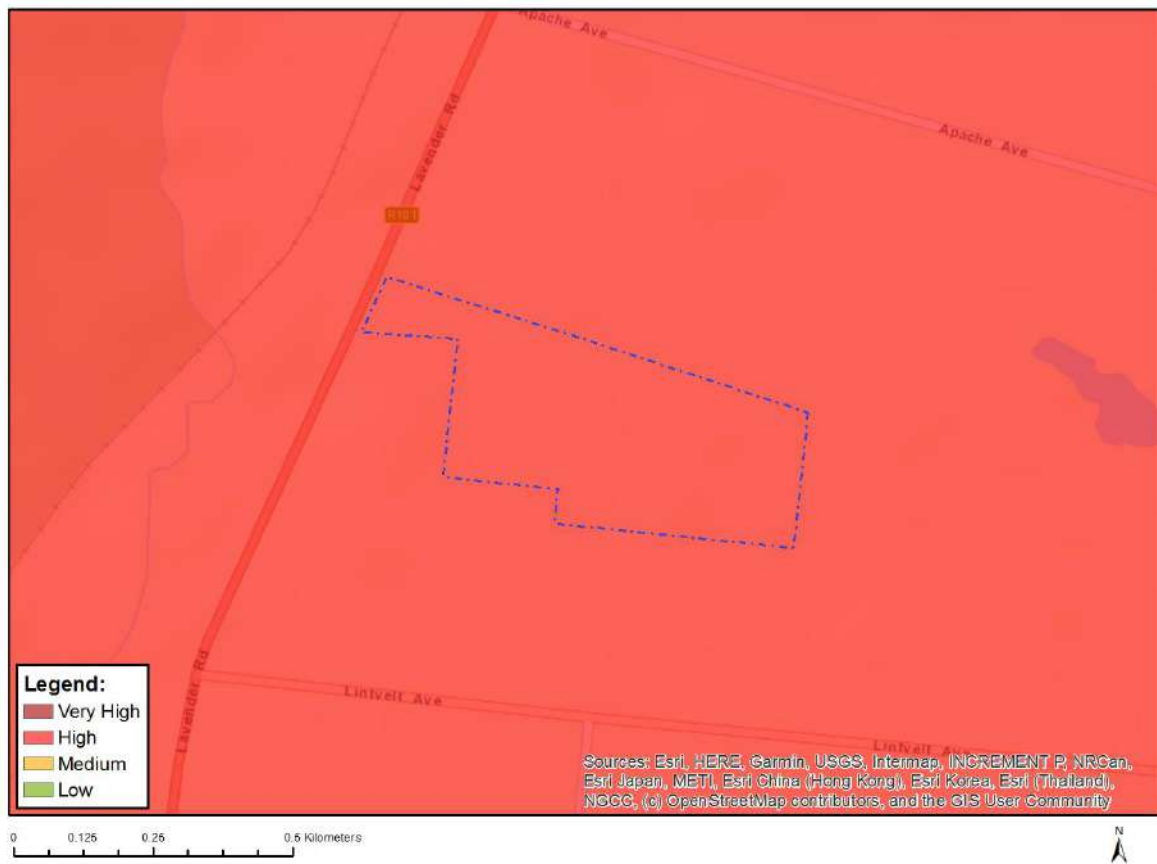


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

**Sensitivity Features:**

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Within 2km of a Grade II Heritage site

## MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

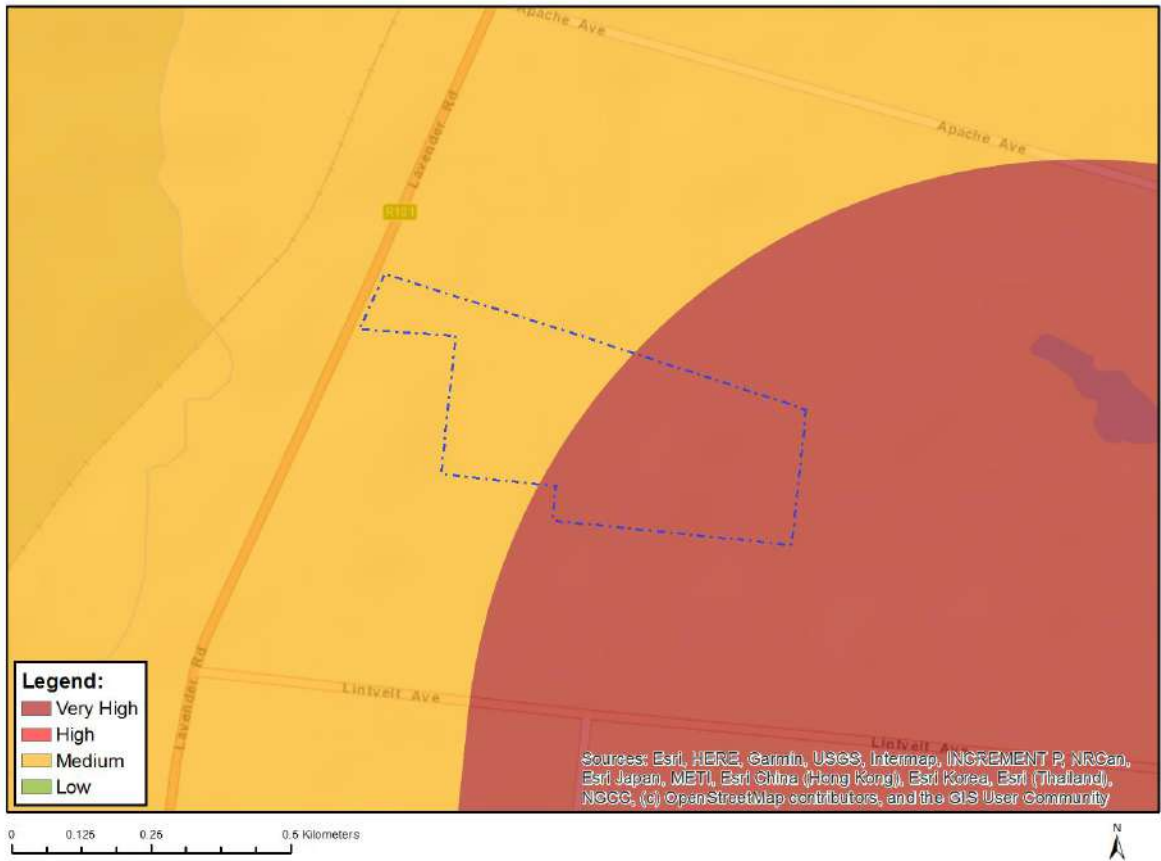


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

### Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome
Medium	Within 5 km of an air traffic control or navigation site

## MAP OF RELATIVE DEFENCE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

### Sensitivity Features:

Sensitivity	Feature(s)
Medium	Military and Defence Site
Very High	Military and Defence Site

## MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at [eiadatarequests@sanbi.org.za](mailto:eiadatarequests@sanbi.org.za) listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

### Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 430
Medium	Sensitive species 1248

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

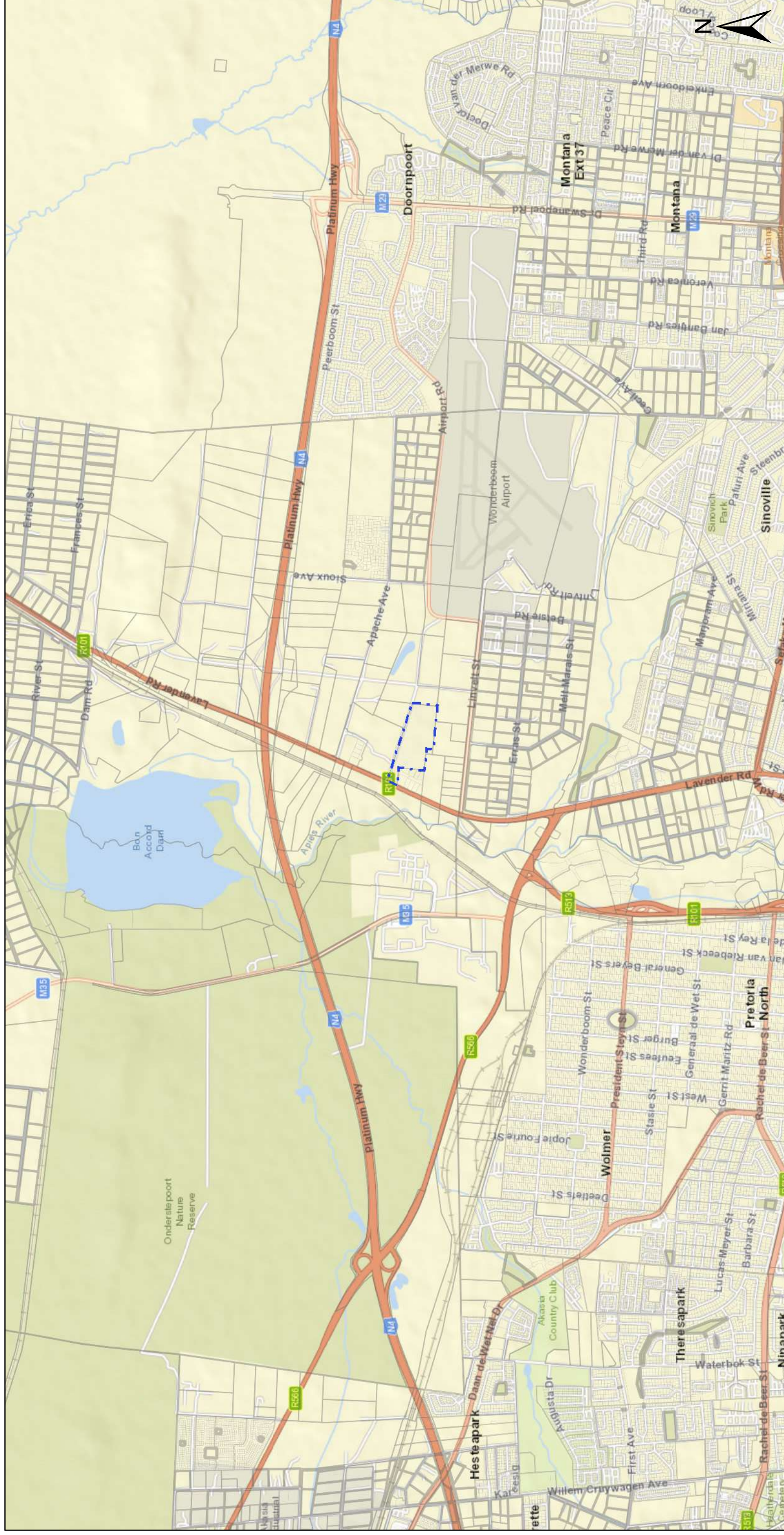
Sensitivity Features:

Sensitivity	Feature(s)
Very High	Ecological support area
Very High	Vulnerable ecosystem





# Screening Report Map: Wonderboom Norite (Pty) Ltd



10 February 2023

**Legend**

- Site Area
- EIA Application Development Footprint
- EIA Application Site
- National Jurisdiction Area
- Cadastre
- Erven
- Farm Portion
- Farm
- Agri Holding
- Public Place



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



# ANNEXURE 3.1 LOCALITY MAP



WONDERBOOM NORITE (PTY) LTD
GP 30/5/1/1/2/10473MP
LOCALITY PLAN
THE AREA MARKED WITH THE RED CIRCLE REPRESENTS THE MINING PERMIT AREA

## MINING PERMIT LOCATION



A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEPSPOORT 300 JR, CITY OF TSHWANE METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE, MEASURING APPROXIMATELY 5,00 HECTARES IN EXTENT

LOCALITY PLAN	
DATE: 03-02-2023	
MAP VERSION: 0001	





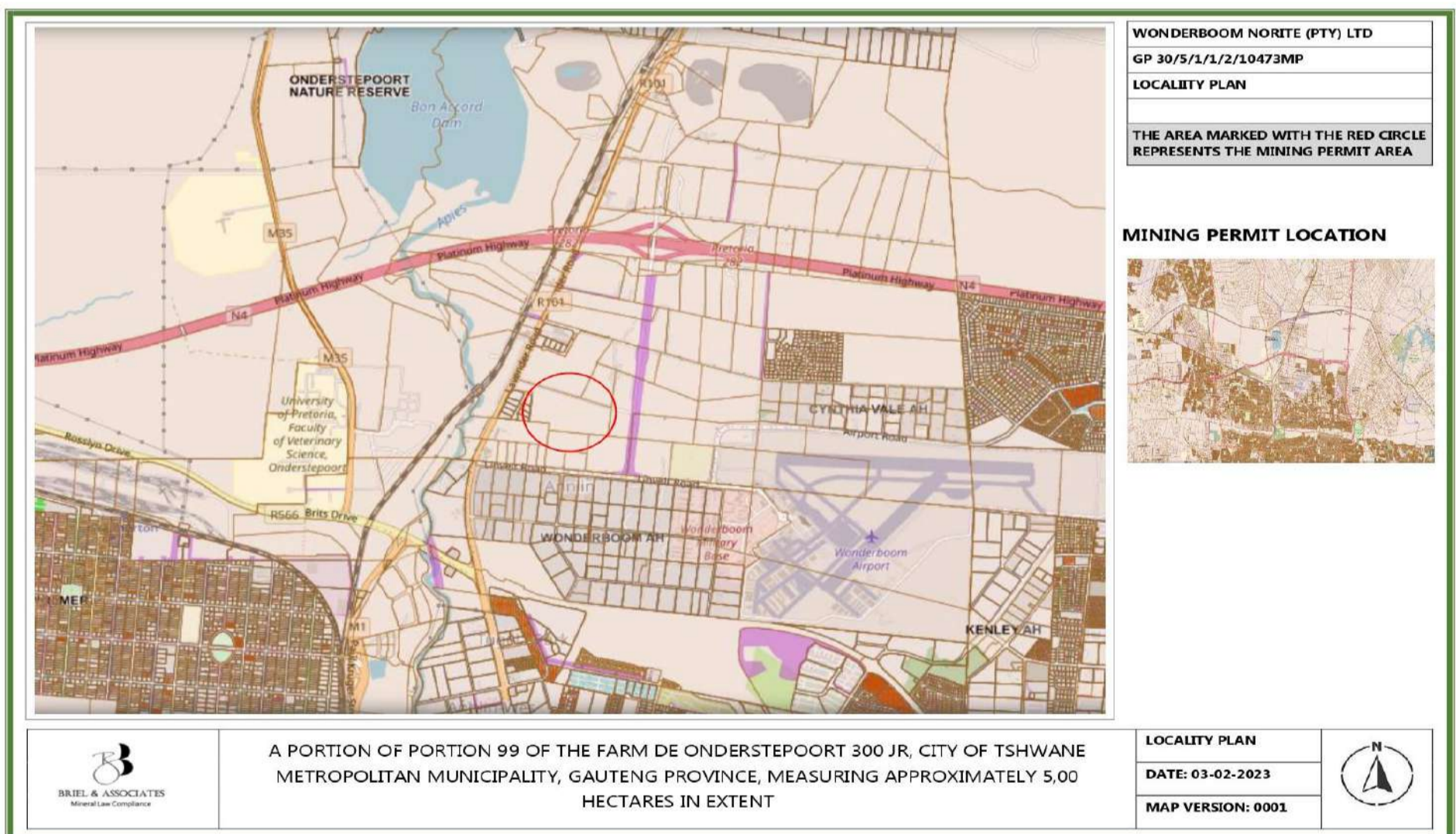
**BASIC ENVIRONMENTAL IMPACT ASSESSMENT PROCESS**

Notice is given in terms of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014 of Government Notice No. R983 in Government Gazette No. 38282 of 4 December 2014 [as subsequently amended] under the National Environmental Management Act, Act 107 of 1998 of intent to carry out the following activity:

(ACTIVITY NO. 21) Any activity including the operation of that activity which requires a mining permit in terms of Section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of mineral resource, including activities for which an exemption has been issued.

PROJECT TITLE AND DESCRIPTION: Wonderboom Norite (Pty) Ltd Mining Permit Application

LOCATION: A 5 Ha Portion of Portion 99 of the farm De Onderstepoort 300 JR, City of Tshwane Metropolitan Municipality (Pretoria District).



**CONSULTANT:**

Briel & Associates (Pty) Ltd,  
934 Stangeria Road, Montana Park, 0182  
Tel: 012 548 0317,  
Fax 086 607 3097,  
E-Mail: [jnortje@brielinc.com](mailto:jnortje@brielinc.com)

# West Elevation

☉ -25°38.858', 28°11.649' ±4m ▲ 1216m



184 Stangeria Road, Montrose Park, 0182  
T: 012 548 2317  
F: 012 548 2310  
E: [enquiries@brielandassociates.com](mailto:enquiries@brielandassociates.com)

## BASIC ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given in terms of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014 of Government Notice No. 8983 in Government Gazette No. 38262 of 4 December 2014 (as subsequently amended) under the National Environmental Management Act, Act 107 of 1998 of intent to carry out the following activity:

(ACTIVITY NO. 27) 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, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of mineral resource, including activities for which an exemption has been issued.

PROJECT TITLE AND DESCRIPTION: Wonderboom Norrite (Pty) Ltd Mining Permit Application

LOCATION: A 5 Ha Portion 99 of the farm De Onderstepoort 300 JR, City of Tlokweng Metropolitan Municipality (Pretoria District)



### CONSULTANT:

BRIEL & Associates (Pty) Ltd  
184 Stangeria Road, Montrose Park, 0182  
Tel: 012 548 2317  
Fax: 012 548 2310  
E-Mail: [enquiries@brielandassociates.com](mailto:enquiries@brielandassociates.com)

BRIEL & ASSOCIATES (PTY) LTD  
P.O. BOX 20000, MONTROSE PARK, 0182, TLOKWENG METROPOLITAN MUNICIPALITY



# West Elevation

● -25°38.858', 28°11.650' ±4m ▲ 1214m

**Plot 99**

**NOTICE**  
**NO CASH**  
**KEPT ON**  
**PREMISES**

FIDELITY  
**ADT**  
*Always there*  
**ARMED RESPONSE**  
**085 12 12 500**

**ADV & TAXI**  
**USED & NEW SPARES**



# South East Elevation

● -25°38.995', 28°12.143' ±14m ▲ 1231m





# ANNEXURE 3.3 NEWSPAPER NOTICE

**Subject:** RE: 28/02 BRIEL INC BP880748 Wonderboom Norite (Pty) Ltd Mining Permit Application  
**Date:** Wednesday, 01 March 2023 at 08:59:58 South Africa Standard Time  
**From:** Beeld Legals  
**To:** Pierre Briel - Briel Inc.  
**Attachments:** image003.png, image004.png, image005.jpg, 28-02-2023 - pg 1.pdf, certificate beeld covid.pdf

## **BRIEL & ASSOCIATES BASIC ENVIRONMENTAL IMPACT ASSESSMENT PROCESS**

Notice is given in terms of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014 of Government Notice No. R983 in Government Gazette No. 38282 of 4 December 2014 [as subsequently amended] under the National Environmental Management Act, Act 107 of 1998 of intent to carry out the following activity:

(ACTIVITY NO. 21) Any activity including the operation of that activity which requires a mining permit in terms of Section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of mineral resource, including activities for which an exemption has been issued.

**PROJECT TITLE AND DESCRIPTION:**  
**Wonderboom Norite (Pty) Ltd Mining Permit Application**

**LOCATION: A 5 Ha Portion of Portion 99 of the farm De Onderstepoort 300 JR, City of Tshwane Metropolitan Municipality (Pretoria District).**

Should you wish to register as an Interested and Affected Party kindly use the information below to contact us.

**CONSULTANT:** Briel & Associates (Pty) Ltd,  
934 Stangeria Road, Montana Park, 0182  
Tel: 012 548 0317, Fax 086 607 3097,  
E-Mail: [jnortje@brielinc.com](mailto:jnortje@brielinc.com)

**WONDERBOOM NORITE (PTY) LTD**  
FEB 28(BA)4045

**From:** Pierre Briel - Briel Inc. <[pbriel@brielinc.com](mailto:pbriel@brielinc.com)>  
**Sent:** Wednesday, 01 March 2023 08:23  
**To:** Beeld Legals 1 <[legals1@beeld.com](mailto:legals1@beeld.com)>  
**Subject:** RE: 28/02 BRIEL INC BP880748 Wonderboom Norite (Pty) Ltd Mining Permit Application  
**Importance:** High

Goeie more Antoinette,

Kan jy dalk bevestig of die advertensie toe wel geplaas is vir 28 Februarie 2023?

