PROPOSED AGGREGATE MINE ON A PORTION OF PORTION 1 OF FARM RUIGTEVLEY 97 KQ, THABAZIMBI LOCAL MUNICIPALITY, LIMPOPO PROVINCE.

FINAL BASIC ASSESSMENT REPORT

DECEMBER 2024

REFERENCE NUMBER: LP 30/5/1/3/2/12396 MP

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EXECUTIVE SUMMARY

The Applicant, Inzalo Crushing and Aggregates (Pty) Ltd, applied for environmental authorisation (EA) and a mining permit to mine stone aggregate/ gravel on a portion of Portion 1 of Farm Ruigtevley 97 KQ, Thabazimbi Local Municipality, Limpopo Province.

The proposed mining footprint will be 4.9 ha and will be developed over an undisturbed area of the farm. The mining method will make use of blasting in order to loosen the hard rock; the material will then be loaded and hauled to the crushing plant where it will be screened to various sized stockpiles. The aggregate will be stockpiled until it is transported from site using tipper trucks. All mining related activities will be contained within the approved mining permit boundaries.

The proposed project triggers listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations 2014 (as amended 2017) and therefore requires an environmental impact assessment (basic assessment process) that assess project specific environmental impacts and alternatives, consider public input, and propose mitigation measures, to ultimately culminate in an environmental management programme that informs the competent authority (Department of Mineral Resources and Energy) when considering the environmental authorisation. This report, the Fraft Basic Assessment Report, forms part of the departmental requirements, and presents the first report of the EIA process.

Site Alternative 1 (Preferred and Only Site Alternative):

Site Alternative 1 (S1) (Preferred Alternative and only site alternative): The Applicant, applied for a 4.9 ha mining permit to mine stone aggregate/ gravel on a portion of Portion 1 of Farm Ruigtevley 97 KQ, Thabazimbi Local Municipality. The proposed mining area is over an undisturbed and inactive area of the farm.

The proposed area was deemed as the preferred area due to the location of the mineral reserve which is situated over an undisturbed and inactive area of the farm.

An alternative layout for the quarry, has been assessed in the pre application phase – Site Alternative 2 but not found viable as explained below.

Site Alternative 2:

Site Alternative 2 (S2) was assessed for the proposed mining but found not environmentally and practically suitable. Site alternative 1, was deemed the only viable site alternative as this is the only area that will be viable for the applicant due to the presence of the aggregate reserve. Although the position of Site Alternative 2 will still allow the development of the quarry on the property, it is believed

that the impact associated with this site alternative is of higher significance without the need or motivation justifying it.

No-go Alternative:

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

Public Participation Process:

In accordance with the timeframes stipulated in the EIA Regulations, as amended, the Draft Basic Assessment Report was compiled and was distributed for comment and perusal to the I&AP's and stakeholders. A 30-day commenting period, ending 14 November 2024, was allowed for perusal of the documentation and submission of comments. The comments received on the DBAR was incorporated into the Final Basic Assessment Report (FBAR) to be submitted for decision making to DMRE.

During this public participation process the relevant stakeholders and I&AP's were informed of the project by means of an advertisement in Bushvelder on 10 October 2024 and two on-site notices were placed at visible locations, one on the farm boundary fence at the entrance and another one at Buzz Café in Thabazimbi.

Basic Assessment Report:

The basic assessment report identifies the potential positive and negative impacts that the proposed activity will have on the environment and the community as well as the aspects that may impact on the socio-economic conditions of directly affected persons and proposes possible mitigation measure that could be applied to modify / remedy / control / stop the identified impacts.

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

Topography:

- The natural topography the proposed excavated area can be described as flats and undulating plains from Assen northwards past Thabazimbi and remaining west of the Waterberg Mountains towards Steenbokpan in the north. Some patches occur between the Crocodile and Marico Rivers to the west.

The elevation loss from the nearest road to the other side if the hill of the proposed mining footprint to be 12.5 m over 579m.

Visual Characteristics:

- The viewshed analysis showed that the visual impact of the proposed aggregate mining operation will be of low significance. The small scale of the proposed operation, and the mining area will be behind the hill which is semi-visible from the nearest dwellings. Should the Applicant successfully rehabilitate the mining area (upon closure), no residual visual impact is expected upon closure of the mine.

Air and Noise Quality:

- The proposed activity will contribute the emissions mechanical mining equipment to the receiving environment for the duration of the operational phase. Should the permit holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the traffic of the surrounding area.

Geology and Soil:

- The geology of the proposed area can be described as sandstone and mudstone of the Matlabas Subgroup and sandstone, subordinate conglomerate, siltstone and shale of the Kransberg Subgroup (both Mokolian Waterberg Group) are found in the north. Archaean granite and gneiss of the Swazian Erathem and granite of the Lebowa Granite Suite (Bushveld Igneous Complex) are found in the west and southeast of the area, respectively. Soils are plinthic catena, eutrophic, red-yellow apedal, freely drained, high base status, Hutton and Clovelly with some Glenrosa and Mispah soil forms. Several areas have less sandy soil than that of SVcb 12 Central Sandy Bushveld. Land types mainly Bd, Ah, Ae and Fa.

Hydrology:

- The proposed mining area falls within the A41A quaternary catchment which falls within the upper reaches of the Matlabas/Mokolo Sub Water Management Area that is situated in the LIMPOPO Water Management Area which is managed by the Department of Water and Sanitation (DWS). The proposed mining area is not located within 500m of any water resources. Any other water will be bought from a registered source and transported to site.

- According to the Aquatic Compliance Statement (Appendix M1), no natural wetlands were identified within the proposed development area; therefore, no ecological and impact assessments were conducted for the proposed project. As per the specialist statement, the proposed project is not anticipated to have any impact on the aquatic biodiversity of the area as no natural freshwater resources were identified within the proposed development area. Therefore, the proposed development can be favourably considered for authorisation.

Mining, Biodiversity and Groundcover:

- The area falls over an area of high risk for mining therefore the risk is seen to be significant. The Mining and Biodiversity Guideline's describes areas of high-risk biodiversity importance as: "Critically endangered and endangered ecosystems." The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

- According to the Terrestrial Biodiversity Statement (Appendix M), the location, state and size of the ecosystem suggests that it is unlikely that any functional habitat or SCCs will be lost as a result of the impacts arising from the proposed activities. However, these assumptions pertain to the terrestrial habitat within the PAOI only. It is the opinion of the specialist that the proposed development is favourable only if all mitigation measures provided in this and other specialist reports are implemented, as well as the following:

    - A site walkdown during the correct flowering season (between November and March) must be conducted for all protected plant species present on site, along with the acquisition of permits for the relocation/destruction of species;

    - An alien invasion plant (AIP) management plan must be compiled and implemented; and

    - A rehabilitation plan must be compiled and implemented for all areas of the PAOI impacted by the project activities.

Fauna

- Various small mammals and reptiles occur are likely to on the property. The fauna at the site will not be impacted by the proposed mining activities as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. If the mining permission is approved, the farm owner will be contacted before the start of any activities to ensure the safety of the workers and the animals on the site. Workers will be informed and managed to ensure that no fauna at the site is harmed. No poaching or hunting of animals will be allowed. All construction vehicles must adhere to a low-speed limit (<40km/h) to avoid collisions with susceptible species such as snakes and tortoises. Trenches and deep excavations should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.

Cultural and Heritage Environment:

- According to the Heritage Impact Assessment (Appendix M2), the project area is characterised by a wooded area with reddish sand and gravel soils. The project area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. Two observations were made including a small cement and brick foundation (48 m to the west of the development footprint) recorded as RV002 and a degraded road just to the west of the development footprint recorded as RV001. It should be noted that RV002 can be associated with unmarked graves and this area should be avoided during development. The features potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and they are of no significance apart from mentioning them in this report. According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant/zero palaeontological sensitivity and no further studies are required or this aspect.

- The impact to heritage resources is expected to be low provided that the recommendations in HIA report are adhered to and based on the South African Heritage Resource Authority (SAHRA) 's approval.

Site Specific Infrastructure:

- Apart from the rural residential dwelling approximately 39 km from the mining permit area. No other infrastructure has been established on the property that can be affected by the proposed development.

- During the environmental impact assessment process, the feasibility of the proposed site was assessed to identify fatal flaws that are deemed as severe as to prevent the activity continuing or

warrant a site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.

Environmental Management Programme (EMPR)

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

The financial provision amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum of R 438,334.30

LIST OF ABBREVIATIONS

BGIS	Biodiversity GIS
ABSA	Aquatic Biodiversity Specialist Assessment
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
DBAR	Draft Basic Assessment Report
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DMRE	Department of Mineral and Resources and Energy
DoT	Department of Transport
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment Regulations, 2014 (as amended 2017)
EMPR	Environmental Management Programme
FBAR	Final Basic Assessment Report
FEL	Front-end-loader
GDP	Gross Domestic Product
GNR	Government Notice
HIA	Heritage Impact Assessment
I&AP's	Interested and Affected Parties
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
MP	Mining Permit
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Control Act, 2004 (Act No. 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 1999 (Act No 25 of 1999)
NRTA	National Road Traffic Act, 1996 (Act No. 93 of 1996)

NWA	National Water Act, 1998 (Act No. 36 of 1998)
PCB’s	Polychlorinated Biphenyl
PCO	Pest Control Officer
PAOI	Project Area of Influence
PPE	Personal Protective Equipment
PSM	Palaeontological Sensitivity Map
RA	Risk Assessment
REC	Recommended Ecological Category
S1	Site Alternative 1
SAIIAE	South African Inventory of Inland Aquatic Ecosystems
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMBF	South African Mining and Biodiversity Forum
USBM	US Bureau of Mines
WMA	Water Management Area
WULA	Water Use Licence Application

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ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT:	Inzalo Crushing and Aggregates (Pty) Ltd
TEL NO:	Tel: 082 602 6133
FAX NO:	N/A
POSTAL ADDRESS:	PO Box 26730 East Rand Kempton Park
PHYSICAL ADDRESS:	94 Maple Rd, Pomona AH, Kempton Park, 1619
FILE REFERENCE NUMBER SAMRAD:	LP 30/5/1/3/2/12396 MP

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 29 of 2002) as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

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

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

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

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

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:

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

  (ii) the degree to which these impacts –

    (aa) can be reversed;

    (bb) may cause irreplaceable loss of resources; and

    (cc) can be managed, avoided or mitigated;

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

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

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

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

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of: Greenmined Environmental

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

i) Details of the EAP

Prepared by:

Name of the Practitioner:	Ms Zoë Norval (Junior Environmental Specialist)
Tel No.:	021 851 2673
Fax No.:	086 546 0579
E-mail address:	zoe@greenmined.co.za

Reviewed by:

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

ii) Expertise of the EAP.

(1) The qualifications of the EAP

(with evidence).

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

Ms Z. Norval has a Bsc degree in Environmental Science and an Honours degree in Botany. In her Honours year, she focused mainly on environmental assessments and geographic information systems.

Please find CV's of both EAP's attached in Appendix J.

(2) Summary of the EAP's past experience.
(In carrying out the Environmental Impact Assessment Procedure)

Sonette Smit is an Environmental Consultant with 16 years' experience in the environmental sector. She specialized the last 8 years in the mining sector where she conducted the mining related report and programs. She has also been involved in a number of other environmental and water use application projects where she compiled environmental management plans, environmental impact assessments, environmental audits, IWULA's/IWWMP's.

Zoë Norval is a Junior Environmental Consultant with two years of experience in environmental services, Environmental Control and Environmental Performance Assessments / Compliance Audits, preparation of environmental related documentation, Mining Right and Permit applications and applications for Environmental Authorisations.

b) Location of the overall Activity.

Table 1: Location of the proposed project.

Farm Name:	A portion of Portion 1 of Farm Ruigtevley 97 KQ, Thabazimbi Local Municipality, Limpopo Province.
Application area (Ha)	4.9 ha
Magisterial district:	Waterberg District Municipality Thabazimbi Local Municipality
Distance and direction from the nearest town	The site is located approximately 32km north from Thabazimbi via R510.
21 digit Surveyor General Code for each farm portion	T0KQ00000000009700001

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

The requested map is attached as Appendix B.

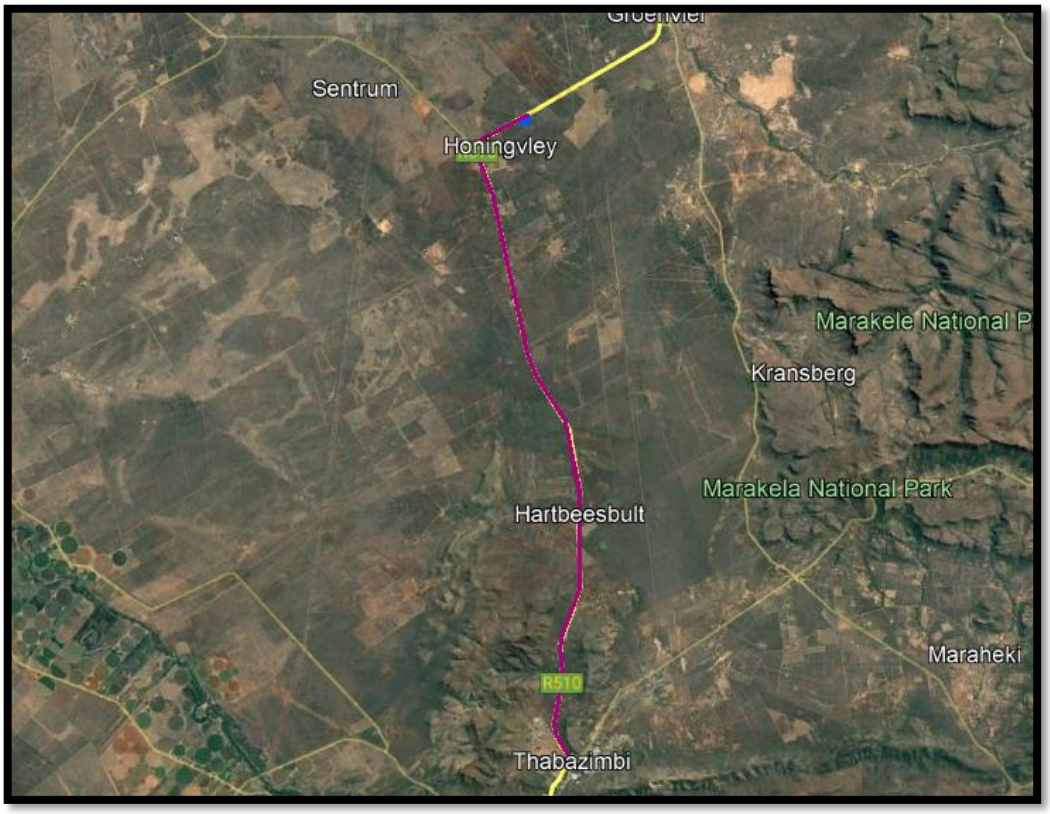

Figure 1: Directions from Thabazimbi to the proposed mining permit area (blue polygon) of Inzalo Crushing and Aggregates (Pty) Ltd (image obtained from Google Earth).

Figure 2: Satellite view of the proposed mining permit area (blue polygon) of Inzalo Crushing and Aggregates (Pty) Ltd (image obtained from Google Earth).

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

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

Inzalo Crushing and Aggregates (Pty) Ltd (hereinafter referred to as “the Applicant”) intends on applying for a mining permit to mine stone aggregate/ gravel on a portion of Portion 1 of Farm Ruigtevley 97 KQ, Thabazimbi Local Municipality, Limpopo Province.

The proposed mining footprint will be 4.9 ha and will be developed over an undisturbed area of the farm. The mining method will make use of blasting in order to loosen the hard rock; the material will then be loaded and hauled to the crushing plant where it will be screened to various sized stockpiles. The aggregate will be stockpiled until it is transported from site using tipper trucks. All mining related activities will be contained within the approved mining permit boundaries.

The proposed mining area is approximately 4.9 ha in extent and the applicant, Inzalo Crushing and Aggregates (Pty) Ltd, intents to win material from the area for at least 2 years with a possible extension of another 3 years. The aggregate to be removed from the quarry will be used for local road construction and building projects in the vicinity. The proposed quarry will therefore contribute to the upgrading / maintenance of road infrastructure..