Groete









**BRIEL & ASSOCIATES**  
Mineral Law Compliance

**ANNEXURE 3.4**  
**BID**  
934 Stangeria Road, Montana Park, Pretoria, 0182  
T: 012 548 0317  
F: 086 607 3097  
W: brielinc.com

18 NOVEMBER 2022

Department of Mineral Resources and Energy  
222 Smith Street  
Braamfontein  
JOHANNESBURG  
2017

NOTICE IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT 107 OF 1998,  
ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS 2014 AS

Notice is hereby given in terms of Chapter 5 of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), as amended that Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit over a portion of portion 99 of the farm De Ondestepoort 300 JR, City of Tshwane Metropolitan Municipality, Gauteng Province. In line with the NEMA Environmental Impact Assessment (EIA) Regulations 2014 as amended, Wonderboom Norite (Pty) Ltd has appointed Briel & Associates as the Independent Environmental Assessment Practitioners to undertake Basic Assessment Processes for the proposed mining permit for the mining of aggregates and norite. This serves as a formal notice accompanying the notification email.

1. PROJECT LOCALITY

The mining permit will be located on a portion of portion 99 of the farm De Onderstepoort 300 JR, City of Tshwane Metropolitan Municipality, Gauteng Province. The site is located south of the N4 highway and east of the R101 near Bon Accord dam with its centre coordinates -25.648710°, 28.199264°. The surrounding land use is mostly mined for aggregates and batching plants for concrete production and light industrial uses, with some sustenance farming. The Apies River lies 670 west of the proposed site separated by other properties and the R101 road.

WONDERBOOM NORITE (PTY) LTD
GP 30/5/1/1/2/10473MP
LOCALITY PLAN
THE AREA MARKED WITH THE RED CIRCLE REPRESENTS THE MINING PERMIT AREA

**MINING PERMIT LOCATION**



	LOCALITY PLAN
	DATE: 03-02-2023
	MAP VERSION: 0001

A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEEPOORT 300 JR, CITY OF TSHWANE METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE, MEASURING APPROXIMATELY 5,00 HECTARES IN EXTENT



Figure 1: Project locality



## 2. PROJECT DESCRIPTION

The proposed mining permit is for aggregates and norite for various uses, including construction material. The site will consist of an area of 5 hectares only. The first phase will involve the removal and storage of topsoil with an excavator and storing it in berms on the perimeter of the mining boundary for rehabilitation purposes.

An existing haul road to the north of the site will be used to gain access to the pit to remove and store any overburden material. The aggregate is removed by way of an excavator that load the aggregate onto trucks to be removed from site. No drilling or blasting activities will take place on site. The operations will be limited to daylight operation hours only.

The existing infrastructure on the property will be used to store and repair mining related equipment. Due to the limited number of employees on site (6), the existing office and ablution facilities is sufficient to cater for their needs.

The site is completely fenced off and is also access controlled with a gate and security guard on site 24 hours a day.

General and hazardous waste generated on site will be removed by an authorised disposal company for the type of waste disposed of and a safe disposal certificate will be kept on site. The estimated waste generated is negligible as all the material mined will be utilised and the topsoil stockpiles kept on site as berms to later served a rehabilitation function.

## 3. LEGISLATIVE REQUIREMENTS

The National Environmental Management Act, 107 of 1998 (NEMA), is a national legislation that provides for the authorisation of certain controlled activities known as listed activities. Environmental impact assessments are required for all activities that trigger listed activities as required in the NEMA: Environmental Impact Assessment Regulations of 2014 [as amended].

## 4. OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

The main objective of the process is to obtain the required Environmental Authorisation from the Competent Authority (Department of Mineral Resources and Energy) before the mining activities may commence. The Environmental Assessment Process aims to identify and assess potential environmental impacts associated with the proposed mining activities and to provide for appropriate mitigation and rehabilitation measures.

Activity No	NEMA: Environmental Impact Assessment Regulations: Listing Notice 1 of 2014	Applicability
Activity 21	Listing Notice 1 of 2021 (GNR983): 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.	Mining Application for a mining permit for sand (general) and aggregates, in terms of Section 27 of the MPRDA in respect of a portion of portion 99 of the farm De Onderstepoort 300 JR.

5. PUBLIC PARTICIPATION PROCESS

In terms of the NEMA: EIA Regulations of 2014 as amended; a Public Participation Process (PPP) forms an integral part of the Basic Assessment Process. The public participation process provides Interested and Affected parties who may be affected by the proposed activity(ies) with an opportunity to provide comment and to raise issues of concern about the project or to make suggestions that will be beneficial to the project and register on the project database and/or obtain more information on the project.

The compilation of PPP documents such as this Notification Letter (email and BID) is one of the requirements of Chapter 6 of the NEMA: EIA Regulations of 2014. Other documents that have been drafted as part of the project notification phase include a Site Notice that will be placed on site and its immediate surrounding areas, and an advertisement that will be placed in a local newspaper. The PPP is therefore included as a minimum requirement of this Basic Assessment process. All written submissions will be included in the Draft BAR and submitted to the Department of Mineral Resources and Energy by the Environmental Assessment Practitioner for decision making purposes. You are therefore required to provide us with your written comments on or before 14 April 2023 being 30 days exclusive of all public holidays and weekends.

6. REGISTRATION PROCESS

To register as an Interested and Affected party or Stakeholder, you are required to kindly complete the attached registration form as contained in Annexure A and return same to us as soon as possible and provide us with your comments within the timelines provided herein.

Regards,



BRIEL & ASSOCIATES

**ANNEXURE A: REGISTRATION AS STAKEHOLDER OR INTERESTED AND AFFECTED PARTY**

Title		Initials		Surname	
-------	--	----------	--	---------	--

In which capacity do you wish to register for this project?

Stakeholder	<input type="checkbox"/>	Please make your selection by adding an X next to the section of your choice
Interested Party	<input type="checkbox"/>	
Affected Party	<input type="checkbox"/>	
Landowner	<input type="checkbox"/>	
Adjacent Landowner	<input type="checkbox"/>	
Local Business Owner	<input type="checkbox"/>	
Other (Specify)	<input type="checkbox"/>	

If you are directly affected or an adjacent landowner or local business owner, please complete the following property information?

Farm Portion No		Please provide your property details in the following manner
Farm Name		
Farm Number		
Registration Division		

Your contact details

Landline Number	
Cellphone Number	
Email Address	
Physical Address	
Postal Address	

As a registered Interested and Affected Party or Stakeholder you are entitled to comment, in writing, on all reports or plans submitted during the Public Participation Process, and to bring to our attention any issues which you believe may be of significance to the consideration of the application, provided that you disclose any direct business, financial, personal or other interest which you may have in the approval or refusal of the application.

All personal information collected will be processed lawfully and in a reasonable manner that does not infringe the privacy of the I&APs. Section 11(1)(c) provides that personal information may only be processed if processing complies with an obligation imposed by law on the responsible party. The comments and names of commenting parties will be included the Basic Assessment Reports as per the requirements of the NEMA EIA Regulations and submitted to DMRE to enable informed decision-making.

Signed at		on this		day of		2022
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Signature

# ANNEXURE 3.5 NOTICE TO I&AP

**Pierre Briel - Briel Inc.**

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**From:** Pierre Briel - Briel Inc. <pbriel@brielinc.com>  
**Sent:** Wednesday, 22 February 2023 16:24  
**To:** 'callcentre@environment.gov.za'; 'EIAAdmin@environment.gov.za';  
'amampye@environment.gov.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE  
(PTY) LTD  
**Attachments:** DEPARTMENT OF ENVIRONMENTAL AFFAIRS.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel

## **Pierre Briel - Briel Inc.**

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielinc.com>  
**Sent:** Wednesday, 22 February 2023 16:20  
**To:** 'ninetteb@tshwane.gov.za'; 'HilgardM@tshwane.gov.za';  
'boniswam@tshwane.gov.za'; 'richardmas@tshwane.gov.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE  
(PTY) LTD  
**Attachments:** DEPARTMENT OF WATER AND SANITATION.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel

## **Pierre Briel - Briel Inc.**

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielinc.com>  
**Sent:** Wednesday, 22 February 2023 16:20  
**To:** 'ninetteb@tshwane.gov.za'; 'HilgardM@tshwane.gov.za';  
'boniswam@tshwane.gov.za'; 'richardmas@tshwane.gov.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE  
(PTY) LTD  
**Attachments:** DEPARTMENT OF WATER AND SANITATION.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel

## **Pierre Briel - Briel Inc.**

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielinc.com>  
**Sent:** Wednesday, 22 February 2023 16:26  
**To:** 'naomie@dynamicdiesel.co.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE (PTY) LTD  
**Attachments:** DYNAMIC DIESEL INVESTMENTS PTY LTD.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel



## Pierre Briel - Briel Inc.

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielinc.com>  
**Sent:** Wednesday, 22 February 2023 16:23  
**To:** 'rina.taviv@gauteng.gov.za'; 'nkosana.giyose@gauteng.gov.za';  
'eiaenquiries@gauteng.gov.za'; 'dirk.vandermerwe@gauteng.gov.za';  
'tebo.leku@gauteng.gov.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE  
(PTY) LTD  
**Attachments:** GAUTENG DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel

## **Pierre Briel - Briel Inc.**

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielinc.com>  
**Sent:** Wednesday, 22 February 2023 16:27  
**To:** 'sales@ultimate4x4.co.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE (PTY) LTD  
**Attachments:** MR GA GEDDIE.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel

## **Pierre Briel - Briel Inc.**

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielin.com>  
**Sent:** Wednesday, 22 February 2023 16:27  
**To:** 'henk.deklerk1@icloud.com'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE (PTY) LTD  
**Attachments:** MR HS STEYN.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel

## Pierre Briel - Briel Inc.

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielinc.com>  
**Sent:** Wednesday, 22 February 2023 16:25  
**To:** 'johanbooyesen100@gmail.com'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE (PTY) LTD  
**Attachments:** MR J BOOYSEN.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel

## Pierre Briel - Briel Inc.

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielin.com>  
**Sent:** Wednesday, 22 February 2023 16:19  
**To:** 'leniseb@tshwane.gov.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE (PTY) LTD  
**Attachments:** MRS L BREYTENBACH.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel

## **Pierre Briel - Briel Inc.**

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielin.com>  
**Sent:** Wednesday, 22 February 2023 16:17  
**To:** 'francois.vandermerwe@montpark.co.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE (PTY) LTD  
**Attachments:** PROSPECT SA INVESTMENTS 106 PTY LTD.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**  
Mineral Law Compliance  
Pierre Briel



**119 EP Malan Road, Pomona, 1619; PO Box 14216, Farrarmere, 1518; Tel \_27 11 396 1005  
Prospect SA Investments 106 (Pty) Ltd; Registration # 2003/003929/07 VAT # 4790282356**

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22-02-2023

WONDERBOOM NORITE (PTY) LTD  
934 Stangeria Road  
Montana Park  
0182

RE: APPLICATION FOR A MINING PERMIT IN TERMS OF SECTION 27 OF THE  
MPRDA OVER A PORTION OF PORTION 99 OF THE FARM ONDERSTEPOORT 300JR,  
WONDERBOOM, GAUTENG PROVINCE

We refer to the meeting held between our respective companies today and wish to confirm the following agreement:

1. Prospect SA Investments 106 (Pty) Ltd as the registered landowner and occupier, has no objection to the proposed mining permit application submitted to the department under reference GP30/5/1/2/2/10473MP.
2. It was agreed that the contents of the BAR provided to us, be complied with as all other conditions as may be imposed in the environmental authorisation.
3. It was agreed that Wonderboom Norite comply with the requirements of all applicable legislation as identified in the BAR.
4. It was agreed to that the site will be rehabilitated as described in the BAR or if requirements change to a land use required by the landowner.

We trust you find this in order.

---

PROSPECT SA INVESTMENTS 106 (PTY) LTD  
DIRECTOR  
MR F VAN DER MERWE  
f.vandermerwe@reso.co.za  
074 235 7722

## Pierre Briel - Briel Inc.

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielinc.com>  
**Sent:** Wednesday, 22 February 2023 16:21  
**To:** 'info@sahra.org.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE (PTY) LTD  
**Attachments:** SOUTH AFRICAN HERITAGE RESOURCES AGENCY.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,



**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel



**Subject:** PB143 | WONDERBOOM NORITE | MINNG PERMIT APPLICATION  
**Date:** Thursday, 23 March 2023 at 10:13:07 South Africa Standard Time  
**From:** Pierre Briel  
**To:** cotward96@gmail.com  
**Attachments:** LOCALITY PLAN.pdf, NEWSPAPER EMAIL.pdf, SITE NOTICE.pdf, WARD 96 NOTICE.pdf, 2022 MINING PERMIT RENEWAL.pdf, image001.png

Good day Councillor,

Please find attached hereto the information regarding the new mining permit application.

Kindly contact writer hereof should you have any further questions or concerns.

Kind regards,

Pierre Briel



934 Stangeria Road, Montana Park, Pretoria, 0182  
T: 012 548 0317  
F: 086 607 3097  
C: 082 679 8804  
W: [exaterra.co.za](http://exaterra.co.za)

## Pierre Briel - Briel Inc.

---

**From:** Pierre Briel - Briel Inc. <pbriel@brielin.com>  
**Sent:** Wednesday, 22 February 2023 16:28  
**To:** 'francois@triple-drie.co.za'  
**Subject:** APPLICATION FOR A MINING PERMIT SUBMITTED BY WONDERBOOM NORITE (PTY) LTD  
**Attachments:** WESTROUTE TRADING 172 CC.pdf  
**Importance:** High  
**Sensitivity:** Confidential

Dear Interested and Affected Party,

Wonderboom Norite (Pty) Ltd is in the process of applying for a mining permit on a portion of portion 99 of the far De Onderstepoort 300JR to mine aggregate, norite over a 5-hectare portion.

Should you wish to comment on this project kindly complete the attach form and return to sender as soon as possible.

Regards,

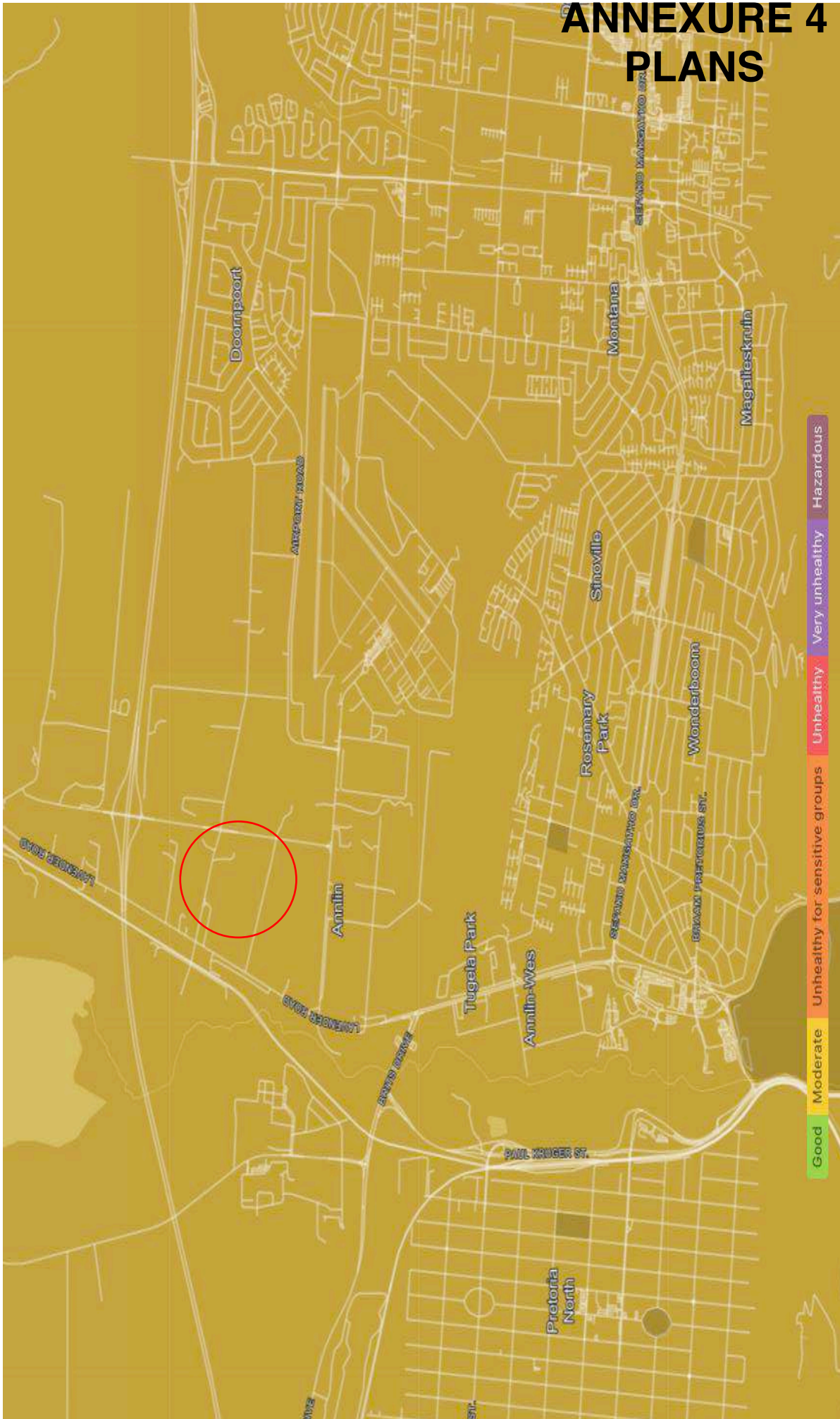


**BRIEL & ASSOCIATES**

Mineral Law Compliance

Pierre Briel

# ANNEXURE 4 PLANS



AIR QUALITY PLAN

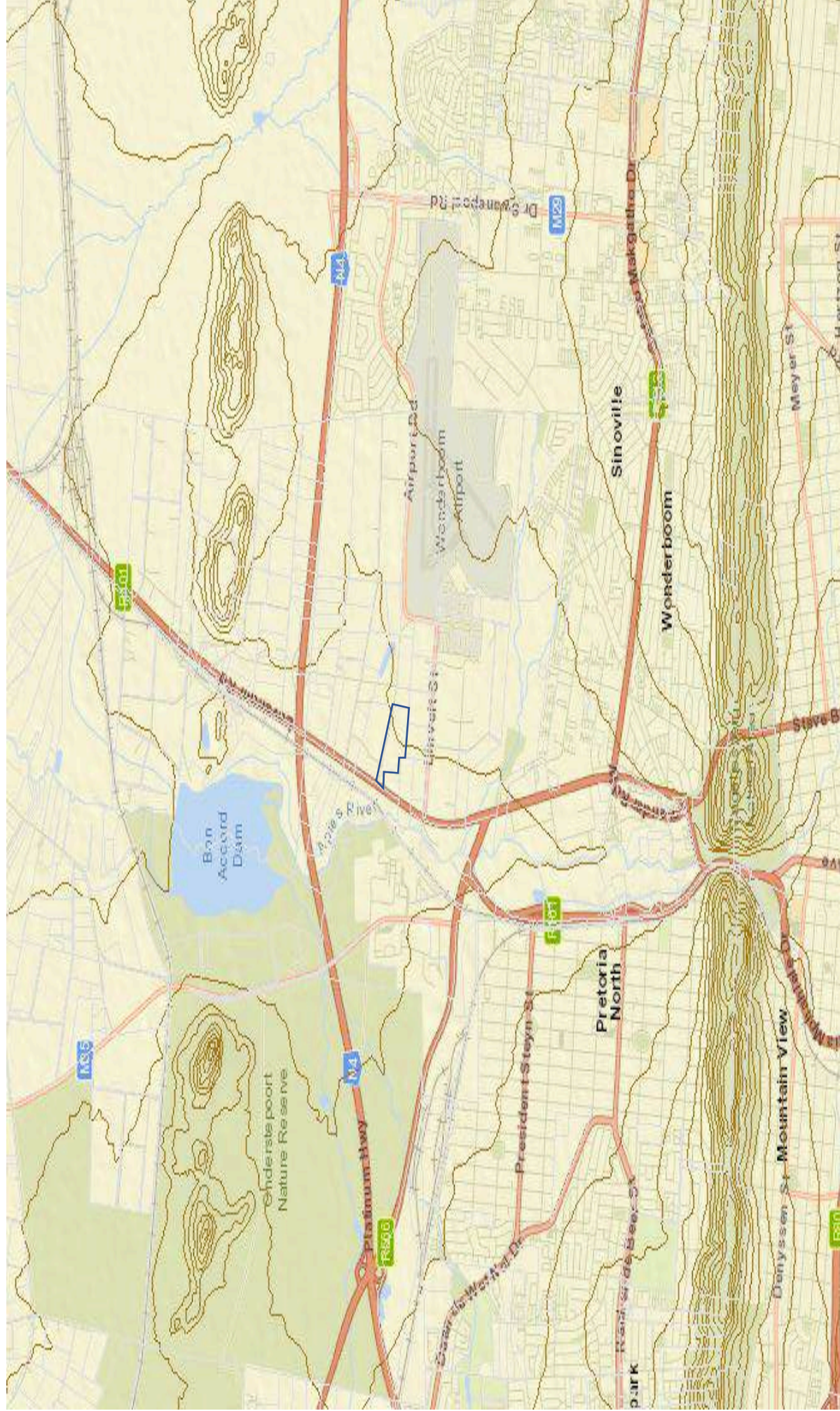
DATE: 17-04-2023

MAP VERSION: 0001

A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE







CONTOUR PLAN

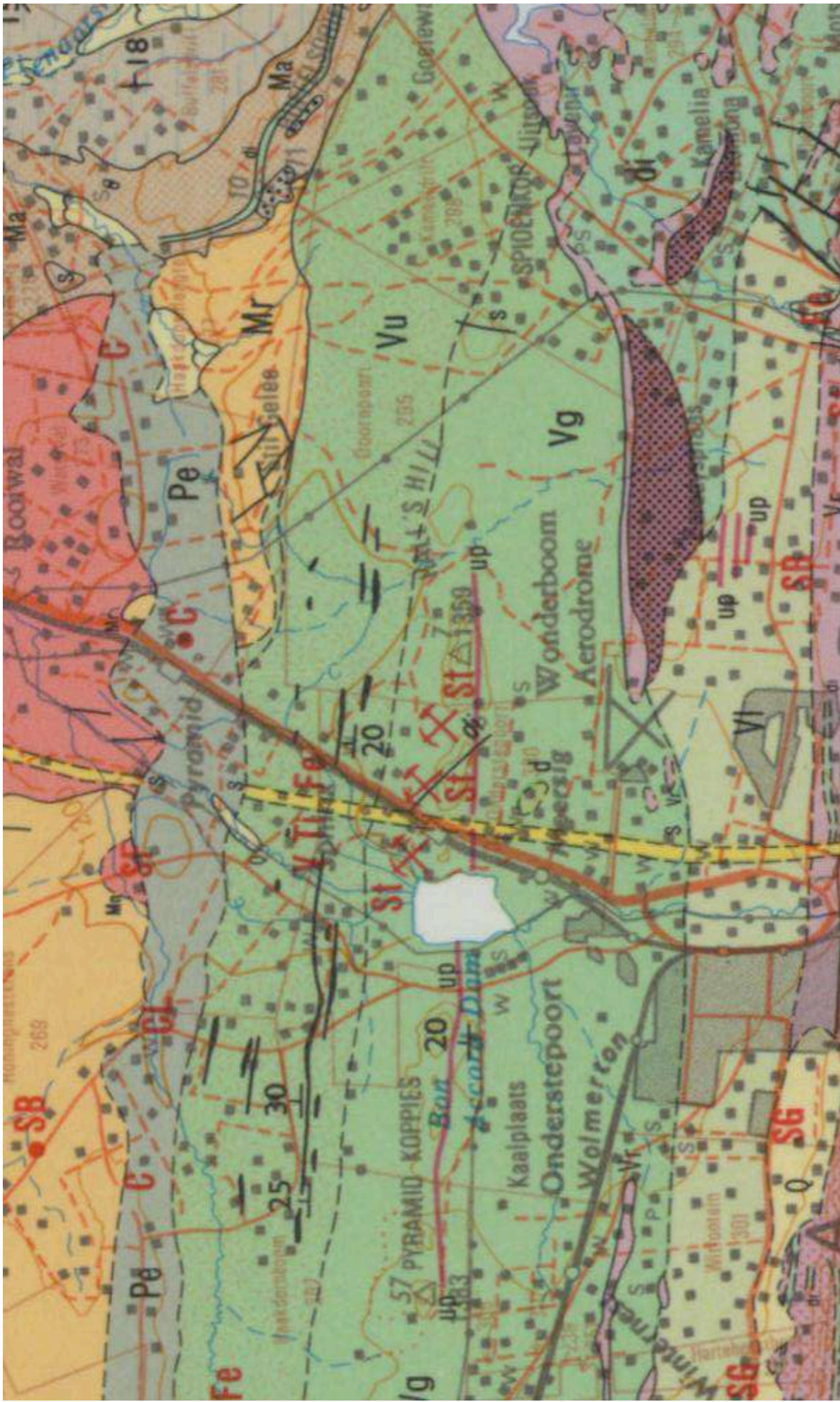
DATE: 17-04-2023

MAP VERSION: 0001

A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEEPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE







A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEPSPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE

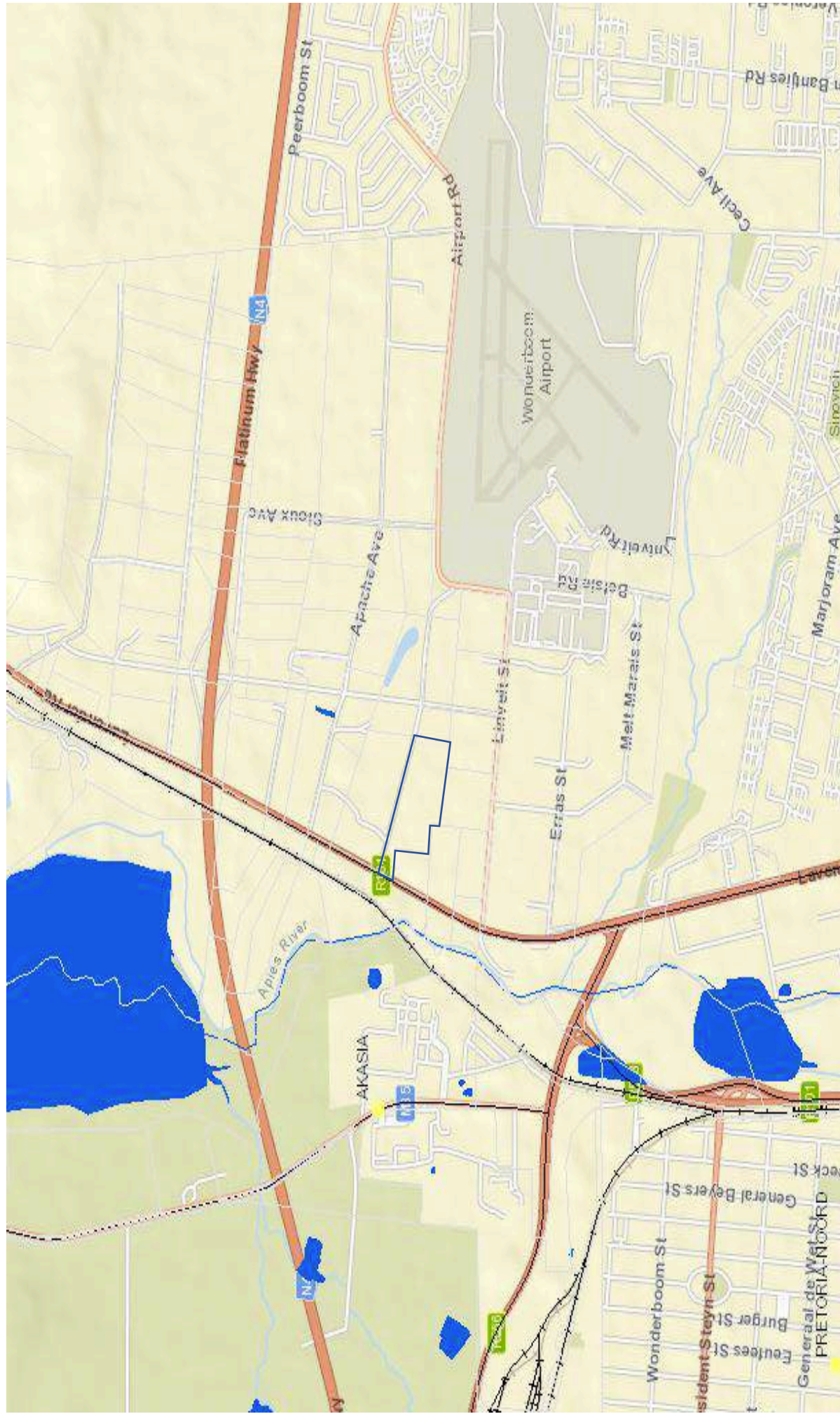
SIMPLIFIED GEOLOGY PLAN

DATE: 17-04-2023

MAP VERSION: 0001







GROUND & SURFACE WATER PLAN

DATE: 17-04-2023

MAP VERSION: 0001

A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEPOORT 300 JR, PRETORIA  
NORTH, GAUTENG PROVINCE







LAND USE PLAN

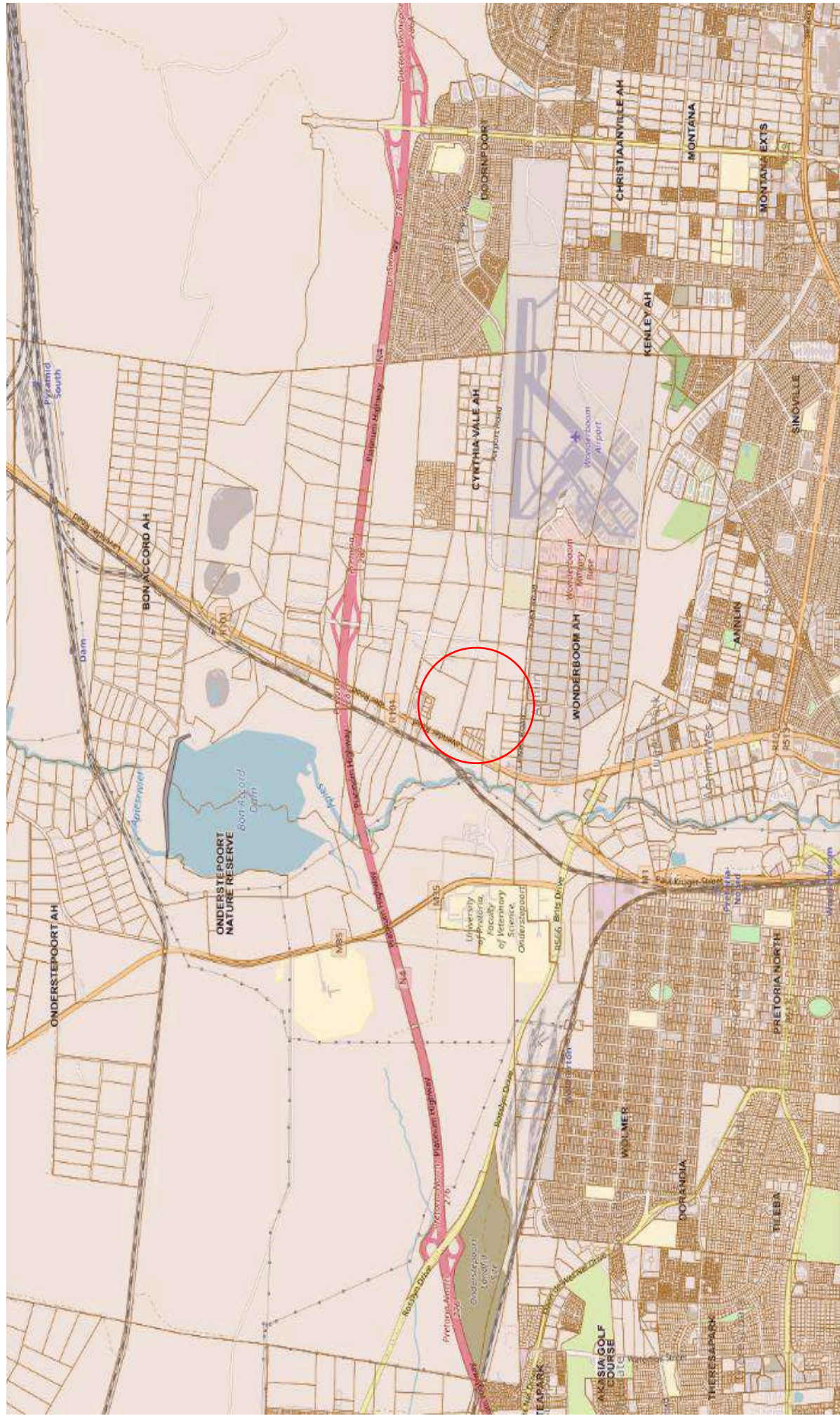
DATE: 17-04-2023

MAP VERSION: 0001

A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEEPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE







LOCALITY PLAN

DATE: 17-04-2023

MAP VERSION: 0001

A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE







**NOISE AREA PLAN**

**DATE: 17-04-2023**

**MAP VERSION: 0001**

**A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEEPPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE**





**Threatened ecosystems original extents**



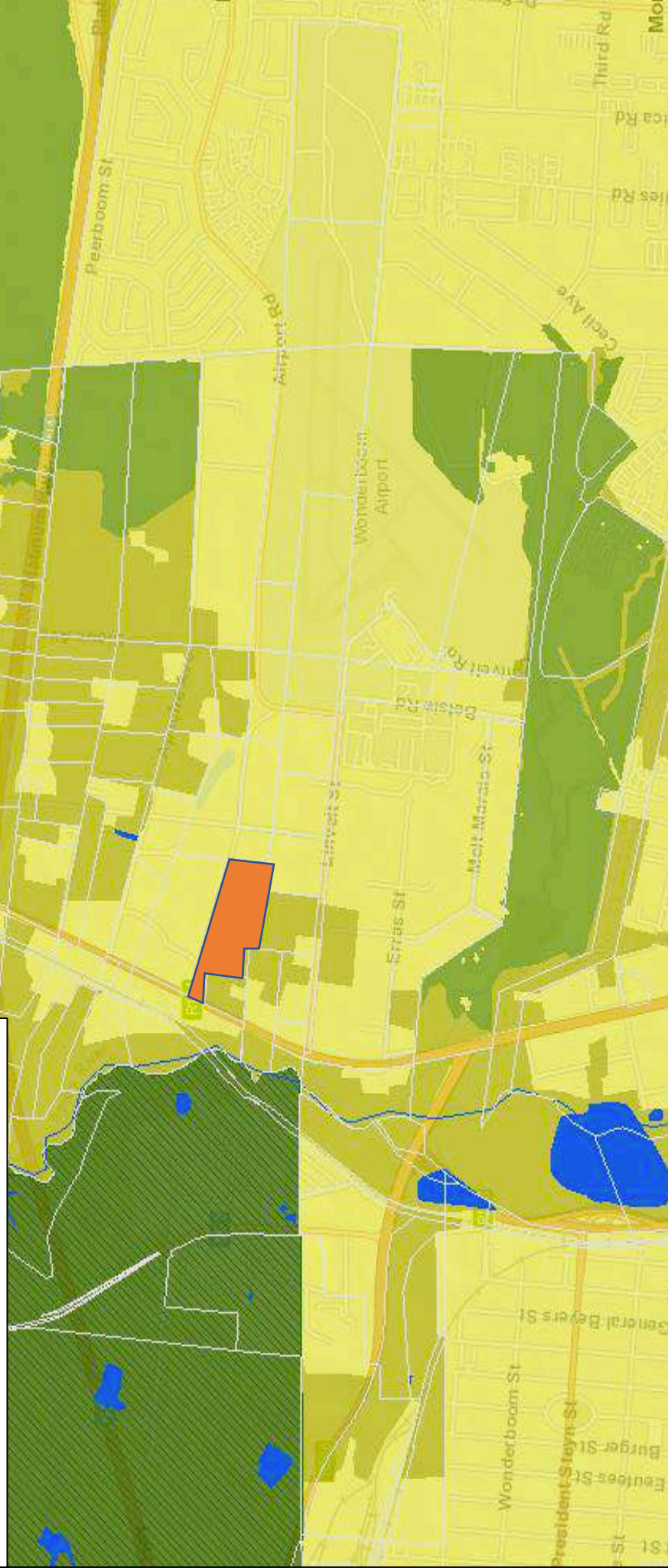
Critically Endangered



Endangered



Vulnerable



A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEEPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE

**SENSITIVE HABITATS**

**DATE: 17-04-2023**

**MAP VERSION: 0001**



**LEGEND**

- Portion 99 boundary
- Access road
- Mining Permit area 5Ha

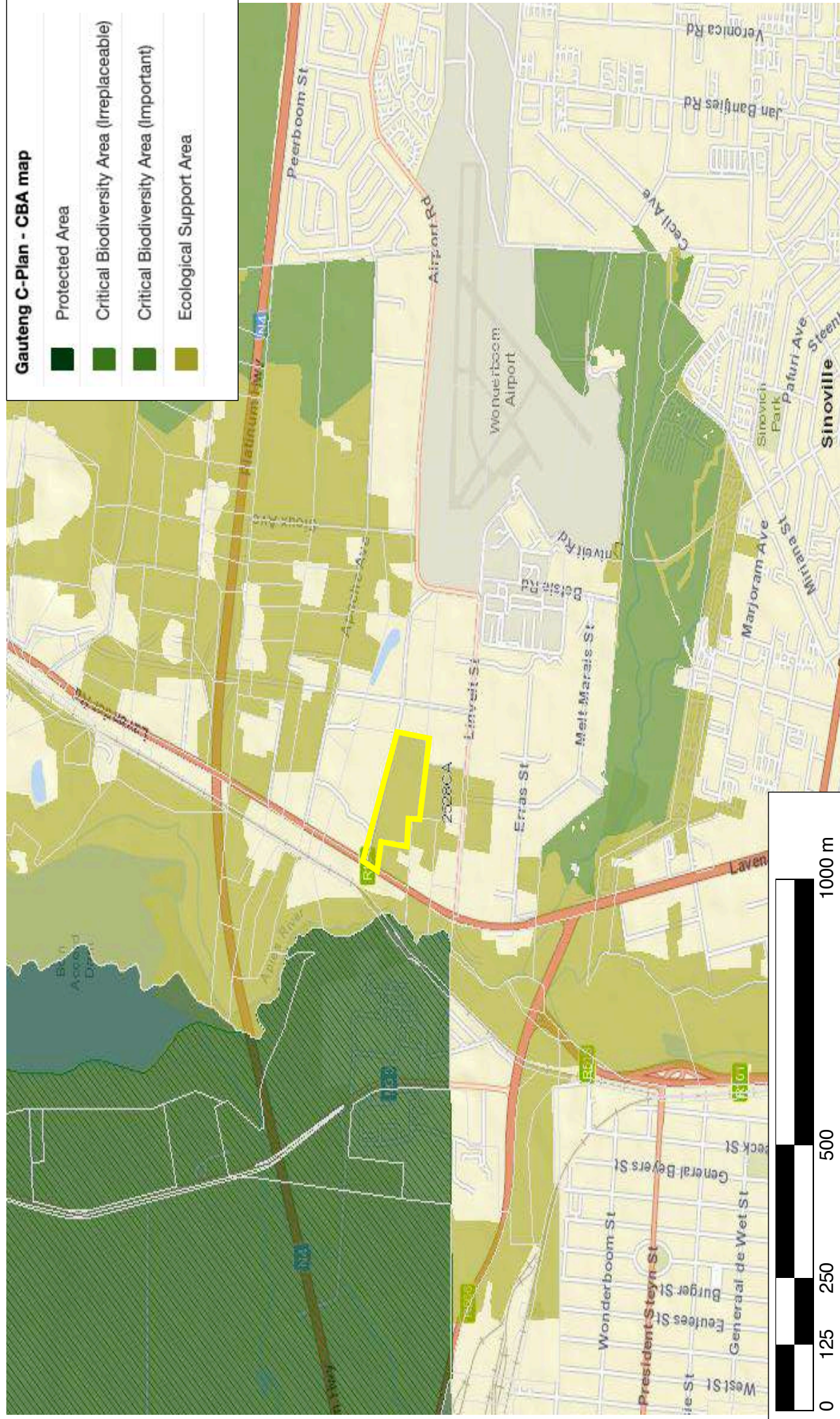


<b>SITE LAYOUT PLAN</b>	
<b>DATE: 17-04-2023</b>	
<b>MAP VERSION: 0001</b>	

**A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEEPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE**







**Gauteng C-Plan - CBA map**

- Protected Area
- Critical Biodiversity Area (Irreplaceable)
- Critical Biodiversity Area (Important)
- Ecological Support Area