The mining activities will consist out of the following:

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

The mining site will contain the following:

- Drilling equipment;
- Excavating equipment;
- Earth moving equipment;
- Mobile crushing and screening plants
- Access Roads;
- Site Office (Containers);

- Site vehicles;
- Parking area for visitors and site vehicles;
- Vehicle service area;
- Wash bay;
- Workshop (Containers);
- Salvage Yard;
- Bunded diesel and oil storage facilities;
- Generator on bunded area;
- Ablution Facilities (Chemical Toilets);
- Weigh Bridge; and
- Demarcated general and hazardous waste area.

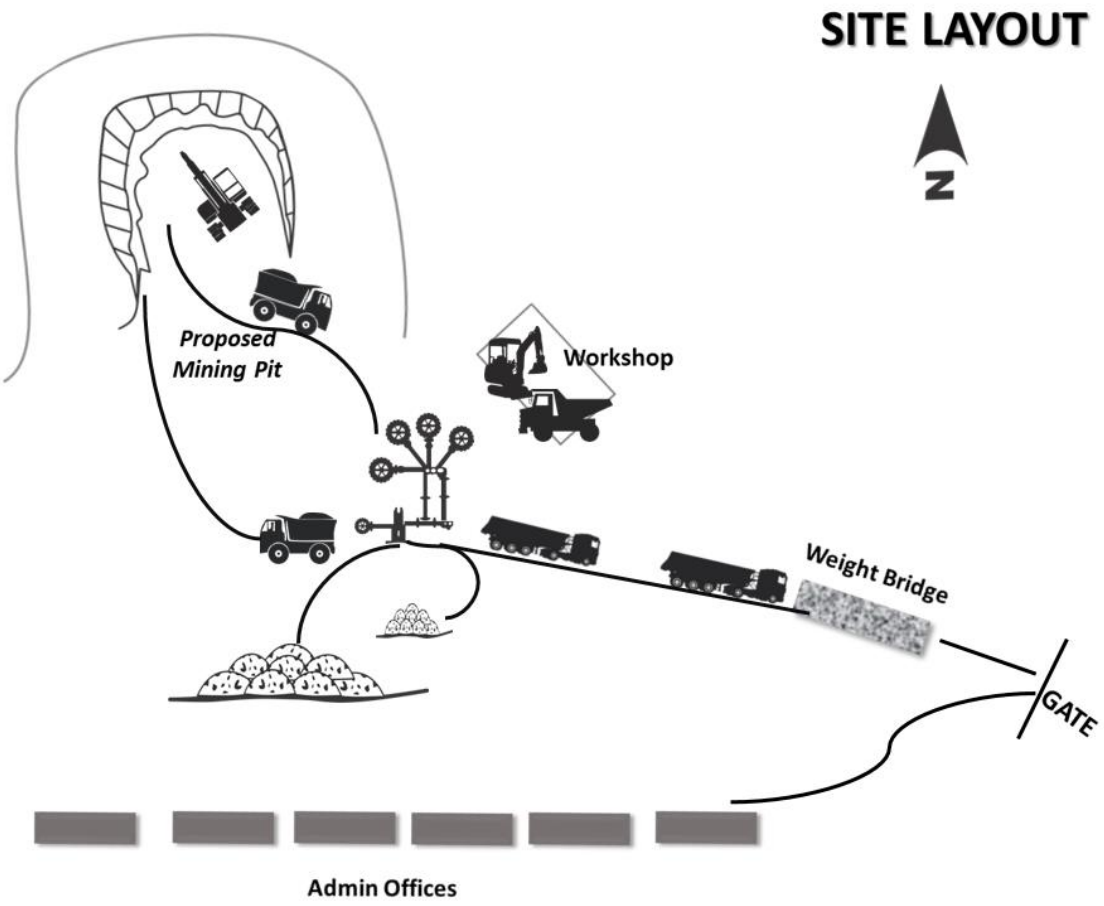

Figure 3: Site Layout Plan of the proposed Quarry

Figure 4: Operation Plan of the proposed Quarry.

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

i) Listed and specified activities

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

NAME OF ACTIVITY (E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	**Aerial extent of the activity** Ha or m^2	**LISTED ACTIVITY** Mark with an X where applicable or affected	**APPLICABLE LISTING NOTICE** (GNR 324, GNR 325, GNR 326 OR GNR 327)
Demarcation of site with visible beacons.	4.9 ha	N/A	Not listed
Site establishment and infrastructure development.	±1 ha	X	

NAME OF ACTIVITY	Aerial extent of the activity	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
Stripping and stockpiling of topsoil and/or overburden.	±4ha	X	GNR 983 Listing Notice 1 Activity 21:
Drilling and blasting.	±4ha	X	
Excavation, loading and hauling to processing area.	±4ha	X	
Processing, stockpiling, and transporting of material.	±1 ha	X	
Sloping and landscaping upon closure of the mining area.	4.9 ha	X	
Replacing the topsoil and vegetating the disturbed area.	4.9 ha	X	
GNR 983 Listing Notice 1 Activity 21: *Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the mining permit.*			

ii) Description of the activities to be undertaken

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

Background:

The 4.9 ha proposed mining location is located over an undeveloped, inactive portion of the property. A portion of Portion 1 of Farm Ruigtevley 97 KQ, is located approximately ±39 km North - East of Thabazimbi Limpopo Province.

Table 3: GPS Coordinates of the proposed mining footprint.

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	24°18'19,235"S;	27°24'56,138"E	-24,305343°S	27,415594°E
B	24°18'20,714"S	27°24'56,653"E	-24,305754°S	27,415737°E
C	24°18'21,56"S	27°24'54,731"E	-24,305989°S	27,415203°E
D	24°18'23,044"S	27°24'55,426"E	-24,306401°S	27,415396°E
E	24°18'23,846"S	27°24'53,701"E	-24,306624°S	27,414917°E
F	24°18'25,16"S	27°24'54,32"E	-24,306989°S	27,415089°E
G	24°18'28,602"S	27°24'45,09"E	-24,307945°S	27,412525°E
H	24°18'24,03"S	27°24'43,344"E	-24,306675°S	27,41204°E
A	24°18'19,235"S	27°24'56,138"E	-24,305343°S	27,415594°E

Project Proposal:

Considering the above, the Applicant identified the need to apply for environmental authorisation (EA) and a mining permit (MP) on an undisturbed and inactive area on a portion of Portion 1 of Farm Ruigtevley 97 KQ, Thabazimbi Local Municipality, Limpopo Province. The hard rock will be loosened by blasting as part of the mining process; the material will then be loaded and transported to the crushing plant and sorted into stockpiles of different sizes. The aggregate will be stacked up until tipper trucks are brought in to remove it from the site. All mining related activities will be contained within the limits of the authorized mining permit.

The applicant, intents to win material from the area for at least 2 years with a possible extension of another 3 years. The aggregate to be removed from the quarry will be used for construction industry in the vicinity. The proposed quarry will contribute to the upgrading / maintenance of road infrastructure and building contracts in and around the Thabazimbi area.

The mining activities will consist out of the following:

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

The proposed mining activities will entail the following:

- The 4.9 ha proposed mining location is located over an undeveloped, inactive portion of the property.
- The mining method will make use of blasting to loosen the hard rock; the material will then be loaded and hauled to the crushing plant where it will be screened to various sized stockpiles. The aggregate will be stockpiled until it is transported from site using tipper trucks. All mining related activities will be contained within the approved mining permit boundaries. The aggregate will be stockpiled and transported to clients via trucks and trailers.
- All activities will be contained within the boundaries of the site.

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

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

(2) Operational phase that will entail the mining of aggregate from the approved footprint area via conventional open cast mining methods. The mining method will make use of blasting in order to loosen the hard rock; upon which the loosened material will be transported to the crushing and screening processing plant where it will be screened to various sized stockpiles, before it is sold and transported from site to clients.

(3) Decommissioning phase which entails the rehabilitation of the affected environment prior to the submission of a closure application to the Department of

Mineral Resources and Energy (DMRE). The permit holder will further be responsible for the seeding (only if needed) of all rehabilitated areas. Once the full mining area is rehabilitated, the mining permit holder will be required to submit a closure application to the DMRE in accordance with section 43(4) of the MPRDA, 2002. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required), and weed / alien clearing.

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

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

- Weed / Alien clearing will be done in a sporadic manner during the life of the mining activities. Species categorised as weeds according to the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) [NEMBA] Alien and Invasive Species Regulation GNR 598 and 599 of 2014 Species regarded as need to be eradicated from the site on final closure.

- Final rehabilitation shall be completed within a period specified by the Regional Manager. Once the mining area was rehabilitated, the mining permit holder will submit a closure application to the DMRE in accordance with section 43(4) of the MPRDA, 2002. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

PHASES OF THE PROJECT

1. *Site Establishment Phase:*

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

- **Demarcation of Mining Boundaries:**

  Pursuant to receipt of an Environmental Authorisation (EA) and Mining Permit (MP), and prior to site establishment, the boundaries of the mining area will be demarcated with visible beacons.

- **Access Road:**
  The Applicant intends to construct a dirt road spanning from the R510 to the designated mining permit area and extended as the open cast mining progress and will be rehabilitated as part of the final reinstatement of the area. The access farm road turns right from the R510 road.

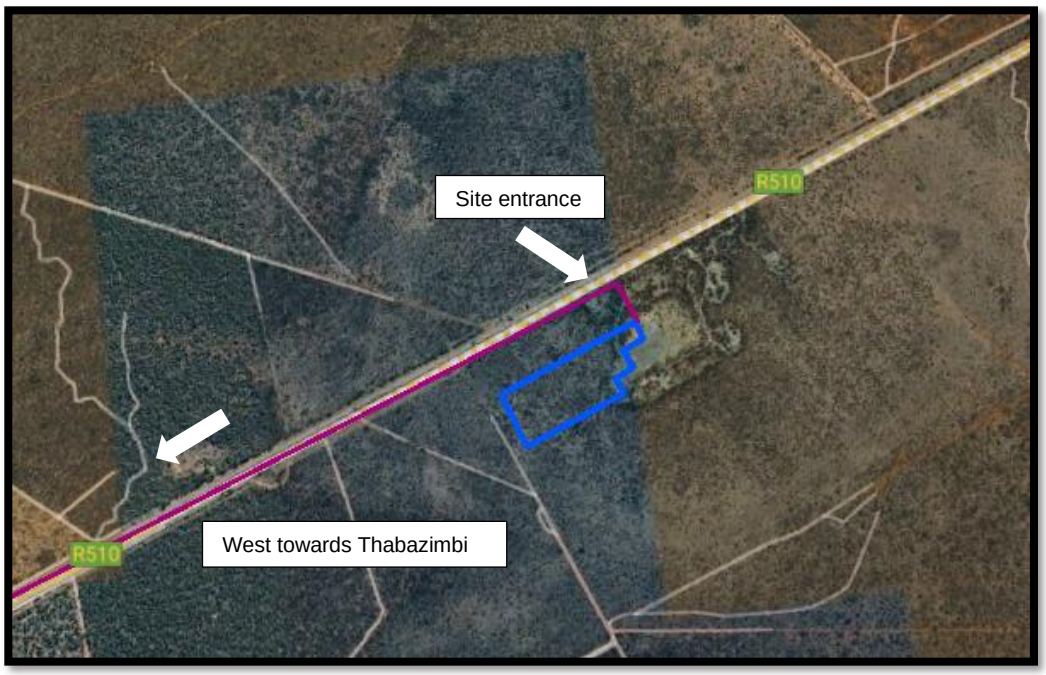

Figure 5: Satellite view showing the direction (purple line) to the proposed mining area (blue polygon)

- **Clearing of Vegetation:**

  According to Mucina and Rutherford (2012) the mining permit area extends over a vegetation type known as the SVcb 16 Western Sandy Bushveld which is classified as Least Threatened. According to the Limpopo Conservation Plan, the area is classified as Ecological Support Area (ESA). To mitigate this, the clearing of vegetation must be contained to the approved mining footprint, and no vegetation/bush clearance, outside the approved area, may be allowed. Please see mitigation measures as described in Appendix M.

- **Topsoil Stripping:**

  Upon removal of the vegetation, the topsoil will be stripped of the areas to be affected by the proposed activities. Topsoil stripping will be restricted to the areas needed during the operational phase of the activity. The complete A-horizon (topsoil – the top 100 – 200 mm of soil which is generally darker coloured due to high organic matter content) will be removed. If it is unclear where the topsoil layer ends the top 300 mm of soil will be stripped. The topsoil will be stockpiled in the form of a berm alongside the boundary of the mining area where it cannot be driven over, contaminated, flooded, or moved during the operational phase. The topsoil berm will measure a maximum of 1.5 m high and must be planted with an indigenous grass seed mix if it does not naturally vegetate within 6 months. The grass will bind the soil and thus serve to control both wind and water erosion of the stockpiles, as well as assist in keeping the soil viable for rehabilitation purposes.

- **Introduction of Mining Machinery:**

  The mining site will contain the following:

  - Excavating equipment;
  - Earth moving equipment;
  - Mobile crushing and screening plants;
  - Site vehicles;

  The Applicant will not construct/establish any permanent infrastructure (such as a workshop or storage facilities) within the permitted mining area.

2. *Operational Phase:*

During the operation phase, blasting will be done to loosen the quarry's hard rock, after which it will be mechanically retrieved using drilling, digging, and earthmoving equipment. After being transported to the crushing and screening facility, the rock will be reduced to different sizes of aggregate. The screened material will be transported to stockpiles of varied sizes. Transportation of the final product will be from the stockpile area to the end point by means of trucks. The contractor will make use of permanent employees and any additional employees required will be sourced from the surrounding area and daily be transported to site. All activities will be contained within the boundaries of the site.

The mining activities will consist out of the following:

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

- <u>Water Use:</u>

  Dust generated on the access road will as far as possible be managed through alternative dust suppression methods to prevent the use of water for dust suppression.

  These measures will include a combination of the following:
  - The speed of all mining equipment/vehicles will be restricted to 40 km/h on the internal farm road to minimize dust generation;
  - When the truck leaves the mining area it will be covered (e.g. shade cloth material) to minimise windblown dust from the loads;
  - The Applicant will attempt to lessen denuded areas (dust source) to the absolute minimum.

  Under very windy/dusty conditions the permit holder might have to substitute the above mentioned dust suppression methods with the spraying of water, in which case water will be bought and transported to the mining area in a water

truck that will moisten the problem area. The water truck driver will receive proper training to ensure effective use of the water on problem areas preventing water wastage. Should additional water be required at any stage of the process, water will be bought and transported to site.

- Electricity:

  The proposed project will make use of generators for power supply.

- Waste Handling:

  Due to the nature of the project, the small scale of the proposed operation, and the fact that no permanent infrastructure will be established, very little to no general waste will be generated as a direct result of the mining activities. Any waste generated during the operational phase, will be contained in a sealable refuse bin that will be removed from site and incorporated in an approved waste disposal system of the contractor.

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

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

- Servicing and Maintenance:

  A temporary workshop and wash bay will be established on site where minor servicing and emergency repairs of mining related equipment/machinery will take place. The wash bay will have an impermeable floor and drain into an oil sump that will be serviced by a qualified contractor. No wash water will be allowed to drain into the surrounding environment. Bulk storage of fuel (<60 000 l) will take place on site, and any chemicals needed at the workshop will be stored in accordance with the product specific safety data sheet specifications in temporary containers/secured cages.

Regular vehicle maintenance, repairs and services may only take place in a demarcated service area. If emergency repairs are needed on equipment not able to move to the workshop / service area, drip trays must be present. All waste products must be disposed of in a 200 litre closed container/bin to be removed from the emergency service area to the workshop in order to ensure proper disposal.

Decommissioning Phase:

The decommissioning phase will entail the reinstatement of the proposed mining footprint (4.9 ha). The closure objective is for the mining area to be rendered safe and the mining area to return to agricultural use. No buildings/infrastructure, need to be demolished and the access road will remain intact.

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

The decommissioning phase will entail the reinstatement of the processing area by removing the stockpiled material, and site infrastructure/equipment and landscaping the disturbed footprints. Due to the impracticality of importing large volumes of fill to restore the quarry area to its original topography, the rehabilitation option is to develop the quarry into a minor landscape feature. This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form scree slopes on the benches below, thereby reducing the overall face angle. The benches will be top-dressed with topsoil and vegetated with an appropriate grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil (see Appendix L for the Closure Plan).

The decommissioning activities will therefore consist of the following:

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

The future land use of the proposed area will revert back to its previous state. The current state of the area is undisturbed and inactive area. Upon replacement of the

topsoil, the area around the excavation will once again return to the previous state, and the planting of the cover crop (to protect the topsoil) will tie in with the rehabilitation.

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

- Rehabilitation of the excavated area:

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

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

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

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

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

- Rehabilitation of plant, office, and service areas:

  Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.

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

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

- Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- Areas containing French drains shall be compacted and covered with a final layer of topsoil to a height of 10 cm above the surrounding ground surface.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

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

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

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

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

- <u>Final rehabilitation:</u>

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

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

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

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

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

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

e) Policy and Legislative Context

Table 4: Policy and Legislative Context.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity: *Physical Environment – Geology and Soil.* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of invader plant species*.	The mitigation measures proposed for the site includes specifications of the CARA, 1983.
Mine Health and Safety Act, 1996 (Act No 29 of 1996) read together with applicable amendments and regulations thereto including relevant OHSA regulations.	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of Health and Safety Risks.*	The mitigation measures proposed for the site includes specifications of the MHSA, 1996

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002) read together with applicable amendments and regulations thereto. ℑ Section 27	Part A(1)(d) Description of the scope of the proposed overall activity	Application for a mining permit submitted to DMRE-WC. Ref No: LP 30/5/1/3/2/12396 MP
National Environmental Management Act,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended by GNR 326 effective 7 April 2017) • GNR 327 Listing Notice 1 Activity 21	Part A(1)(d)(i) Listed and specified activities.	Application for environmental authorisation submitted to DMRE-WC. Ref No: LP 30/5/1/3/2/12396 MP
National Environmental Management: Air Quality Control Act, 2004 (Act No 39 of 2004) read together with applicable amendments and regulations thereto specifically the National Dust Control Regulations, GN No R827.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – *Air and Noise Quality.* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Dust Handling*.	The mitigation measures proposed for the site take into account the NEM:AQA, 2004 and the National Dust Control Regulations.
National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) read together with applicable amendments and regulations thereto.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity - *Biological Environment* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of invader plant species*.	The mitigation measures proposed for the site includes specifications of the NEM:BA, 2004.
National Environmental Management: Waste Act, 2008 (Act No 59 of 2008) read together with applicable amendments and regulations thereto. NEM:WA, 2008: National norms and standards for the storage of waste (GN 926)	Part A(1)(d)(ii) Description of the activities to be undertaken	The mitigation measures proposed for the site take into account the NEM:WA.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
National Heritage Resources Act. 1999 (Act No 25 of 1999).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – *Human Environment*	The mitigation measures proposed for the site includes specifications of the NHRA, 1999.
National Water Act, 1998 (Act No 36 of 1998) read together with applicable amendments and regulations thereto.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – *Hydrology.* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk.	The mitigation measures proposed for the site includes specifications of the NWA, 1998.
Public Participation Guideline in terms of the NEMA EIA Regulations	Part A(1)(h)(ii) Details of the Public Participation Process Followed	Public participation was conducted in accordance with the guidelines published in terms of the NEMA EIA Regulations

f) Need and desirability of the proposed activities.

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

The increase in building, construction, and road maintenance and renewable energy projects in the vicinity of the property triggered the need of the Applicant to trade with the available aggregate from a permitted area. The proposed mining operation will entail the removal of aggregate, from an undisturbed/inactive area of the farm.

The extraction of the mineral was determined to be a workable commercial prospect that will help diversify the uses of the site, converting it from idle farmland to small-scale mining.

Between 40 and 60 will be employed for the duration of the operational phase. The project will contribute to the local economy, both directly and indirectly through the multiplier effect that the project presence will create, as equipment and supplies are purchased locally, and wages are spent at local businesses, generating both jobs and income in the area.

The aggregate mined from the earmarked area will be sold to the building, construction, road maintenance industry and renewable energy projects in the vicinity of the property. The public will benefit from the planned site's aggregate mining since as it will help improve

the region's road infrastructure, allowing drivers to pass through the district safely. Road improvement and upkeep are top priorities since they help South Africa's infrastructure network function better.

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

Table 5: Need and desirability determination.

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
How were ecological integrity considerations taken into account? How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?	According to the Terrestrial Biodiversity Statement (Appendix M), the location, state and size of the ecosystem suggests that it is unlikely that any functional habitat or SCCs will be lost as a result of the impacts arising from the proposed activities. However, these assumptions pertain to the terrestrial habitat within the PAOI only. It is the opinion of the specialist that the proposed development is favorable only if all mitigation measures provided in this and other specialist reports are implemented, as well as the following: • A site walkdown during the correct flowering season (between November and March) must be conducted for all protected plant species present on site, along with the acquisition of permits for the relocation/destruction of species; • An alien invasion plant (AIP) management plan must be compiled and implemented; and • A rehabilitation plan must be compiled and implemented for all areas of the PAOI impacted by the project activities. Also refer to: ⋉ Part A(1)(d)(ii) Description of the activities to be undertaken – Clearing of Vegetation; ⋉ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Mining and Biodiversity; ⋉ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Biodiversity Conservation Areas; ⋉ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Groundcover; ⋉ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity, Conservation Areas and Groundcover, ⋉ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.	Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	Should the Applicant implement the mitigation measures proposed in the EMPr the impact of the proposed activity on the vegetation and groundcover in general is deemed to be of low significance.	
How will this development pollute and/or degrade the biophysical environment?	Due to the nature of the proposed mining permit activity, it is inevitable that the present vegetation cover of the earmarked footprint will eventually be removed to allow access to the aggregate (aggregate) / gravel resource, only to be replaced (to some extend) during the rehabilitation phase. Taking the above mentioned into consideration, the terrestrial biodiversity assessment concluded that only the quarry will have relatively little impact on the vegetation and fauna around it provided that the mitigation measures are adhered to. Therefore, should the permit holder adhere to the mitigation measures proposed in this report it is believed that the impact on the biophysical environment is of acceptable significance. Also refer to: ⁜ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.	Highly Desirable
What waste will be generated by this development?	The general waste to be generated at the mine will mainly consist of paper, plastic, tin, and/or glass from the office, workshop and processing area. All general waste will be contained in sealable refuse bins that will be placed at the office area until it is transported to a recognised general waste landfill site. A recognized contractor will service the chemical toilets and be responsible for the removal of the sewerage to a registered sewerage handling facility. As mentioned earlier, hazardous waste may result from accidental spillages/breakdowns. Such contaminated areas will immediately (within two hours of occurrence) be cleaned and the contaminated soil will be contained in a designated hazardous waste container that will be kept in a bunded area with impermeable surface until it is removed from site by a registered hazardous waste handling contractor to an approved facility. No waste will be disposed of, buried, burned or treated on the site.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	According to the Heritage Impact Assessment (Appendix M2), the project area is characterised by a wooded area with reddish sand and gravel soils. The project area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. Two observations were made including a small cement and brick foundation (48 m to the west of the development footprint) recorded as RV002 and a degraded road just to the west of the development footprint recorded as RV001. It should be noted that RV002 can be associated with unmarked graves and this area should be avoided during development. The features potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and they are of no significance apart from mentioning them in this report. According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant/zero palaeontological sensitivity and no further studies are required or this aspect. The impact to heritage resources is expected to be low provided that the recommendations in HIA report are adhered to and based on the South African Heritage Resource Authority (SAHRA) 's approval.	Highly Desirable
How will this development use and/or impact on non-renewable natural resources?	Ruigtevley Quarry is an aggregate resource of at least 4 million tons that shows a potential life of mine of would still be available for many years. In light of this, it is believed that the mining permit holder could responsibly consume the aggregate resource on the property over a period of 5 years.	Desirable
How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part?	It is proposed that approximately 30 000 litres of water will be needed per day during the dry months to manage dust emissions from the proposed operation. As mentioned earlier, the contractor will strive to manage dust generation through alternative suppression methods to restrict water use to the absolute minimum. Presently, it is proposed that water will be bought and transported to site. The contractor will be encouraged to consider the use of non-potable water for mining related activities. The use of solar power should also be considered as an alternative power source to the offices and/or workshops.	Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
How were a risk-averse and cautious approach applied in terms of ecological impacts?	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that ecological impacts should be fully mitigated. Refer to the following sections: ⁎ Part A(1)(d)(ii) Description of the activities to be undertaken; ⁎ Part A(1)(h)(i) Details of the development footprint alternatives considered; ⁎ Part A(1)(h)(iv) The environmental attributes associated with the alternatives; ⁎ Part A(1)(i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity; ⁎ Part A(1)(l) Environmental impact statement.	Desirable
How will the ecological impacts resulting from this development impact on people's environmental right?	Should the mining activities be approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of low significance. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the ecological impacts associated with the proposed activity.	Highly Desirable
Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts.	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the mining activities will not affect the physical, psychological, cultural or social needs of the community in a negative manner nor will it impact negatively on the socio-economic status of the area.	Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?		
Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified, resulted in the selection of the "best practicable environmental option" in terms of ecological considerations		
2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		
What is the socio-economic context of the area?		
Question	**Response**	**Level of Desirability**
What is the socio-economic context of the area?	Please refer to Heading 2(h)(iv)(1)(a) Socio-economic Environment.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
Considering the socio-economic context, what will the socio-economic impacts be of the development, and specifically also on the socio-economic objectives of the area?	As mentioned earlier, should this mining permit be approved the applicant will be able to, • Provide employment opportunities. • The people/businesses of Thabazimbi will benefit from diversification of aggregate sources which will result in competitive product costs. • It will also diversify the income of the property as well as potential employees and clients.	
How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the mining activities will not affect the physical, psychological, cultural or social needs of the community in a negative manner nor will it impact negatively on the socio-economic status of the area.	Highly Desirable
Will the development result in equitable impact distribution, in the short- and long-term?	The mining activities proposes to operate in a socially and economically sustainable manner during both the short- and long term.	Highly Desirable
In terms of location, describe how the placement of the proposed development will contribute to the area.	As mentioned above the proposed area is over an undisturbed area of the farm . The position of the proposed site is ideal due to it being superimposed over the aggregate ridge present on the face of the hill. This Should the Applicant implement the mitigation measures proposed in the EMPr the impact of the proposed activity on the surrounding area in general is deemed to be of low significance thereby keeping the impact on the receiving environment as low as possible.	Highly Desirable
How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	No negative socio-economic impacts could, at this stage, be identified that cannot be managed through the implementation of mitigation measures.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
How will the socio-economic impacts resulting from this development impact on people's environmental right?	As mentioned in Heading *3(j)(1) Impact on the socio-economic condition of any directly affected person*, the activity may have an impact on the visual characteristics of the surrounding environment and may potentially affect air quality and possibly the noise ambiance of the study area. However, should the mining activities be approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of low significance. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the socio-economic impacts associated with the proposed activity	Highly Desirable
Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts?	If approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of low significance. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the socio-economic impacts associated with the proposed activity.	Highly Desirable
What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations? What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in	If the mitigation measures proposed in this document is adhered to, the project entails the mining of a 5ha area. Should the permit application be approved, the project will directly contribute to the socio-economic status of the receiving environment through the employment, and support of the local economy. Please refer to: • Part A(1)(g)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons?		
What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination? What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	The mining site will (if approved) operate in accordance with, amongst others, the following: • CARA, 1983 – to ensure agriculture related compliance; • Financial Provision Regulations, 2015 – to ensure compliance in terms of rehabilitation; • Mine Health and Safety Act, 1996 (as amended) – to ensure employee safety; • MPRDA, 2002 (as amended) – to ensure mining related compliance; • NEM:AQA, 2004 – to ensure air quality related compliance; • NEM:BA, 2004 – to ensure biodiversity related compliance; • NEM:WA, 2008 – to ensure waste related compliance; • NEMA, 1998 (as amended) – to ensure environmental related compliance;	Highly Desirable
Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all	As mentioned earlier, should this mining permit be approved the applicant will be able to, • Provide employment opportunities;	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
the segments of the community that is consistent with the priority needs of the local area.	• The people/businesses of Thabazimbi will benefit from diversification of aggregate sources which will result in competitive product costs. • It will also diversify the income of the property as well as potential employees and clients.	
What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected.	The mining activities will be in accordance with the specifications of the Mine Health and Safety Act, 1996. Site management will have daily discussions with the drill rig operators regarding the work to be performed and the environment in which the work will take place. Grievances/concerns can be lodged during the daily site meetings.	Highly Desirable
Describe how the development will impact on job creation in terms of, amongst other aspects?	As mentioned earlier, should this mining permit be approved the applicant will be able to, • Provide employment opportunities; • The people/businesses of Thabazimbi will benefit from diversification of an aggregate sources which will result in competitive product costs. • It will also diversify the income of the property as well as potential employees and clients.	Highly Desirable
What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental	Should the mining permit be approved the activities will operate under a valid mining permit issued by the DMRE. Compliance of the site with the approved EMPR, EA- and WUL conditions will be reported on as per departmental specifications.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
resources will serve the public interest, and that the environment will be protected as the people's common heritage.	Considering this, the proposed activity will take place in an environmentally sustainable manner with the least possible impact on the receiving environment.	
Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left.	It is believed that the mitigation measures proposed in this document is realistic and can be implemented (when needed) by the proposed activities. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, the residual impact on the environment is of low significance.	Highly Desirable
What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution environmental damage or adverse health effects will be paid for by those responsible for harming the environment.	In terms of Section 41 of the MPRDA, 2002 a mining permit holder must submit a financial provision to the DMRE that is sufficient to rehabilitate or manage the negative environmental impacts related to the mining activity.	Highly Desirable
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified, resulted in the selection of the best practicable	Please refer to: ⋉ Part A(1)(g)(i) Details of the development footprint alternatives considered; ⋉ Part A(1)(g)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Socio-Economic Environment;	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
environmental option in terms of socio-economic considerations	☒ Part A(1)(g)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.	
Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area.	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the mining activities will not cause a cumulative socio-economic impact should the mining permit application be approved, seeing that there are no other rated activities in the vicinity.	Highly Desirable

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

The proposed site (Site Alternative 1) was identified as the preferred and only viable site alternative based on the following:

- The applicant only identified one alternative site for the proposed mining as this area is the only viable area due to the position of the mineral reserve.
- If the mining permission is approved, the landowner will be contacted before any work begins to ensure the safety of the workers and the animals on the land. This was deemed the only site alternative due to the presence of the aggregate reserve.
- Haul roads will be extended as the open cast mining progresses and will be rehabilitated as part of the final reinstatement of the area and will be rehabilitated as part of the final reinstatement of the area.

The environmental impact assessment process assessed the feasibility of the proposed site alternative to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant another site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing. Considering the above, the mining proposal was updated to incorporate the project related mitigation measures and monitoring programmes identified during the assessment process. The preferred development footprint was subsequently finalized and is depicted on the attached site activities plan (Appendix C).

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

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

i) Details of the development footprint alternatives considered.

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

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

Proposed Stockpile area (Department of Economic Development, Environment and Tourism Limpopo application)

In addition to the mining permit application that will be submitted to the DMRE, the Applicant also proposes to establish an area for stockpiling and crushing (if needed) of the material that will be mined at the quarry, on 11.7 hectares of the abovementioned property. The establishment of the stockpiling area needs a (separate) environmental authorization to be approved by the Limpopo Province Department of Economic Development, Environment and Tourism Limpopo (DEDET) (separate application than the DMRE one).

Site Alternative 1 (S1) (Preferred and Only Site Alternative): Site Alternative 1 entails the mining of an area over an undisturbed area of the farm within the GPS coordinates as listed in the table below:

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

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	24°18'19,235"S;	27°24'56,138"E	-24,305343°S	27,415594°E
B	24°18'20,714"S	27°24'56,653"E	-24,305754°S	27,415737°E
C	24°18'21,56"S	27°24'54,731"E	-24,305989°S	27,415203°E
D	24°18'23,044"S	27°24'55,426"E	-24,306401°S	27,415396°E
E	24°18'23,846"S	27°24'53,701"E	-24,306624°S	27,414917°E
F	24°18'25,16"S	27°24'54,32"E	-24,306989°S	27,415089°E
G	24°18'28,602"S	27°24'45,09"E	-24,307945°S	27,412525°E
H	24°18'24,03"S	27°24'43,344"E	-24,306675°S	27,41204°E
A	24°18'19,235"S	27°24'56,138"E	-24,305343°S	27,415594°E

Figure 6: Satellite view of the proposed mining permit area (blue polygon) of Inzalo Crushing and Aggregates (Pty) Ltd (image obtained from Google Earth).