VEGETATION PLAN

DATE: 17-04-2023

MAP VERSION: 0001

A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE



# ANNEXURE 5 IMPACT ASSESSMENT

## IMPACT ASSESSMENT – FEBRUARY 2023

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Use of access roads	Drainage disturbance	Increased turbidity as a result of storm water run-off from cleared areas and roads	Pre-construction, Construction, Operational and Decommissioning Phases	Low	To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Very Low
	Surface water pollution	Chemical pollution of water as a result of leaks or spills from vehicles		Low	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Very Low
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route		Low	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Very Low
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Low	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Mine site establishment	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Low	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Very Low
	Air pollution	Increase in dust levels, especially during the dry and windy season		Low	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Very Low
Mine site establishment	Soil pollution	Soil pollution caused by leakages and spills from vehicles and littering	Pre-construction and Construction Phase	Low	Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling. The existing road infrastructure as indicated in the land use map should be used, where possible.	Very Low
	Surface water pollution	Contamination of surface water caused by the storage and disposal of construction and domestic waste		Low	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Very Low
Mine site establishment	Disturbance of landforms and soils	Acceleration of erosion and loss of topsoil at cleared areas		Low	Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must be kept as small as possible and must be rehabilitated as soon as possible. The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPR. Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.	Very Low
	Drainage disturbance	Increased turbidity as a result of storm water run-off from cleared areas and roads		Low	To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	
	Surface water pollution	Chemical pollution of water as a result of leaks or spills from vehicles		Low	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Very Low
	Surface water pollution	Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material) by means of wind and rain		Low	Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover. To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Very Low
	Groundwater pollution	Added pressure on water resources		Low	Water should be used sparingly, and it should be ensured that no water is wasted e.g., regular inspection of pipes to ensure that no leaks occur. Water tanks should be regularly inspected to ensure that no leaks occur.	Very Low
	Disturbance of aesthetic environment	Loss of sense of place		Low	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
	Disturbance of aesthetic environment	Visual disturbance to surrounding residents as a result of the temporary structures and mining activities		Low	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Very Low
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route		Low	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Very Low
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Low	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Very Low
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Low	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Very Low
	Air pollution	Increase in dust levels, especially during the dry and windy season		Low	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Very Low
	Health, safety, and security problems	Loss of human lives as a result of mining activities and the movement of construction vehicles on site		Very high	The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas.	Very Low



NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					<p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
	Health, safety, and security problems	Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site		Medium	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p>	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					<p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
	Health, safety, and security problems	Increased criminal activities		Low	<p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p>	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					Strict access control must be exercised to ensure that no unauthorised persons enter the property. Workers may not receive any visitors while they are within the property. Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.	
	Environmental protection	Increasing environmental awareness by educating community and contractors on the outlines of the EMP		Very high (Positive Impact)	N/A	N/A
	Disturbance	Degradation of the access road		Low	Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas. Any damage to public or private property, including roads, storm water systems, fences, gates, buildings and other structures, pipes, lines and other utilities or infrastructure and movable properties, should be repaired, replaced, or otherwise compensated for as agreed with the affected person. The applicant must arrange for a discussion session with the surrounding access route users with regard to the maintenance of the access road. A complaints register should be maintained to log complaints by landowners, occupants and other interested and Affected Parties, and response to such complaints. The complaints register should be provided to DMR on an annual basis and at any point in time if requested by the DMR.	Very Low
	Disturbance of landforms and soils	Loss of available agricultural land		Low	Care must be taken that unnecessary clearance of vegetation does not take place. The footprint of disturbance outside the mining area must	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Topsoil storage	Disturbance of landforms and soils	Acceleration of erosion and loss of topsoil at cleared areas	Pre-construction Construction Phase	Low	be kept as small as possible and must be rehabilitated as soon as possible.	Very low
		Decrease in water quality as a result of the transportation of stockpiled material (topsoil and infill material by means of wind and rain		Low	Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover. Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover. To prevent storm water damage, the increase in storm water run-off resulting from mining activities must be estimated and the drainage system assessed accordingly, to prevent downstream impacts on water resources (including but not limited to scouring, sedimentation, erosion, and undercutting).	Very Low Low
	Air pollution	Increase in dust levels, especially during the dry and windy season	Low	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Very Low	
Chemical and fuel transportation and storage	Soil pollution	Contamination of soils as a result of leaks or spills from temporary storage area for oil and chemicals	Construction Operational Phases	Low	The storage and maintenance yard must be situated at least 100 m from any watercourse or dam. All hazardous substances should be stored in suitable containers. The containers should be clearly marked to indicate contents, quantities, and safety requirements. All storage areas must be bunded. The bunded area should be of sufficient capacity to contain a spill / leak from the stored containers. An Alphabetical Hazardous Chemical Substance (HCS) control sheet should be drawn up and kept up to date on a continuous basis. All hazardous chemicals that will be used on site should have Material Safety Data Sheets (MSDS). All employees working with HCS should be trained in the safe use of the substance and according to the safety data sheet. In the event of oil/ fuel spillages spill kits or absorbents must be kept at the site. A bund wall should be constructed around the diesel-powered generators and generators should be kept in a drip tray. The run-off	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE If mitigated
					should be disposed of at the nearest approved fuel recycling collection point. The telephone number and contact details of a 24-hour response hazardous material clean-up company shall also be on site, in the unlikely event of large spills taking place	
Equipment transportation	Soil pollution	Soil pollution caused by leakages and spills from vehicles and littering	Construction and Operational Phases	Low	Drip trays must be used when refuelling and servicing construction vehicles or equipment. A spill "sock" should permanently be placed within the drip tray and replaced as and when required. Drip trays must be placed underneath stationary construction vehicles and the hazardous waste (e.g., fuel, oils etc.) taken to the nearest approved oil refiner or fuel recycling point for recycling. The existing road infrastructure as indicated in the land use map should be used, where possible.	Very Low
	Surface water pollution	Chemical pollution of water as a result of leaks or spills from vehicles		Low	In order to contain oil and fuel spills, drip pans or PVC lining shall be provided for plants and drip pans. Spill kits be readily available on site and in every vehicle. Existing roads / tracks should be used wherever possible. Any new tracks must be pre-approved by the ECO and landowner. It should be ensured that steep slopes and sensitive environments (e.g., watercourses) are avoided during the planning of the new routes.	Very Low
	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Low	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Very Low
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Low	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Very Low
Excavation of the open pit	Disturbance of aesthetic environment	Loss of sense of place	Operational Phase	Low	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site.	Very Low



NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	
	Disturbance of aesthetic environment	Visual disturbance to surrounding residents as a result of the temporary structures and mining activities		Low	Regular clean-up programs must be applied at and around the site to prevent litter and to ensure proper housekeeping practices. Access to the site should be pre-arranged with the landowner. Only authorised personnel may be permitted on site. The mining area and stockpiled material must be positioned and managed in an ecologically sound manner, minimising the potential negative impacts on the surrounding environment.	Very Low
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route		Low	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Very Low
	Health, safety, and security	Loss of human lives as a result of mining activities and the movement of construction vehicles on site		Very high	The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas. Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times. No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					<p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
	Health, safety, and security	Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site		Medium	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p> <p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p>	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					<p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
Waste removal and disposal	Soil pollution	Soil pollution caused by littering	Operational Phase	Low	<p>Solid waste must be kept in adequate animal proof waste bins at mining site.</p> <p>Regular clean-up programs should be put into effect along the access road and throughout the premises to limit the impact of littering caused by mining activities.</p>	Very low
	Surface water pollution	Contamination of surface water caused by the storage and disposal of domestic waste		Low	<p>Regular clean-up programs must be put into effect throughout the site to limit the impact of littering caused by mining activities.</p>	Very low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Sewage removal and disposal	Surface water pollution	Contamination of surface water caused by the storage and disposal of domestic waste	Operational Phase	Low	Chemical sanitation facilities should be used on site and regularly serviced by appropriate companies to ensure that no spills or leaks from toilets to groundwater or surface water take place. Chemical sanitation facilities should not be positioned closer than 100m from the edge of non-perennial surface streams. The ratio of one toilet for every 15 workers on site should be maintained.	Very low
	Noise	Elevated noise levels in the area as a result of the front-end loader and the movement of hauling trucks along the access route	Decommissioning and Rehabilitation Phase	Low	Vehicles and construction equipment must be well serviced so that they do not produce excessive noise. Mining should only take place between 08h00 and 17h00 from Monday to Friday. It should be ensured that the personnel comply with speed restrictions of 20 km per hour within the site boundaries to reduce the generation of noise. Contractors must comply with provincial noise regulations. The construction machinery must be fitted with noise mufflers and be maintained properly.	Very Low
General site levelling and re-instatement	Disturbance	Nuisance to the surrounding residents and livestock caused by excessive movement of construction vehicles or machinery on the property		Low	Mining should only take place between 08h00 and 17h00 from Monday to Friday.	Very Low
	Air pollution	Increased levels of noxious gas emissions from construction vehicles and machinery		Low	Vehicles and construction equipment must be well serviced so that it does not produce excessive smoke.	Very Low
	Air pollution	Increase in dust levels, especially during the dry and windy season		Low	It should be ensured that the personnel comply with speed restriction of 20 km per hour within the site boundaries to reduce the generation of dust.	Very Low
	Health, safety, and security	Loss of human lives as a result of mining activities and the movement of construction vehicles on site		Very high	The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities. No open fires are allowed outside designated cooking areas.	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					<p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
	Health, safety, and security	Injuries to residents and construction workers as a result of mining activities and the movement of construction vehicles on site		Medium	<p>The site must be properly demarcated and the proposed access routes approved by the ECO and landowner prior to the commencing of the mining activities.</p> <p>No open fires are allowed outside designated cooking areas.</p>	Very Low



NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					<p>Site supervisors must ensure that the staff remain within the demarcated mining areas and access routes at all times.</p> <p>No smoking is to be allowed in the vicinity of fuel dispensing areas (smoking is only to be allowed in designated "safe" areas).</p> <p>Adequate firefighting equipment must be available onsite at all times and at least one person present on the site must be trained in the use thereof.</p> <p>Labourers and contract workers (if any) should be accompanied by a responsible supervisor at all times.</p> <p>Strict access control must be exercised to ensure that no unauthorised persons enter the property.</p> <p>The workers must wear Personal Protective Equipment (PPE) to ensure their safety during mining.</p> <p>Workers may not receive any visitors while they are within the property.</p> <p>Workers should not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares, or otherwise dangerous objects on-site, or to enter the mining area while on the influence of alcohol or drugs.</p> <p>Disturbance should be limited to the minimum and agreed upon footprint, and no vehicle turning, parking or access, or other form of disturbance e.g., vegetation clearance, soil compaction or excavation should be allowed outside these areas.</p> <p>It must be ensured by the relevant contractor that a list of all the relevant emergency telephone numbers and contact persons are kept up to date and posted at relevant locations at the site.</p>	
Soil amelioration and revegetation	Ecological disturbance	The introduction and spreading of exotic invasive weed species at cleared areas	Decommissioning and Rehabilitation Phases	Low	Alien invasive plants should be removed from all disturbed and subsequently rehabilitated areas.	Very Low
	Aesthetic environment	The rehabilitation process will enhance the scenic beauty of the area		Low	N/A	Very Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
	Air pollution	Excessive dust generation along access roads and rehabilitated areas		Low	<p>Topsoil must only be used for rehabilitation purposes and not for any other use example i.e., construction of roads.</p> <p>Topsoil must be stored on site for it to be used for rehabilitation purposes (e.g., preparation of seed bank on levelled or cleared areas). If necessary, a mixture of treated compost can be applied to assist re-growth.</p> <p>All stockpiles should be kept &lt;1.8 m with slopes not exceeding 18 degrees.</p> <p>The duration of storage of the topsoil should be minimised as much as possible.</p> <p>The topsoil must be uniformly redistributed in a manner that assures placement and compaction compatible with the needs of the species that will be used to restore the disturbed area.</p> <p>Stockpiles / redistributed topsoil can also be kept wet to prevent fine particles being removed by wind. This should be done to prevent erosion and to prevent the wash-away of valuable topsoil resulting in the sedimentation of streams.</p> <p>Any stockpiles that start to erode significantly or cause dust problems, should be covered with hessian or a plastic cover.</p> <p>The existing road infrastructure as indicated in the land use map should be used, where possible.</p> <p>Rehabilitation of the disturbed area will be ongoing as the project proceeds in order to prevent the erosion of soils during rainy events.</p> <p>Cut slopes will not be steeper than 1:2 (V:H) and must be rounded off at the top edge.</p>	Very low

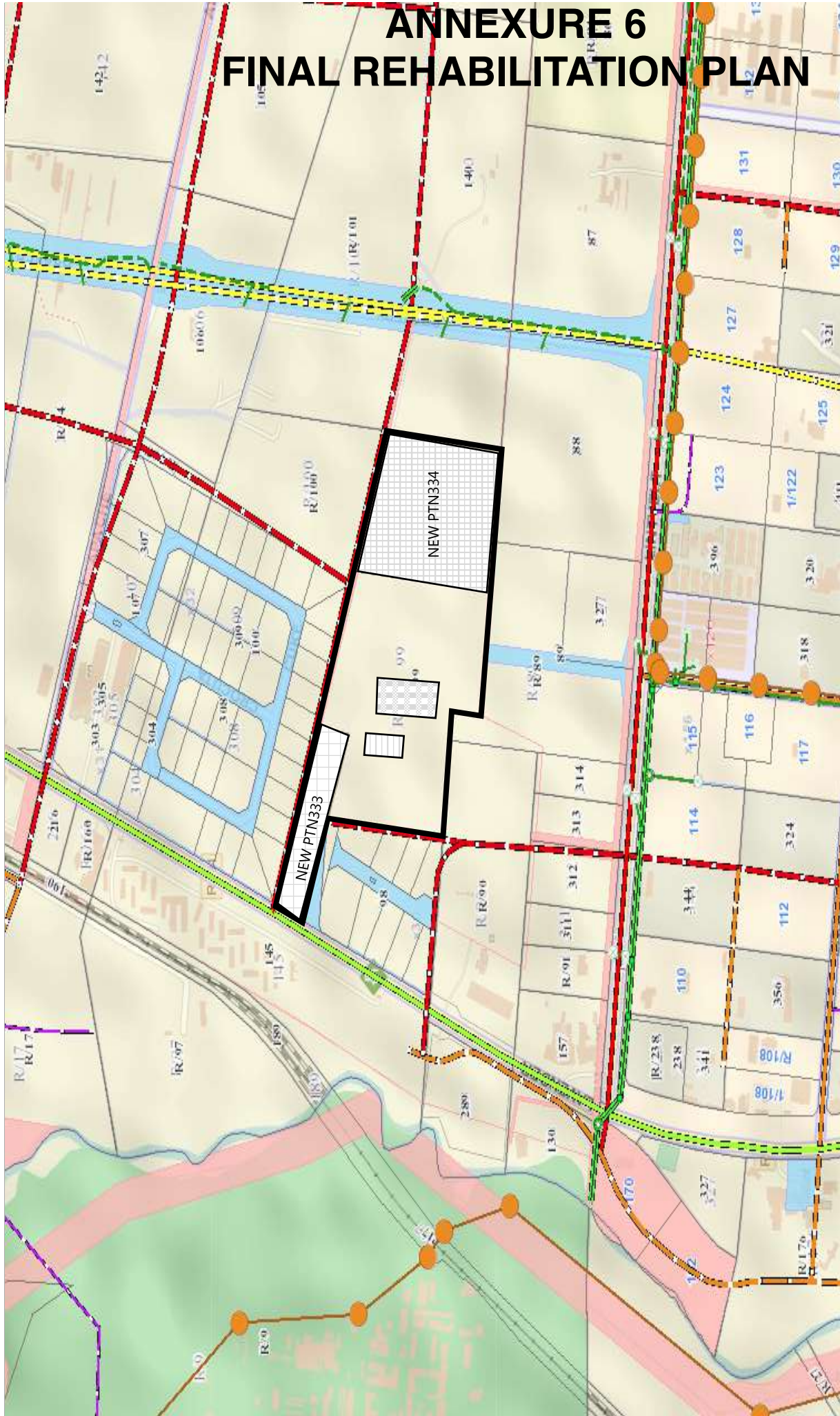
# ANNEXURE 6 FINAL REHABILITATION PLAN



FINAL REHABILITATION PLAN

DATE: 17-04-2023

MAP VERSION: 0001



A PORTION OF PORTION 99 OF THE FARM DE ONDERSTEPOORT 300 JR, PRETORIA NORTH,  
GAUTENG PROVINCE



No.	Description	Unit	Quantity (A) Step 4.5	Master Rate (B) Step 4.3	Multiplication factor (C) Step 4.3	Weighting factor 1 (D) Step 4.4	Amount (E = A * B * C * D)
1	Dismantling of processing plant & related structures (incl. overland conveyors & Power lines)	m <sup>3</sup>	0,00	R17,63	1,00	1,00	R0,00
2(A)	Demolition of steel buildings & Structures	m <sup>2</sup>	0,00	R245,52	1,00	1,00	R0,00
2(B)	Demolition of reinforced concrete buildings & structures	m <sup>2</sup>	0,00	R361,81	1,00	1,00	R0,00
3	Rehabilitation of access roads	m <sup>2</sup>	0,00	R43,93	1,00	1,00	R0,00
4(A)	Demolition & rehabilitation of electrified railway lines	m	0,00	R426,42	1,00	1,00	R0,00
4(B)	Demolition & rehabilitation of non-electrified railway lines	m	0,00	R232,60	1,00	1,00	R0,00
5	Demolition of housing &/or administration facilities	m <sup>2</sup>	0,00	R491,03	1,00	1,00	R0,00
6	Opencast rehabilitation including final voids & ramps	ha	5,00	R249 910,47	0,04	1,00	R49 982,09
7	Sealing of shafts, adits & inclines	m <sup>3</sup>	0,00	R131,80	1,00	1,00	R0,00
8(A)	Rehabilitation of overburden & spoils	ha	0,00	R171 603,46	1,00	1,00	R0,00
8(B)	Rehabilitation of processing waste deposits & evaporation ponds (basic, salt producing waste)	ha	0,00	R213 729,01	1,00	1,00	R0,00
8(C)	Rehabilitation of processing waste deposits & evaporation ponds (acidic, metal-rich waste)	ha	0,00	R620 770,36	0,51	1,00	R0,00
9	Rehabilitation of subsided areas	ha	0,00	R143 692,06	1,00	1,00	R0,00
10	General surface rehabilitation	ha	0,00	R135 680,45	1,00	1,00	R0,00
11	River diversions	ha	0,00	R135 938,89	1,00	1,00	R0,00
12	Fencing	m	0,00	R155,06	1,00	1,00	R0,00
13	Water management	ha	0,00	R51 687,79	0,17	1,00	R0,00
14	2 to 3 years of maintenance & aftercare	ha	5,00	R18 090,73	1,00	1,00	R90 453,63
15	Specialist study - Development of Closure Plan	Sum	0,00	R0,00	1,00	1,00	R0,00
<b>Subtotal 1</b>							<b>R140 435,73</b>
1	Preliminary and General		8 426,14		Terrain Weighting Factor 1	1,00	R8 426,14
2	Contingency		14043,6				R14 043,57
<b>Subtotal 2</b>							<b>R162 905,44</b>
Add VAT (15%)							R24 435,82
<b>GRAND TOTAL</b>							<b>R187 341,26</b>