Site Alternative 1 was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team, as the **preferred and only site alternative** due to the presence of the aggregate reserve and was positioned due to the disturbed conditions of the area.

No-go Alternative: The no-go alternative entails no change to the *status quo* and is therefore a real alternative that needs to be considered. The aggregate to be mined from the proposed quarry will be sold to the building, road rehabilitation/maintenance and associated construction industry. If, however, the no-go alternative is implemented:

- the mineral resource on this land cannot be used by the applicant.
- the proposed employment opportunities will be lost;
- the diversification of aggregate sources, which would result in rising product costs, will not be advantageous to the residents or enterprises in Thabazimbi.

In light of this, the no-go alternative was not deemed to be the preferred alternative.

ii) Details of the Public Participation Process Followed

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

During this public participation process the relevant stakeholders and I&AP's were informed of the project by means of an advertisement in Bushvelder on 10 October 2024 and two on-site notices were placed at visible locations, one on the farm boundary fence at the entrance and another one at Buzz Café in Thabazimbi.

A notification letter inviting comments on the DBAR over a 30-days commenting period (14 October 2024 – 14 November 2024) was sent to the landowner, neighbouring landowners, stakeholders and other I&AP that may be interested in the project. The comments received on the DBAR was incorporated into the final Basic Assessment Report (FBAR) to be submitted to the DMRE for consideration. The following I&AP's and stakeholders was informed of the project:

Table 7: List of the I&AP's and stakeholders that were notified of the proposed aggregate mine project.

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	**STAKEHOLDERS**
<u>Surrounding landowners & lawful occupiers:</u> • Tribal chief of the area – Thahle MKwedini	• Waterberg District Municipality • Thabazimbi Local Municipality • Department of Social Development • Department of Social Development Limpopo • Department of Economic Development, Environmental Affairs and Tourism, Limpopo • Department of Labour • Department Of Rural Development and Agrarian Reform, Limpopo • Department of Transport • Department of Water and Sanitation • Department of Public Works • ESKOM • South African Heritage Resources Agency • South African National Roads Agency
I&AP'S AND STAKEHOLDERS THAT REGISTERED/COMMENTED DURING THE INITIAL NOTIFICATION PERIOD	

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
• None.	

An advertisement was placed in the Bushvelder on 10 October 2024 and two on-site notices were placed at visible locations, one on the farm boundary fence at the entrance and another one at Buzz Café in Thabazimbi.

A 30-days commenting period will be allowed which expires on 14 November 2024. In accordance with the timeframes stipulated in the EIA Regulations, 2014 (as amended by GNR 326 effective 7 April 2017) the Draft Basic Assessment Report was compiled and was distributed for comment and perusal to the I&AP's and stakeholders. A 30-day commenting period (14 October 2024 – 14 November 2024), was allowed for perusal of the documentation and submission of comments. The comments received on the DBAR was incorporated into the Final Basic Assessment Report (FBAR) to be submitted for decision making to DMRE.

iii) Summary of issues raised by I&APs

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

Table 8: Summary of issues raised by IAPs

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES	**X**				
Landowner/s					
• Marco Benade	X	The Applicant has a land usage agreement in place with the Landowner(Please see Appendix F)			
Lawful occupier/s of the land					
N/A		None			
Landowners or lawful occupiers on adjacent properties	**X**				
• Farm Vaalpenspan 90- Adriaan Aucamp + Floris Du Toit	X	28 November 2024	RE: INZALO CRUSHING AND AGGREGATES (PTY) LTD. PORTION 1 OF FARM RUIGTEVLEY 97 KQ THABAZIMBI, LIMPOPO. PROPOSED AGGREGATE MINE (LP 30/5/1/3/2/12396 MP) AND STOCKPILE AREA. COMMENTS ON THE DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME. Dear Zoe and Anel 1. We refer to the abovementioned matter and confirm that we are acting on behalf of our clients Reinland CC and Maxgem Mining CC (“our clients”) under whose	RE: RESPONSE TO THE COMMENTS ON THE DRAFT BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME FOR BOTH THE MINING PERMIT APPLICATION AND STOCKPILE APPLICATION ON A PORTION OF PORTION 1 OF FARM RUIGTEVLEY 97 KQ, THABAZIMBI LOCAL MUNICIPALITY, LIMPOPO PROVINCE: INZALO CRUSHING AND AGGREGATES (PTY) LTD. Dear Sir We refer to your letter dated 28 November 2024 sent in response to the draft Basic Assessment Report (DBAR) and Environmental Management Programme (EMPr) circulated for public comment in respect of the mining permit application as well as the stockpile application on a portion of Portion	Please refer to Appendix F.

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			instruction this letter is provided and whose rights remain reserved. 2. Our clients are the owners of portions 0, 1, 2, 3 and 4 of the farm Vaalpenspan 90KQ. The proposed project site is situated on portion 1 of the farm Ruigtevley 97 KQ, which is directly across our client's property, as such, our client will be directly impacted by this development. 3. Please take notice that these comments and objections are relevant to both the proposed aggregate mine as well as the proposed stockpile area, as such we would like for our comments to be included in the report for both projects. 4. Please take further notice that we did attempt to arrange a stakeholder meeting at the proposed project site, but we were unable to find a date that was suitable for all parties. We will continue to communicate until such a meeting can be arranged. 5. We have been instructed by our clients to convey the following concerns and comments in terms of the Draft Basic	1 of Farm Ruigtevley 97 KQ, Thabazimbi Local Municipality, Limpopo Province. We would like to thank you for participating in this process and for your valued comments. We note your representation of Reinland CC and Maxgem Mining CC and acknowledge their right to provide comments and objections. All concerns outlined have been noted and will be addressed with reference to the DBAR's findings and proposed mitigation measures in the FBAR. We confirm that your response will be included to the final BAR and/or EMPr for decision making, but wish to respond directly as follows: ▪ Our client's property is currently being utilized as a hunting farm. The activities conducted on their farm include hunting for profit, breeding wildlife for resale, selling animal products, providing luxury accommodation and offering game drives. Our client's income is thus primarily derived from the tourism and hospitality market, which is significantly influenced by their customer's willingness to stay in an environment free from noise, pollution, dust and unsightly views. Therefore, maintaining a peaceful, clean and visually	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			Assessment Report ("BAR") and Environmental Management Program Report ("EMPR") for the proposed projects. SUMMARY OF MAIN CONCERNS 6. Our client's property is currently being utilized as a hunting farm. The activities conducted on their farm include hunting for profit, breeding wildlife for resale, selling animal products, providing luxury accommodation and offering game drives. Our client's income is thus primarily derived from the tourism and hospitality market, which is significantly influenced by their customer's willingness to stay in an environment free from noise, pollution, dust and unsightly views. Therefore, maintaining a peaceful, clean and visually appealing setting is essential for our client's successful business. 7. Operating a hunting farm has created many local job opportunities. Our client currently employs over 20 people at the hunting farm. These employees' salaries and careers are closely tied to the	appealing setting is essential for our client's successful business. o The proximity of the project to your client's property is acknowledged, and the DBAR has assessed potential impacts on neighbouring properties, including visual, noise, and dust impacts. Mitigation measures detailed in the DBAR will specifically address these potential impacts Operating a hunting farm has created many local job opportunities. Our client currently employs over 20 people at the hunting farm. These employees' salaries and careers are closely tied to the success of the tourism and hospitality market mentioned above. o We acknowledge that your client's property is used as a hunting farm and that maintaining a clean, peaceful, and visually appealing environment is critical for their business.	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			success of the tourism and hospitality market mentioned above. 8. Our client has also raised concerns over the well-being of his wildlife, as the noise and dust associated with mining, crushing and screening could disturb his animal's natural behaviour. The noise may impact the animal's stress levels causing them to flee to the furthers corners of the farm and potentially jumping the fence, their mating and breeding patterns could also potentially be affected. Additionally, the dust and potential water pollution could lead to the animals ingesting contaminated food and water. This would not only negatively impact the animal's general health, but it would also compromise the quality of the meat they produce, ultimately affecting the profitability and sustainability of the farm. 9. Our client questions the integrity of the road leading to his property. The increased traffic from heavy machinery will likely cause significant erosion over time, which would damage the road and	○ This project is for the mining of aggregates to support local infrastructure development, which will benefit the community, including the tourism industry. ○ The project is small-scale and temporary, with no long-term effects expected. ○ The applicant recognizes the importance of your client's contribution to local employment. Infrastructure upgrades facilitated by the project, such as improved roads, will enhance access and benefit both the local community and the tourism sector. Our client has also raised concerns over the well-being of his wildlife, as the noise and dust associated with mining, crushing and screening could disturb his animal's natural behaviour. The noise may impact the animal's stress levels causing them to flee to the furthers corners of the farm and potentially jumping the fence, their mating and breeding	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			create obstacles for customers. Additionally, the presence of unsightly machinery travelling along the road may detract from the overall experience for visitors. Unforeseen traffic delays could also disrupt customers' arrival times, further impacting their visit and our client's business. 10. This proposed mine will not only impact our client's current use, enjoyment and profitability, but it could also reduce the farm's value. THE VISUAL IMPACT 11. We have taken note of your statement that the proposed mining activity will be partially obscured by a hill. However, as our client and ourselves have not yet had the opportunity to inspect the proposed mining site, we cannot confirm that the visual effect will be minimal. Our client's property is situated directly across the proposed site, as such we believe that further assessment is necessary. 12. The DBAR for the proposed mining project indicates that the visual intrusions	patterns could also potentially be affected. Additionally, the dust and potential water pollution could lead to the animals ingesting contaminated food and water. This would not only negatively impact the animal's general health, but it would also compromise the quality of the meat they produce, ultimately affecting the profitability and sustainability of the farm. o We acknowledge that your client's concerns over the well-being of his wildlife, o Mitigation measures will address potential impacts on wildlife, including: ▪ Dust suppression (water spraying). ▪ Noise management (regulated operational hours). ▪ Regular environmental monitoring to ensure water	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			resulting from site establishment, mining activities, excavation, form loading, and vehicle transport of material will be of medium significance. This raises concerns, as even moderate visual intrusions could detract from the natural beauty of the area, which is a key selling point for our client's business. 13. The DBAR for the stockpile area states that there will be a low to medium visual impact caused by the site establishment phase, stockpiling activities, and operation of the processing plant. While the EMPR advise on how these visual impacts will be mitigated. 14. Despite the claim that proper housekeeping and organisation will mitigate the visual impact, there would still be a visual impact visible when travelling to and around our client's property, possibly even from the camping site. As stated above our client's main source of income is related to the tourism and hospitality market which relies on the unobstructed natural beauty of the area.	and soil quality is maintained. ▪ These measures will reduce stress on wildlife and preserve their natural behaviours, ensuring minimal disruption to your client's operations. Our client questions the integrity of the road leading to his property. The increased traffic from heavy machinery will likely cause significant erosion over time, which would damage the road and create obstacles for customers. Additionally, the presence of unsightly machinery travelling along the road may detract from the overall experience for visitors. Unforeseen traffic delays could also disrupt customers' arrival times, further impacting their visit and our client's business. o We acknowledge concerns about increased traffic and road wear. The applicant is committed to:	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			15. The aesthetic changes resulting from this proposed project will directly affect our client's business. Visitors come to the farm not only for hunting but also to escape the visual and sensory overload of city life. Being confronted by a mining site after expecting to enjoy an undisturbed natural environment, would negatively impact the experience our client offers and, by extension, their business model. NOISE LEVELS 16. The DBAR for the proposed mining project indicates that the noise nuisance caused by earthmoving machinery is of medium significance, while the noise nuisance resulting from blasting and mining activities is classified as low to medium significance. However, even noise at a lower level can still affect the surrounding environment and our client's business operations. 17. The DBAR for the stockpile area confirms that noise will be generated due to activities such as screening, crushing,	▪ Implement measures to minimize disruption. ▪ Repairing and maintaining roads affected by project-related activities to ensure continued accessibility for all users. ▪ The visual impact of machinery will be mitigated through proper scheduling and limiting transport during peak tourist hours. This proposed mine will not only impact our client's current use, enjoyment and profitability, but it could also reduce the farm's value. o The project will be temporary and carried out with full consideration of the current land uses. o Aggregates are essential for upgrading local infrastructure, including roads, which will benefit the	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			and transporting materials. Noise from the crushing and screening processes during the stripping and stockpiling of topsoil and overburden is rated as a medium-level concern. Additionally, noise from the operation of the processing plant and crushing and screening machinery is categorized as low to medium-level concerns. 18. The noise generated from this proposed project will hinder not only our client's use and enjoyment of their property but also the customers who are trying to escape the noise from their busy city lives. The presence of ongoing noise pollution will undoubtedly detract from the peaceful, tranquil environment that our client's business relies on to attract guests. 19. Furthermore, there is concern that the noise and vibration caused by mining, blasting, and crushing activities could impact the natural behaviour of our client's wildlife. As noted earlier, the farm's animals are an essential part of our client's operations, and any	community, tourism, and the overall economy. ○ While we note your concern regarding potential devaluation, these upgrades will enhance the area's appeal and accessibility in the long term. **THE VISUAL IMPACT** We have taken note of your statement that the proposed mining activity will be partially obscured by a hill. However, as our client and ourselves have not yet had the opportunity to inspect the proposed mining site, we cannot confirm that the visual effect will be minimal. Our client's property is situated directly across the proposed site, as such we believe that further assessment is necessary. The DBAR for the proposed mining project indicates that the visual intrusions resulting from site establishment, mining activities, excavation, form loading, and vehicle transport of material will be of medium significance. This raises concerns, as even moderate visual intrusions could detract from	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			disturbance to their behaviour could affect the overall experience for visitors and potentially harm the long-term viability of the farm's activities. DUST 20. Both DBARs confirm that dust will be generated as a result of activities such as blasting, displacement of soil, crushing and screening of hard rock, and the transport of material along gravel roads. Dust nuisance from site establishment, soil disturbance, and operation of the processing plant has been classified as a low to medium risk. 21. While dust suppression methods and housekeeping measures will be implemented to mitigate these issues, it is unclear how effective these methods will be in fully containing dust during periods of high wind. 22. Our clients are particularly concerned that airborne dust could be carried into their water supply and grazing grounds for wildlife, potentially leading to a decline in animal health. This could also	the natural beauty of the area, which is a key selling point for our client's business. • The DBAR for the stockpile area states that there will be a low to medium visual impact caused by the site establishment phase, stockpiling activities, and operation of the processing plant. While the EMPR advise on how these visual impacts will be mitigated. • Despite the claim that proper housekeeping and organisation will mitigate the visual impact, there would still be a visual impact visible when travelling to and around our client's property, possibly even from the camping site. As stated above our client's main source of income is related to the tourism and hospitality market which relies on the unobstructed natural beauty of the area. • The aesthetic changes resulting from this proposed project will directly affect our client's business. Visitors come to the farm not only for hunting but also to escape the visual and sensory overload of city life. Being confronted by a mining site after expecting to enjoy an undisturbed natural environment, would	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			negatively impact the quality of the meat produced, posing a threat to both environmental and economic sustainability. 23. Furthermore, maintaining cleanliness in an overnight accommodation business located nearby would be challenging if dust from the project site continues to blow onto the property. The accumulation of dust would compromise the quality of service and create significant operational difficulties in managing the cleanliness and hygiene of the accommodations. THE ROAD 24. The DBAR for both the mining project and stockpile area indicates that the existing farm road will be used for site access. The EMPR outlines that the applicant will repair any damage caused to the access road as a direct result of the proposed activities and will implement measures to maintain the integrity of the road to the best of the applicant's ability.	negatively impact the experience our client offers and, by extension, their business model. The DBAR acknowledges that visual intrusions resulting from site establishment, mining activities, excavation, form loading, and vehicle transport are of medium significance. o The statement in the DBAR regarding the partial obscuring of the proposed mining activity by a hill is based on a detailed visual impact assessment conducted during the environmental study. o Mitigation measures, have been designed to further reduce visual impacts from surrounding properties, including your client's. o To address your concern, we acknowledge the importance of stakeholder validation and invite your client to participate in a site	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			25. However, the increased traffic associated with the proposed project will likely accelerate the erosion of the road, leading to more frequent maintenance requirements. This continuous need for road repairs will create obstacles and potential traffic disruptions, ultimately affecting the experience and accessibility for customers visiting the property. CONCLUSION 26. In light of the concerns outlined above, it is clear that the proposed mining and stockpiling project will have detrimental effects on our client's business operations and the environment. The potential impacts on the aesthetic value of the property, noise pollution, dust nuisance, and the condition of the access road could significantly diminish the appeal of our client's hunting farm thus directly affecting our client's profitability and sustainability. Furthermore, the health and welfare of the farm's wildlife, which are integral to the client's business	inspection to assess the proposed mitigation measures firsthand. o Additionally, we will ensure that the final Basic Assessment Report includes comprehensive details of the visual impact assessment, reinforcing the effectiveness of the proposed mitigation measures. o Further consultation is welcome to explore any specific additional assessments your client deems necessary to address this concern. Mitigation measures to minimize these impacts include: o Ensuring infrastructure and equipment adhere to low-profile designs with natural colour schemes to blend into the surrounding environment. o Maintaining proper housekeeping to ensure a neat and organized appearance of the site at all times.	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			model, could be compromised by the adverse effects of mining activities. 27. Given the numerous risks posed by this proposed project, our client is compelled to formally object to the granting of the mining permit. The potential for long-term damage to the property's natural beauty cannot be overlooked. 28. Section 10(2) of the Mineral and Petroleum Resources Development Act 28 of 2002 ("MPRDA") states that: "If a person objects to the granting of a prospecting right, mining right, or mining permit, the Regional Manager must refer the objection to the Regional Mining Development and Environmental Committee to consider the objections and to advise the minister thereof." 29. The consequences of granting the mining permit are too significant to be disregarded, and we trust that this objection will be carefully evaluated during the decision-making process.	○ Rehabilitation will be a priority upon completion of mining activities. This includes: ▪ Implementing a detailed rehabilitation plan to reintroduce indigenous vegetation and contour the land to blend with the natural landscape. ▪ Creating a final landform that is visually cohesive with the surrounding environment, ensuring the site maintains a neat and aesthetically pleasing appearance post-closure. ▪ These efforts aim to mitigate visual impacts during operations and restore the area to a state that supports its natural beauty and overall appeal. **NOISE LEVELS**	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				• The DBAR for the proposed mining project indicates that the noise nuisance caused by earthmoving machinery is of medium significance, while the noise nuisance resulting from blasting and mining activities is classified as low to medium significance. However, even noise at a lower level can still affect the surrounding environment and our client's business operations. • The DBAR for the stockpile area confirms that noise will be generated due to activities such as screening, crushing, and transporting materials. Noise from the crushing and screening processes during the stripping and stockpiling of topsoil and overburden is rated as a medium-level concern. Additionally, noise from the operation of the processing plant and crushing and screening machinery is categorized as low to medium-level concerns. • The noise generated from this proposed project will hinder not only our client's use and enjoyment of their property but also the customers who are trying to escape the noise	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				from their busy city lives. The presence of ongoing noise pollution will undoubtedly detract from the peaceful, tranquil environment that our client's business relies on to attract guests. Furthermore, there is concern that the noise and vibration caused by mining, blasting, and crushing activities could impact the natural behaviour of our client's wildlife. As noted earlier, the farm's animals are an essential part of our client's operations, and any disturbance to their behaviour could affect the overall experience for visitors and potentially harm the long-term viability of the farm's activities. o We acknowledge the concerns regarding noise and vibration impacts on the surrounding environment, your client's business operations, and wildlife. o The DBAR outlines specific mitigation measures to address these impacts, which will be strictly	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				enforced throughout the project lifecycle, including: ▪ Ensuring all machinery is fitted with silencers and is properly maintained to minimize noise emissions. ▪ Scheduling noise-intensive activities, such as blasting, during specific times to reduce disruption. ▪ Monitoring noise levels regularly to ensure compliance with national noise standards. **DUST** Both DBARs confirm that dust will be generated as a result of activities such as blasting, displacement of soil, crushing and screening of hard rock, and the transport of material along gravel roads. Dust nuisance from site establishment, soil disturbance, and	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				operation of the processing plant has been classified as a low to medium risk. • While dust suppression methods and housekeeping measures will be implemented to mitigate these issues, it is unclear how effective these methods will be in fully containing dust during periods of high wind. • Our clients are particularly concerned that airborne dust could be carried into their water supply and grazing grounds for wildlife, potentially leading to a decline in animal health. This could also negatively impact the quality of the meat produced, posing a threat to both environmental and economic sustainability. • Furthermore, maintaining cleanliness in an overnight accommodation business located nearby would be challenging if dust from the project site continues to blow onto the property. The accumulation of dust would compromise the quality of service and create significant operational difficulties in managing	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				the cleanliness and hygiene of the accommodations. o We acknowledge that the DBARs confirm dust will be generated from activities such as blasting, soil displacement, crushing, screening, and material transport. The potential for dust nuisance is classified as a low to medium risk. o It is important to emphasize that this project is temporary in nature, and dust generation will be limited to the operational phases of the mining and stockpiling activities. Post-mining rehabilitation will further reduce any residual dust impacts. o A Dust Management Plan (DMP) will ensure compliance with air quality standards and address concerns about dust affecting wildlife and client operations.	

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				○ Comprehensive dust management measures will be implemented and strictly enforced, including: ▪ Dust suppression methods such as regular water spraying on roads, stockpiles, and operational areas. ▪ The use of chemical dust suppressants where necessary to enhance control. ▪ Limiting the height of stockpiled materials to reduce windblown dust. ▪ Enforcing strict speed limits on gravel roads to minimize dust during material transport. ▪ Dust fallout will be regularly monitored to ensure levels	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				remain within permissible standards. ▪ Monitoring stations will be installed to assess dust levels, particularly near sensitive areas such as water sources, grazing grounds, and accommodation facilities. ▪ Adaptive management strategies will be employed to respond promptly to any dust-related concerns that arise during high wind periods. o By maintaining dust at minimal levels, the health of wildlife and the quality of meat produced will not be compromised. o Dust management measures, including regular site inspections and enhanced dust suppression during high wind periods, will reduce the risk	

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				of dust affecting nearby accommodations. ○ While we note the concerns raised regarding dust, the combination of robust dust suppression measures, regular monitoring, and the temporary nature of the project will ensure that dust impacts are effectively managed and do not result in long-term effects. **THE ROAD** • The DBAR for both the mining project and stockpile area indicates that the existing farm road will be used for site access. The EMPR outlines that the applicant will repair any damage caused to the access road as a direct result of the proposed activities and will implement measures to maintain the integrity of the road to the best of the applicant's ability. • However, the increased traffic associated with the proposed project will likely accelerate the erosion of the road, leading to more frequent maintenance requirements. This continuous need for road repairs will create obstacles and	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				potential traffic disruptions, ultimately affecting the experience and accessibility for customers visiting the property. ○ As mentioned above we acknowledge concerns about increased traffic and road wear. The applicant is committed to: ○ Implement measures to minimize disruption. ○ Repairing and maintaining roads affected by project-related activities to ensure continued accessibility for all users. ○ The visual impact of machinery will be mitigated through proper scheduling and limiting transport during peak tourist hours. **CONCLUSION** In light of the concerns outlined above, it is clear that the proposed mining and stockpiling project will have detrimental effects on our client's business operations and the	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				environment. The potential impacts on the aesthetic value of the property, noise pollution, dust nuisance, and the condition of the access road could significantly diminish the appeal of our client's hunting farm thus directly affecting our client's profitability and sustainability. Furthermore, the health and welfare of the farm's wildlife, which are integral to the client's business model, could be compromised by the adverse effects of mining activities. • Given the numerous risks posed by this proposed project, our client is compelled to formally object to the granting of the mining permit. The potential for long-term damage to the property's natural beauty cannot be overlooked. • Section 10(2) of the Mineral and Petroleum Resources Development Act 28 of 2002 ("MPRDA") states that: "If a person objects to the granting of a prospecting right, mining right, or mining permit, the Regional Manager must refer the objection to the Regional Mining Development and Environmental	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				Committee to consider the objections and to advise the minister thereof." The consequences of granting the mining permit are too significant to be disregarded, and we trust that this objection will be carefully evaluated during the decision-making process. o The proposed project is temporary, small-scale, and designed with strict mitigation measures to minimize environmental and social impacts. o The aggregates produced will support necessary infrastructure improvements, benefiting the local community, tourism, and economic development. o We confirm that your response will be included to the final BAR and EMPr for decision making to DMRE for them to refer the objection to the Regional Mining Development and	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				Environmental Committee, as per Section 10(2) of the MPRDA. We appreciate engagement and welcome any additional feedback or queries. Please do not hesitate to contact us in the event of any uncertainties	
• Portion 3 and 4 Of Farm Ruigtevley 97 Kq - Marco Benade	X	None.			
• Farm Honingvley 99 Portion 7 And 11- Hendrik Rickert	X	None.			
Municipal councillor					
Mrs Rabelani Tshiswaise (Acting)	X	None.			
Municipality					
Thabazimbi Local Municipality	X	None.			
Waterberg District Municipality	X	None.			
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
Department of Transport and Public Works	X	None.			
Department of Public Works and Infrastructure;	X	None.			
Eskom	X	None.			
Communities	N/A	No community were identified within the study area.			
Dept. Land Affairs					
Department of Agriculture;	X	None.			
Department of Agriculture Forestry and Fisheries;	X	None.			
Traditional Leaders	N/A				
Dept. Environmental Affairs					
Department of Economic Development, Environmental Affairs and Tourism - Polokwane	X	None.			
Other Competent Authorities affected					

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
Department of Labour - Limpopo Provincial Office;	X	None.			
Department Of Transport	X	None.			
Department of Rural Development and Land Reform - Limpopo District Offices	X	None.			
Department of Water and Sanitation	X	None.			
South African Heritage Resources Agency	X	SAHRIS requested a HIA to be done. Please refer to Appendix M2			
Department of Social Development	X	None.			
Department of Agriculture, Forestry & Fisheries	X	None.			
OTHER AFFECTED PARTIES					
N/A		None.			
INTERESTED PARTIES					
Matlabas Custodians		None.			
Lepelle Northern Water (LNW)		None.			

iv) The Environmental attributes associated with the alternatives.

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

(1) Baseline Environment

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

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

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

PHYSICAL ENVIRONMENT

CLIMATE

According to the meteoblue website, Thabazimbi receives the lowest rainfall (2 mm) in August and the highest (105 mm) in January. The weather averages for the month of March, temperature averages around 20°c and at night it feels like 14°c. In March, Thabazimbi gets on an average 64.82 mm of rain and approximately 4 rainy days in the month.

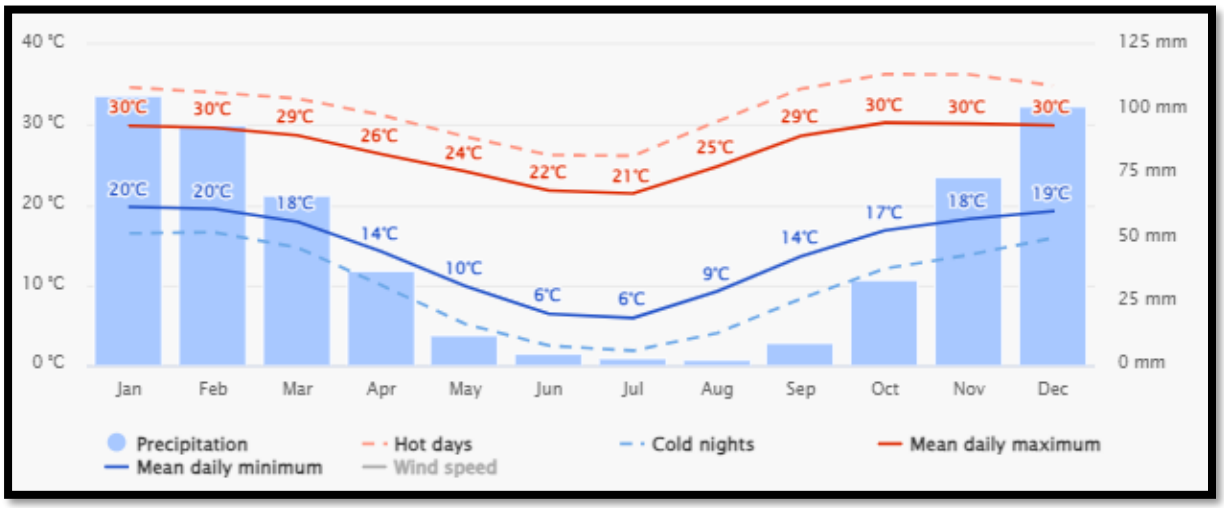


Figure 7: Statistical representation of the temperatures for the Thabazimbi region (Chart obtained from https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/thabazimbi_south-africa_949683).

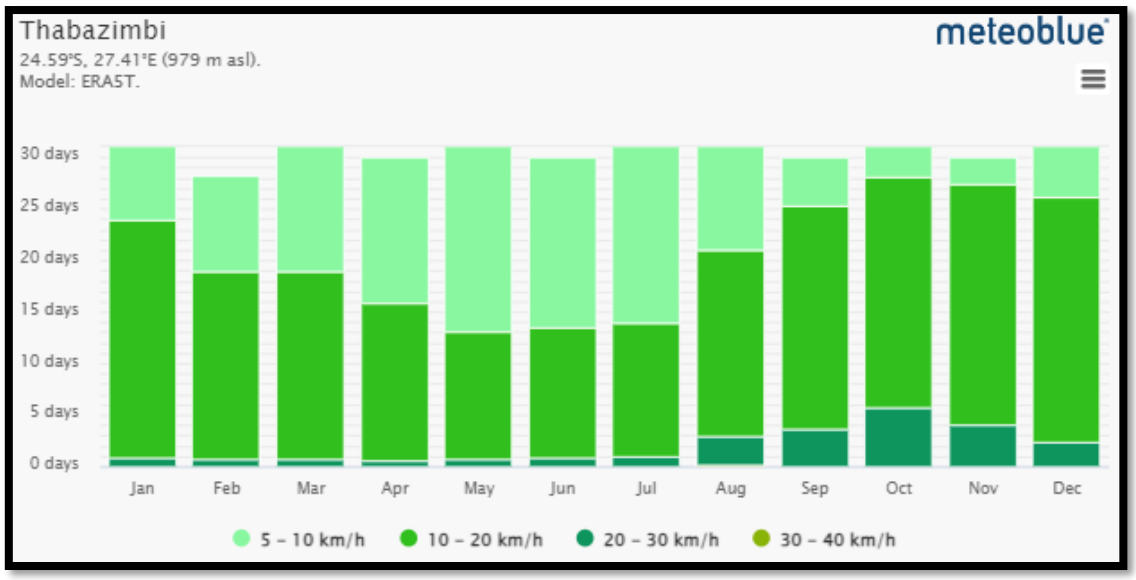


Figure 8: Statistical representation of the wind speed for the Thabazimbi region (Chart obtained from https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/thabazimbi_south-africa_949683).

According to the wind rose as presented on Windfinder.com the prevalent wind direction distribution of Thabazimbi is in a north-easterly, with the average wind speed being between 12 knots as shown in the figure below.

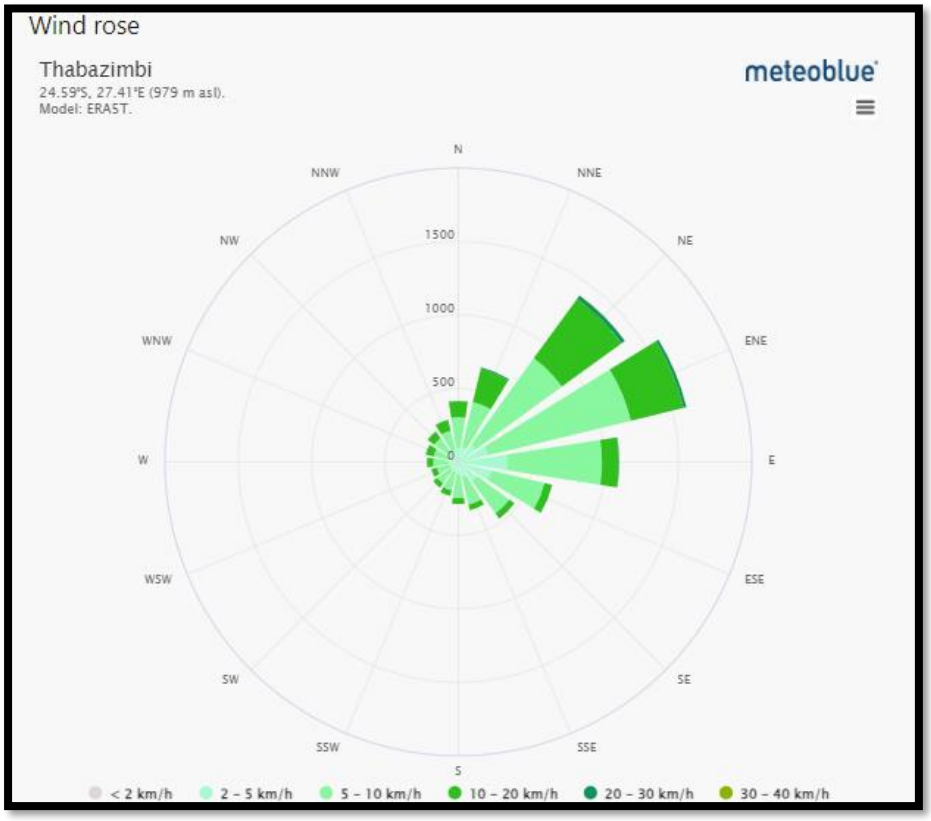


Figure 9: Image showing the dominant wind direction (first panel) and average wind speed over a 12 month period for the Thabazimbi area (image obtained from https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/thabazimbi_south-africa_949683)

TOPOGRAPHY

The natural topography of the proposed excavated area can be described as flats and undulating plains from Assen northwards past Thabazimbi and remaining west of the Waterberg Mountains towards Steenbokpan in the north. Some patches occur between the Crocodile and Marico Rivers to the west. The elevation loss from the proposed mining footprint to the town of Thabazimbi to be 694 m over 31.5 km.

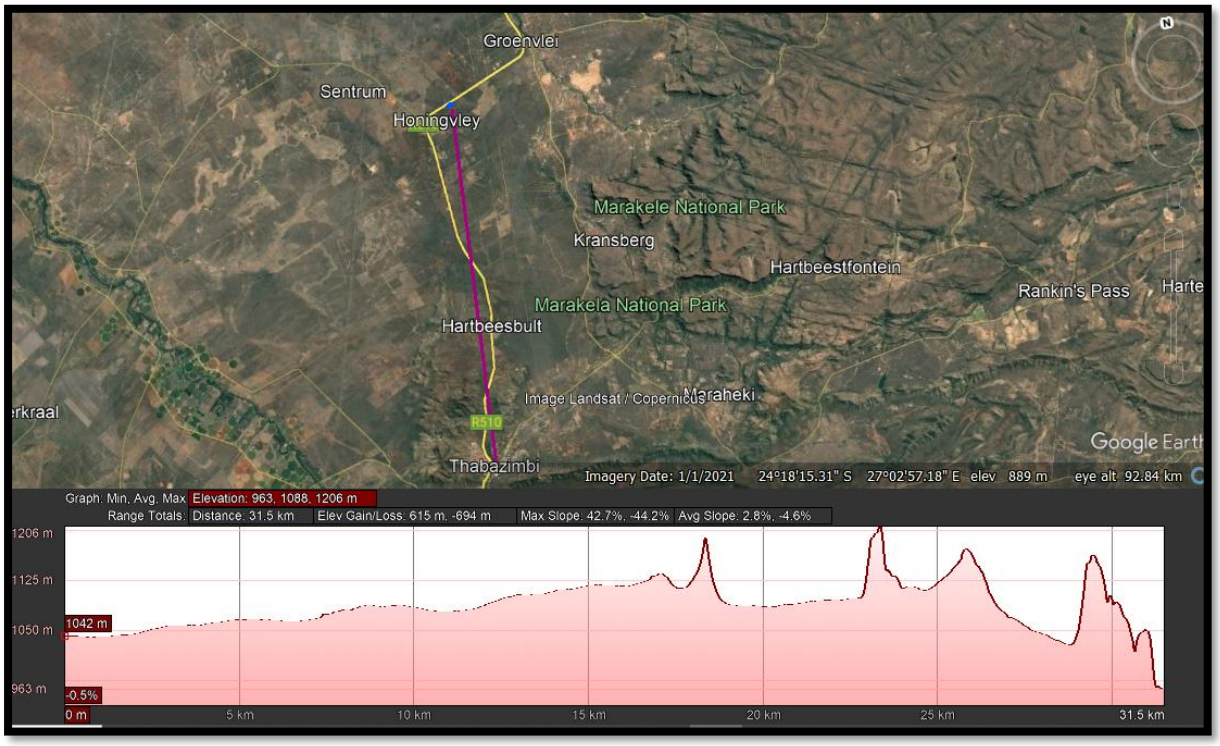


Figure 10: Elevation profile showing the topography between the proposed mining footprint (purple line) and the town of Thabazimbi (Image obtained from Google Earth).

VISUAL CHARACTERISTICS

The visual character of the surrounding areas mainly comprises of rural residential dwellings and agricultural setting. The aesthetic ambiance of the area is that of a rural area.

AIR AND NOISE QUALITY

The wind patterns in Thabazimbi are somewhat influenced by seasonal variations. According to the wind statistics, the prevalent wind direction distribution of Thabazimbi is in a south/south-western direction from July to October. The ambient noise levels of the surrounding area are low with the noise levels of the greater surrounding area are low representing that of a rural area.

GEOLOGY AND SOIL

The geology of the study area comprises of Sandstone and mudstone of the Matlabas Subgroup and sandstone, subordinate conglomerate, siltstone and shale of the Kransberg Subgroup (both Mokolian Waterberg Group) are found in the north. Archaean granite and gneiss of the Swazian Erathem and granite of the Lebowa Granite Suite (Bushveld Igneous Complex) are found in the west and southeast of the area, respectively. Soils are plinthic catena, eutrophic, red-yellow apedal, freely drained, high base status, Hutton and Clovelly with some Glenrosa and Mispah soil forms. Several areas have less sandy soil than that of SVcb 12 Central Sandy Bushveld. Land types mainly Bd, Ah, Ae and Fa.

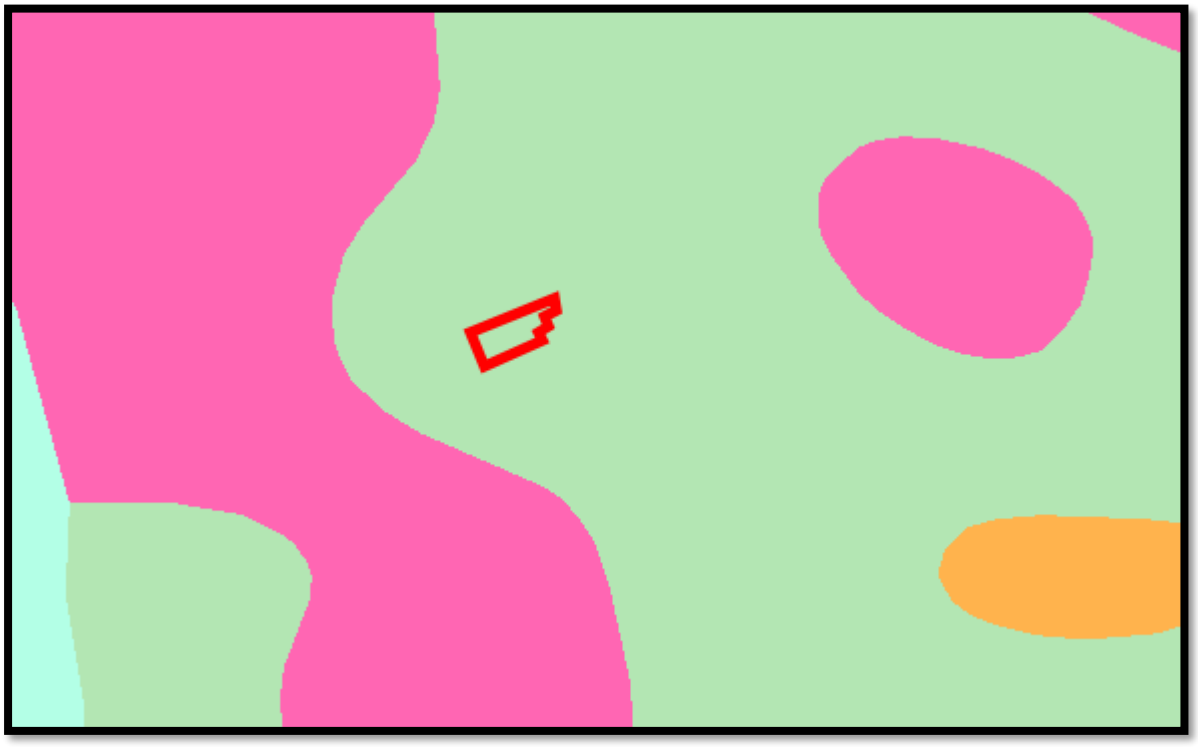


Figure 11: Indication of the simplified geology of the study area, where green represents the Matlabas Formation. The proposed mining area is indicated by the red polygon. (Image obtained from the Council for Geoscience)

HYDROLOGY

The proposed mining area falls within the A41A quaternary catchment which falls within the upper reaches of the Matlabas/Mokolo Sub Water Management Area that is situated in the LIMPOPO Water Management Area which is managed by the Department of Water and Sanitation (DWS). The proposed mining area is not located within 500m of any water resources. Any other water will be bought from a registered source and transported to site.

Table 9: Aquatic characteristics of the greater study area

Water Management Area	LIMPOPO
Sub Water Management Area	Matlabas/Mokolo
Quaternary Catchment	A41A
FEPA Status	FEPA area within the project area

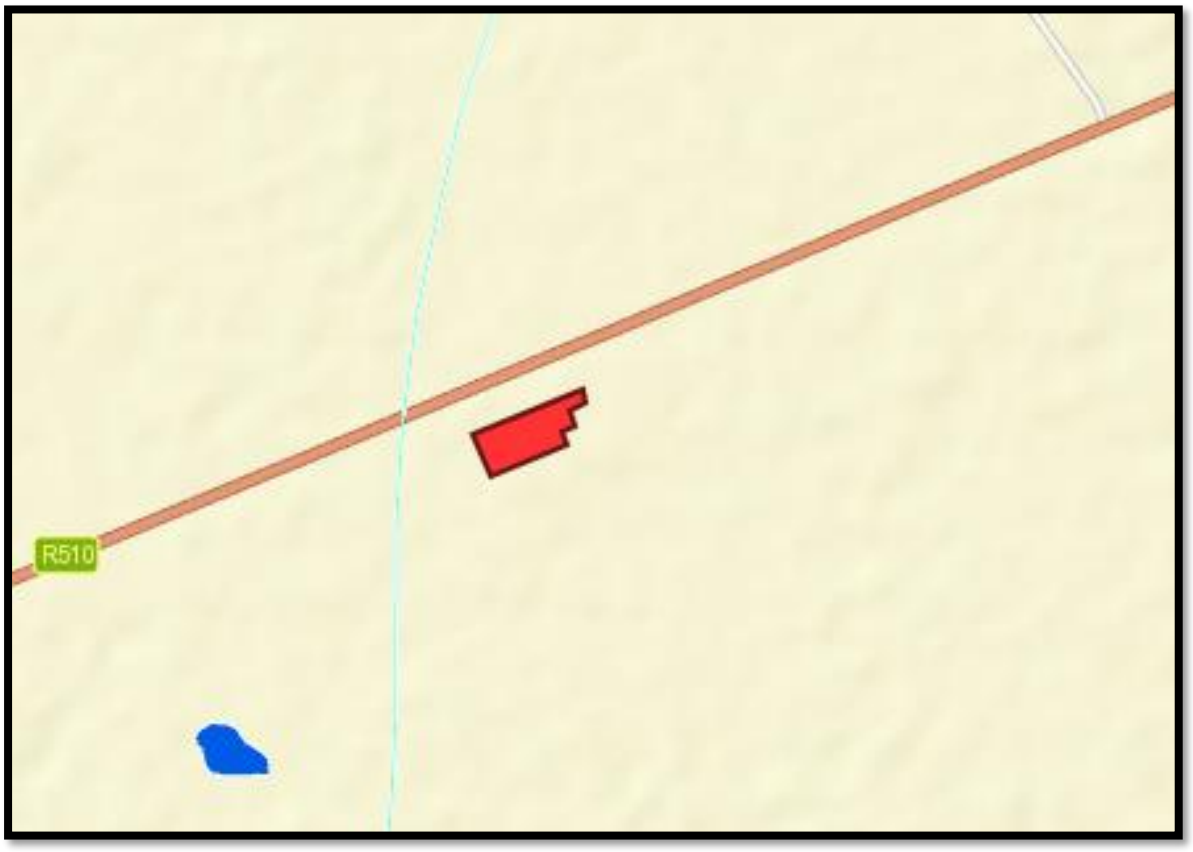


Figure 12: Map showing the proposed mining footprint (blue polygon) and FEPA area (Green area). (Image obtained from BGIS map viewer)

BIOLOGICAL ENVIRONMENT

MINING AND BIODIVERSITY

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

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

When the mining footprint is layered over the Mining and Biodiversity Map, as shown in the figure below, the area falls over an area of medium risk for mining therefore the risk is seen to be significant. The Mining and Biodiversity Guideline's describes areas of high-risk biodiversity importance as: "*Critically endangered and endangered ecosystems."* The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

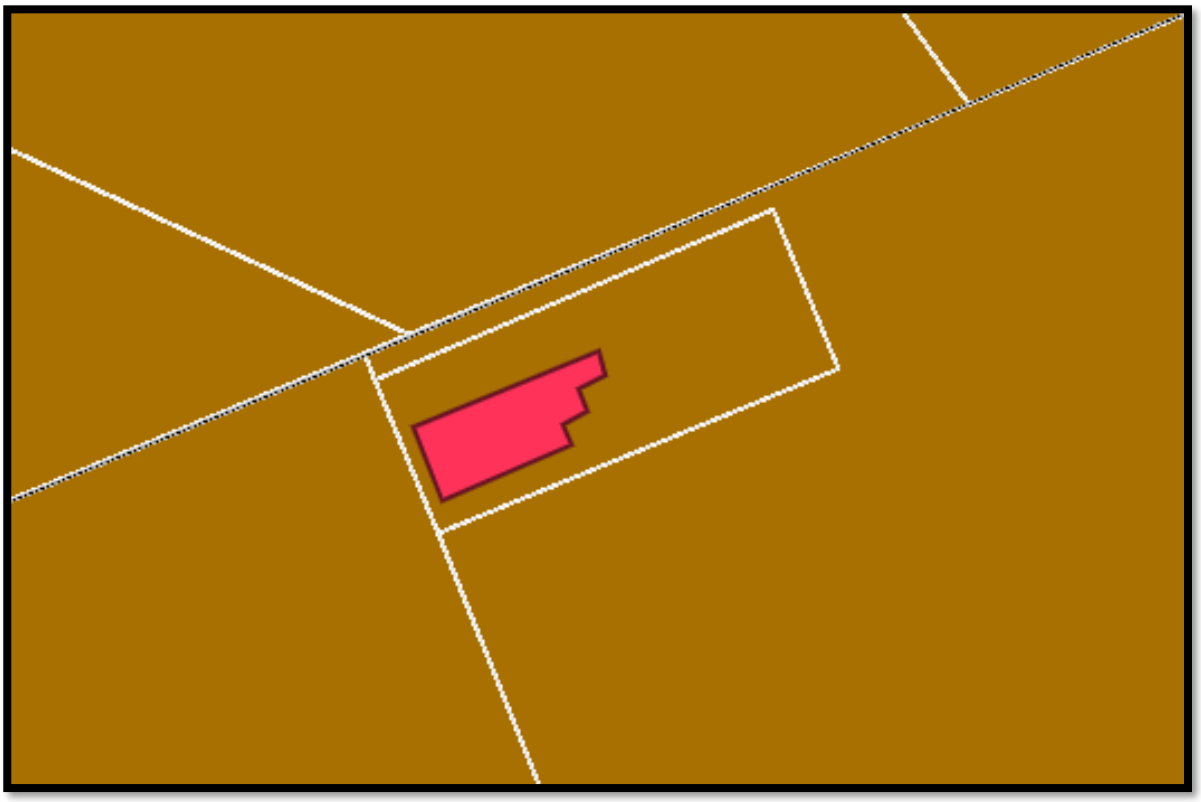


Figure 13: The Mining and Biodiversity importance map with the proposed mining footprint (green polygon). Dark brown – high biodiversity importance, high risk for mining, light brown – moderate biodiversity Importance, moderate risk for mining (image obtained from the BGIS Map Viewer – Mining Guidelines).

BIODIVERSITY CONSERVATION AREAS

The Limpopo Conservation Plan (LCP) shows that the proposed mining footprint falls within a Ecological Support Area 1. The category is described to be natural, near natural and degraded areas supporting CBAs by maintaining ecological processes.

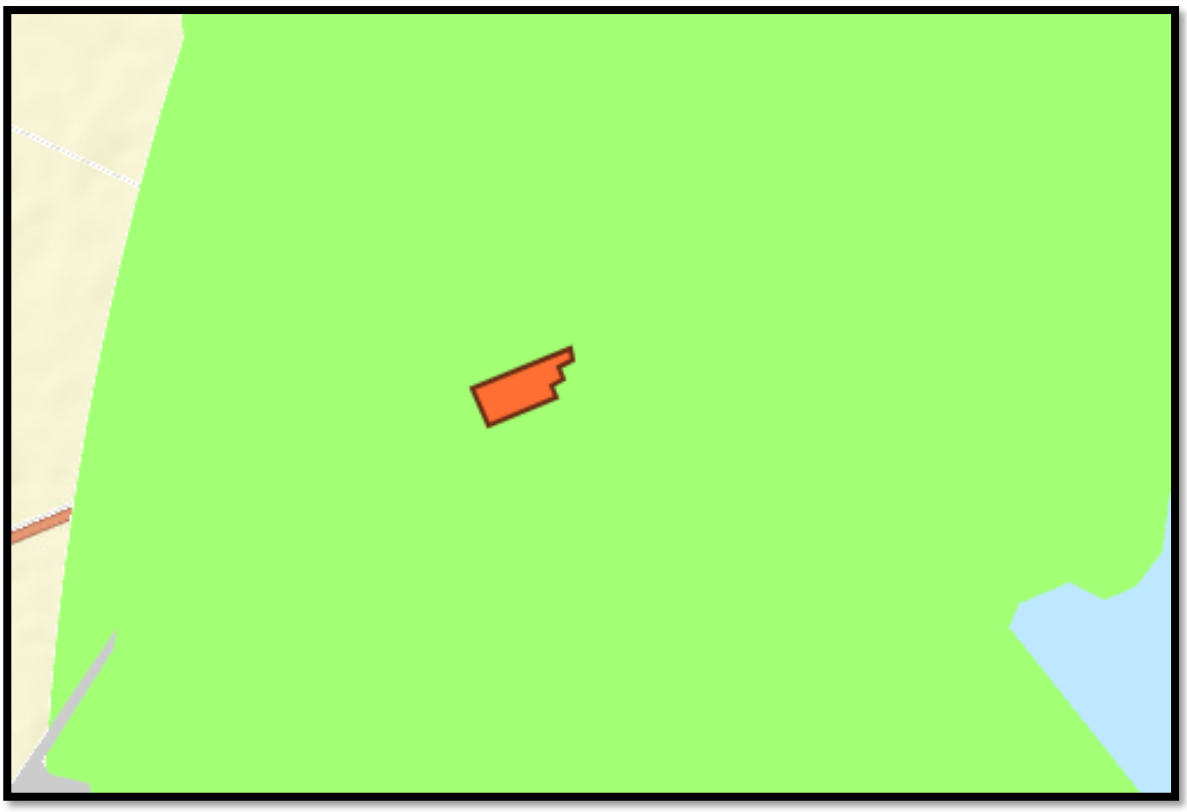


Figure 14: Limpopo Conservation Plan showing the mining area (red polygon) in relation to the ecological support areas (green). (Image obtained from BGIS Map Viewer – Limpopo Conservation Plan).

GROUNDCOVER

According to Mucina and Rutherford (2012) the vegetation type of the surrounding areas are known as SVcb 16 Western Sandy Bushveld that varies from tall open woodland to low woodland, broad-leaved as well as microphyllous tree species prominent. Dominant species include Acacia erubescens on flat areas, Combretum apiculatum on shallow soils of gravelly upland sites and Terminalia sericea on deep sands. Occurs on slightly undulating plains.

Some of the important taxa found in this vegetation type include *Acacia erioloba, A. nigrescens, Sclerocarya birrea subsp. caffra. Small Trees: Acacia erubescens (d), A. mellifera subsp. detinens (d), A. nilotica (d), A. tortilis subsp. heteracantha (d), Combretum apiculatum (d), C. imberbe (d), Terminalia sericea (d), Combretum zeyheri, Lannea discolor, Ochna pulchra, Peltophorum africanum. Tall Shrubs: Combretum hereroense (d), Euclea undulata (d), Coptosperma supra-axillare, Dichrostachys cinerea, Grewia bicolor, G. flava, G. monticola. Low Shrubs: Clerodendrum ternatum, Indigofera filipes, Justicia flava. Graminoids: Anthephora pubescens (d), Digitaria eriantha subsp. eriantha (d), Eragrostis pallens (d), E. rigidior (d), Schmidtia pappophoroides (d), Aristida congesta, A. diffusa, A. stipitata subsp. graciliflora, Eragrostis superba, Panicum maximum, Perotis patens. Herbs: Blepharis integrifolia, Chamaecrista absus, Evolvulus alsinoides, Geigeria burkei, Kyphocarpa angustifolia, Limeum fenestratum, L. viscosum, Lophiocarpus tenuissimus, Monsonia angustifolia.*

The vegetation type is classified as least threatened. According to Mucina and Rutherford (2012), about 6% statutorily conserved, just over half of which in the Marakele National Park. About 4% transformed, mainly by cultivation. Erosion is generally low to very low.

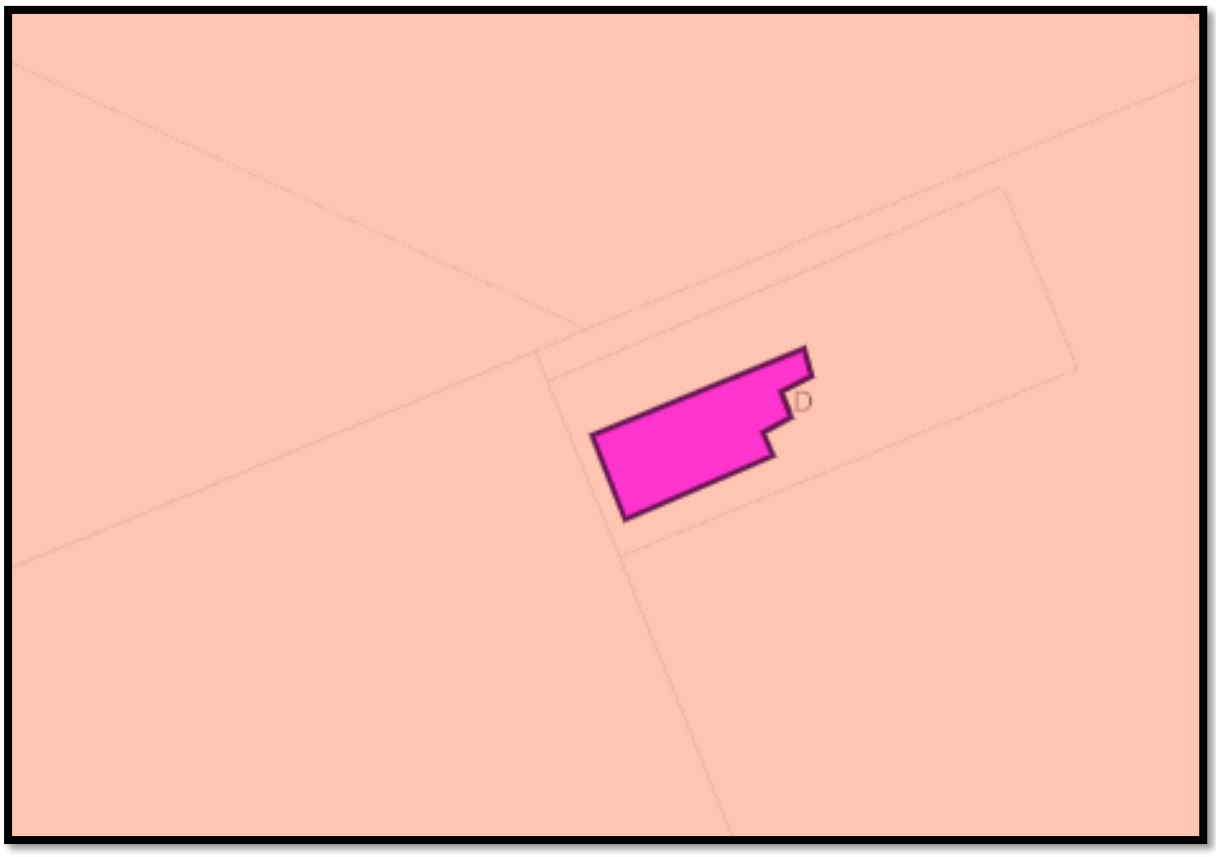


Figure 15: National vegetation cover map showing the mining area within the SVcb 16 Western Sandy Bushveld (Image obtained from BGIS Map Viewer – National Vegetation Map).

FAUNA

Various small mammals and reptiles occur are likely to on the property. The fauna at the site will not be impacted by the proposed mining activities as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. The study area falls over a property that is noted to be for agricultural use, should this mining permit be granted the landowner will be consulted prior to commencement of any activities to ensure that safety of animals and workers. Workers will be informed and managed to ensure that no fauna at the site is harmed. No poaching or hunting of animals will be allowed. All construction vehicles must adhere to a low-speed limit (<40km/h) to avoid collisions with susceptible species such as snakes and tortoises. Trenches and deep excavations should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.

HUMAN ENVIRONMENT:

CULTURAL AND HERITAGE ENVIRONMENT

As mentioned earlier, the project area is characterised by a wooded area with reddish sand and gravel soils. The project area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. Two observations were made including a small cement and brick foundation (48 m to the west of the development footprint) recorded as RV002 and a degraded road just to the west of the development footprint recorded as RV001. It should be noted that RV002 can be associated with unmarked graves and this area should be avoided during development. The features potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and they are of no significance apart from mentioning them in this report. According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant/zero palaeontological sensitivity and no further studies are required or this aspect.

The impact to heritage resources is expected to be low provided that the recommendations in HIA report are adhered to and based on the South African Heritage Resource Authority (SAHRA) 's approval.

The South African Heritage Resources Agency (SAHRA) compiled the Palaeontological (fossil) Sensitivity Map (PSM) to guide developers, heritage officers and practitioners in screening paleontologically sensitive areas at the onset of a project. When the footprint of the earmarked mining area is placed on the PSM, the SAHRIS palaeo-sensitivity map (see https://sahris.sahra.org.za/map/palaeo) indicates that the bulk of the footprint of the proposed quarry is located in an area of zero palaeontological sensitivity (as presented in the figure below).

Figure 16: Screenshot from the SAHRIS palaeo-sensitivity map showing the location of the proposed mining area (yellow star) straddling an area of insignificant/zero (blue) palaeontological sensitivity (Source: https://sahris.sahra.org.za/map/palaeo).

SOCIO-ECONOMIC ENVIRONMENT

(Information extracted from the Ingquza Hill Local Municipality Integrated Development Plan – 2022-2027)

The Thabazimbi Local Municipality is located in the Limpopo Province and extends to the Botswana border. It is one of six municipalities in the Waterberg District area of jurisdiction. Neighbouring municipalities include Lephalale Local Municipality to the north, Modimolle Mookgophong Local Municipality to the east and Bela-Bela Local Municipality to the south-east. The Northwest and Gauteng Provinces border the Municipality to the south, and Botswana to the west. Thabazimbi Town is the municipal capital and one of four major towns in the District, together with Modimolle, Mokopane, Lephalale, and BelaBela. Routes R511, R510 and R516 are the only regional roads that traverse the western parts of the District, linking Thabazimbi, Bela-Bela, Mookgophong and Mokopane with the provincial capital, Polokwane. The Thabazimbi area is between 100km and 250km from three international airports, being ± 245km from the O.R. Tambo Airport to the east of Johannesburg, ± 190km from the Lanseria Airport to the north of Johannesburg, and 100km from the Pilanesberg Airport, adjacent to the Pilansberg Game Reserve. Furthermore, it is ± 200km from Tshwane and ±130km from Lephalale, a major city and an emerging node respectively. The study area is closer to Johannesburg and Tshwane in Gauteng than it is to Polokwane, its provincial capital (± 300km).

Population

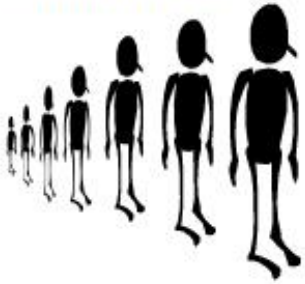
According to Stats SA, and as depicted on the table below, the 2021 projection shows that there are ± 104 781 people residing within the area of the Municipality, which amounts to ± 38 175 households. 13% growth rate from 2011 to 2016, and 15% from 2016 to 2020. The table illustrates the comparison of demographics from the census, community survey and other sources which only provide highlights in terms of projections but cannot be regarded as formal statistics.

Population		**Households**		
Community Survey 2016	Stats SA 2021	Census 2011	Community Survey 2016	Independent data 2020
96 232	104 781	25 080	35 463	38 175

More detailed analysis of the socio-economic profile can be found in the Draft Spatial Development Framework 2022 which is currently under review and annexed hereto as a sector plan.

The pictures below demonstrate the socio-economic and demographics of the Municipality

Population: 96 232



Young (0 -14): 24.3%

Households: 35 463

Elderly (65+): 2.2%

Population age (15 -64): 73.5%

Dependency rate: 36%

Average household size: 2.7

Female Headed hh: 22.7%

Gender Ratio: 146.9 males per 100 females

Source: Stats SA, Census 2011 & Community Survey 2016

DEMOGRAPHICS

Unemployment rate: 20.6%

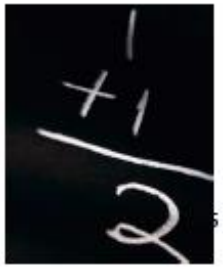
Youth Unemployment rate: 26.9%

No schooling: 3.7%

Matric: 31.8%

Higher Education: 6.2%

Population density: 7.26 persons per km2



DEMOGRAPHICS

The table indicates demographics in relation to the type of service that that the municipality offers. This also assists in determining the backlog in terms of service delivery and/or provision of basic services

Category	2011 Census (Stats SA)	2016 Community survey
Total Households	25 080	35 463
Type of dwelling		
Traditional	469	253 (0.7%)
Informal	6 505	10 638 (30%)
Formal	17 725	24 120 (68%)
Others	381	452 (1.3%)
Piped Water		
Access to Piped Water	23 530	25 178 (71%)
Other Source (Boreholes, Tankering	1 550	10 285 (29%)
Improved Sanitation		
Flush/Chemical Toilet	17 211	25 604(72.2%)
Backlog	7 869	9 859 (27.8%)
Electricity		
Connected to Electricity	19 269	25 882 > (27 041) (76%)
Backlog	5 811	9 581 > (8 422) (24%)

PEOPLE WITH DISABILITY the table shows number of people with disability and the extent

	Thabazimbi	Lephalale	Mookgophong	Modimolle	Belabela	Mogalakwena	TOTAL
No difficulty	66 365	92 111	29 930	56 640	53 744	254 230	
Some difficulty	5 587	6 500	2 194	5 354	4 873	25 457	
A lot of	596	774	269	611	701	3 349	
Cannot do at	169	251	63	124	99	737	
Do not know	82	69	135	83	36	605	
Cannot yet be	2 946	4 651	1 507	3 111	2 601	15 124	
Unspecified	2 832	3 166	978	1 689	1 958	6 439	
Not applicable	6 657	8 245	563	902	2 488	1 741	
TOTAL	**85 234**	**115 767**	**35 640**	**68 513**	**66 500**	**307 682**	**612 823**

Source: Statssa, Census 2011

(b) Description of the current land uses

A portion of Portion 1 of Farm Ruigtevley 97 KQ, is situated in a rural setting. The nearest settlements to the proposed mining area are Thabazimbi that is approximately 39 km away. The land use of the proposed mining area on the property mainly comprises of inactive agricultural land.

The main land use of the surrounding properties is agricultural. The following table provides a description of the land uses and/or prominent features that currently occur within a 500 m radius of the proposed site:

Table 10: Land uses and/or prominent features that occur within 500 m radius of S1.

LAND USE CHARACTER	YES	NO	DESCRIPTION
Natural area	**YES**	-	The study area is surrounded by natural areas used for agricultural (small holding) purposes.
Low density residential	-	**NO**	
Medium density residential	-	**NO**	
High density residential	-	**NO**	
Informal residential	-	**NO**	
Retail commercial & warehousing	-	**NO**	
Light industrial	-	**NO**	
Medium industrial	-	**NO**	
Heavy industrial	-	**NO**	
Power station	-	**NO**	
High voltage power line	-	**NO**	
Office/consulting room	-	**NO**	
Military or police base / station / compound	-	**NO**	
Spoil heap or slimes dam	-	**NO**	
Quarry, gravel or borrow pit	-	**NO**	
Dam or reservoir		**NO**	
Hospital/medical centre	-	**NO**	
School/ crèche	-	**NO**	
Tertiary education facility		**NO**	
Church	-	**NO**	
Old age home	-	**NO**	
Sewage treatment plant	-	**NO**	
Train station or shunting yard	-	**NO**	
Railway line	-	**NO**	
Major road (4 lanes or more)	**-**	**NO**	
Airport	-	**NO**	.
Harbour	-	**NO**	

LAND USE CHARACTER	YES	NO	DESCRIPTION
Sport facilities	-	**NO**	
Golf course	-	**NO**	
Polo fields	-	**NO**	
Filling station	-	**NO**	
Landfill or waste treatment site	-	**NO**	
Plantation	-	**NO**	
Agriculture	**-**	**NO**	The proposed footprint is inactive but still forms part of an agricultural active farm.
River, stream or wetland	**-**	**NO**	
Nature conservation area	-	**NO**	
Mountain, hill or ridge	-	**NO**	
Museum	-	**NO**	
Historical building	-	**NO**	
Protected Area	-	**NO**	
Graveyard	**-**	**NO**	
Archaeological site	-	**NO**	
Other land uses (describe)	-	**NO**	

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

SPECIFIC ENVIRONMENTAL FEATURES

SITE SPECIFIC TOPOGRAPHY

The natural topography the proposed excavated area can be described as flats and undulating plains from Assen northwards past Thabazimbi and remaining west of the Waterberg Mountains towards Steenbokpan in the north. Some patches occur between the Crocodile and Marico Rivers to the westThe figure below shows the elevation loss from the nearest road to the other side if the hill of the proposed mining footprint to be 12.5 m over 579m.

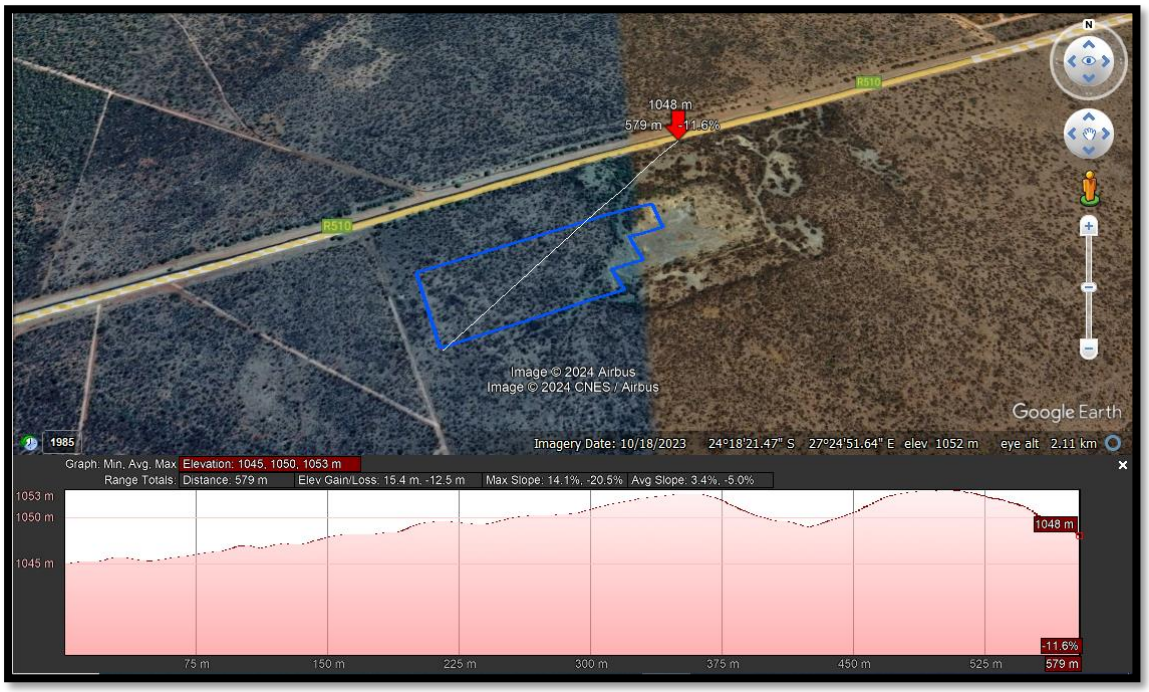


Figure 17: Elevation profile of the proposed mining footprint (Image obtained from Google Earth).

SITE SPECIFIC VISUAL CHARACTERISTICS

The proposed mining activities will be visible within close proximity (±1 km radius) of the footprint. However, as one moves away the visibility of the area greatly lessens. The figure below shows the viewshed analysis for the footprint within a ±10 km radius. The green shaded areas show the positions from where the mining area will be visible. From this analysis it is proposed that the visual impact of the proposed gravel mining operation will be of low significance, especially as no permanent structures will be constructed. Should the Applicant successfully rehabilitate the mining area (upon closure), no residual visual impact is expected upon closure of the mine.

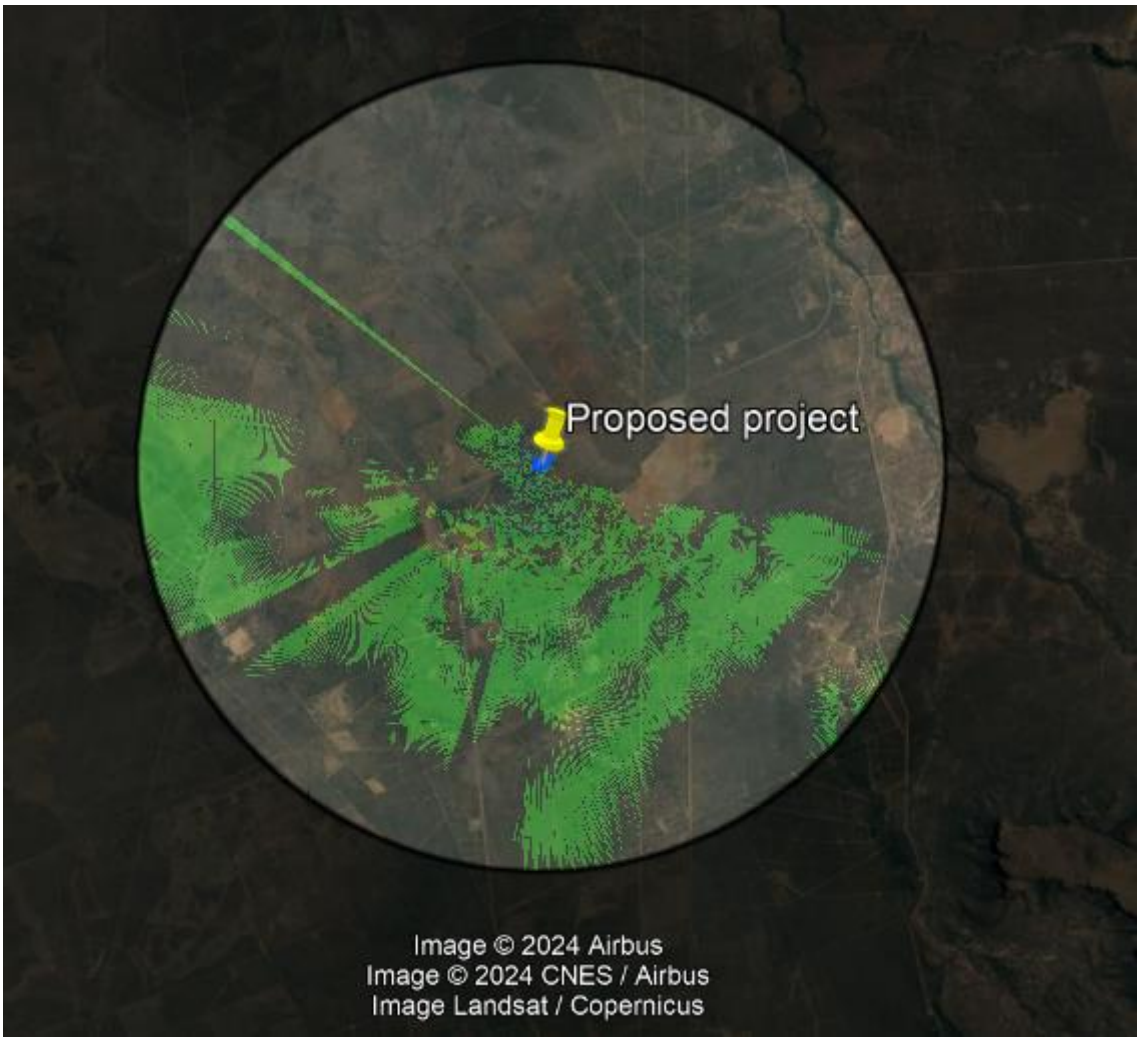


Figure 18: Viewshed of the proposed mining footprint where the green shaded areas shows the positions from where the mining area (Proposed mining area) will be visible. (Image obtained from Google Earth).

SITE SPECIFIC AIR AND NOISE QUALITY

The residential dwellings nearest to the proposed footprint is approximately 39 km away (south). Emission into the atmosphere is controlled by the National Environmental Management: Air Quality Act, 2004. The proposed mining activity does not trigger an application in terms of the said act. The proposed activity will contribute the emissions

mechanical mining equipment to the receiving environment for the duration of the operational phase. Should the permit holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use.

The potential impact on the noise ambiance of the receiving environment is expected to be of low significance. The distance of the proposed mining area from residential infrastructure further lessens the potential noise impact.

SITE SPECIFIC GEOLOGY AND SOIL

As mentioned earlier, sandstone and mudstone of the Matlabas Subgroup and sandstone, subordinate conglomerate, siltstone and shale of the Kransberg Subgroup (both Mokolian Waterberg Group) are found in the north. Archaean granite and gneiss of the Swazian Erathem and granite of the Lebowa Granite Suite (Bushveld Igneous Complex) are found in the west and southeast of the area, respectively. Soils are plinthic catena, eutrophic, red-yellow apedal, freely drained, high base status, Hutton and Clovelly with some Glenrosa and Mispah soil forms. Several areas have less sandy soil than that of SVcb 12 Central Sandy Bushveld. Land types mainly Bd, Ah, Ae and Fa.

SITE SPECIFIC HYDROLOGY

According to the Aquatic Compliance Statement (Appendix M1), the development area was traversed on foot, with serval checks being undertaken to identify any soil wetness indicators, and to determine the local soil forms.

No natural wetlands were identified within the proposed development area; therefore, no ecological and impact assessments were conducted for the proposed project. As per the specialist statement, the proposed project is not anticipated to have any impact on the aquatic biodiversity of the area as no natural freshwater resources were identified within the proposed development area. Therefore, the proposed development can be favorably considered for authorization.

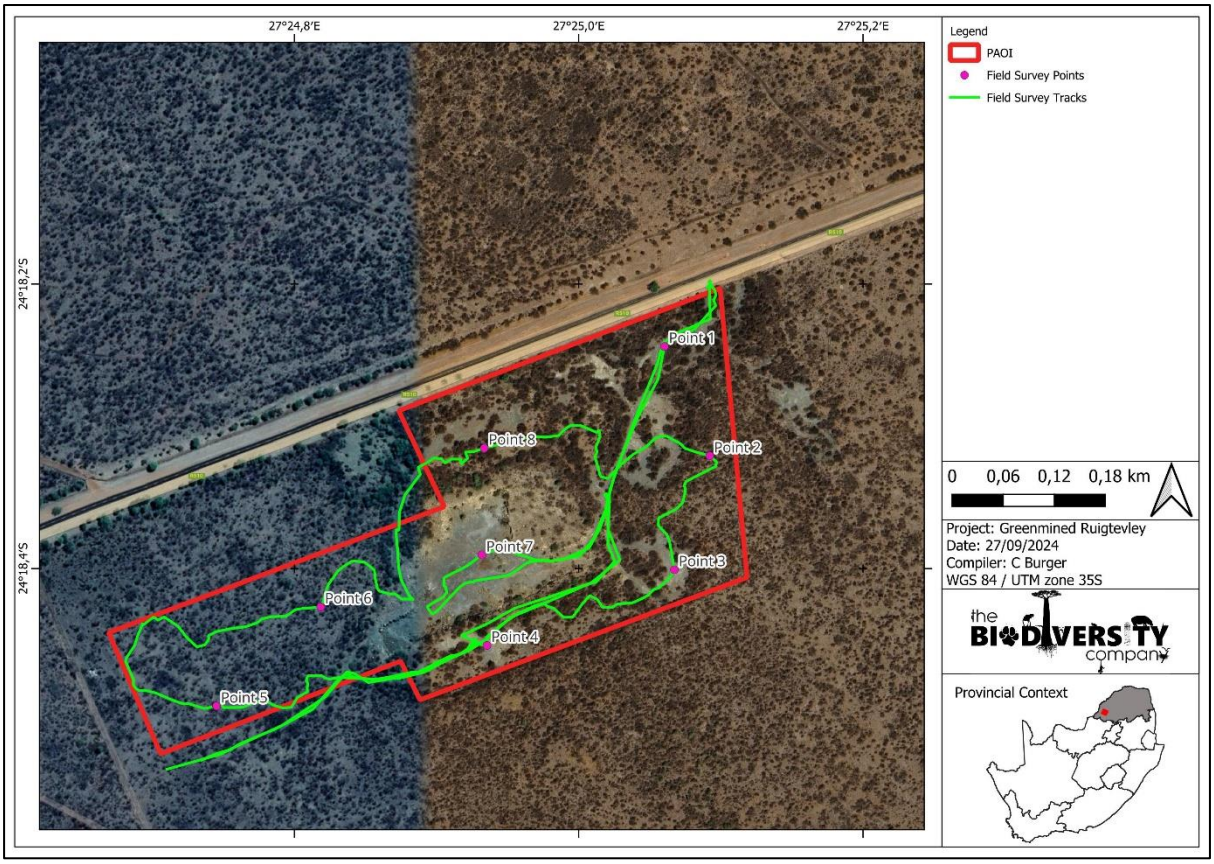


Figure 19: Map illustrating the field tracks of the field survey

SITE SPECIFIC MINING AND BIODIVERSITY CONSERVATION AREAS

As previously mentioned, the area falls over an area of high risk for mining therefore the risk is seen to be significant. The Mining and Biodiversity Guideline's describes areas of high-risk biodiversity importance as: "Critically endangered and endangered ecosystems." The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

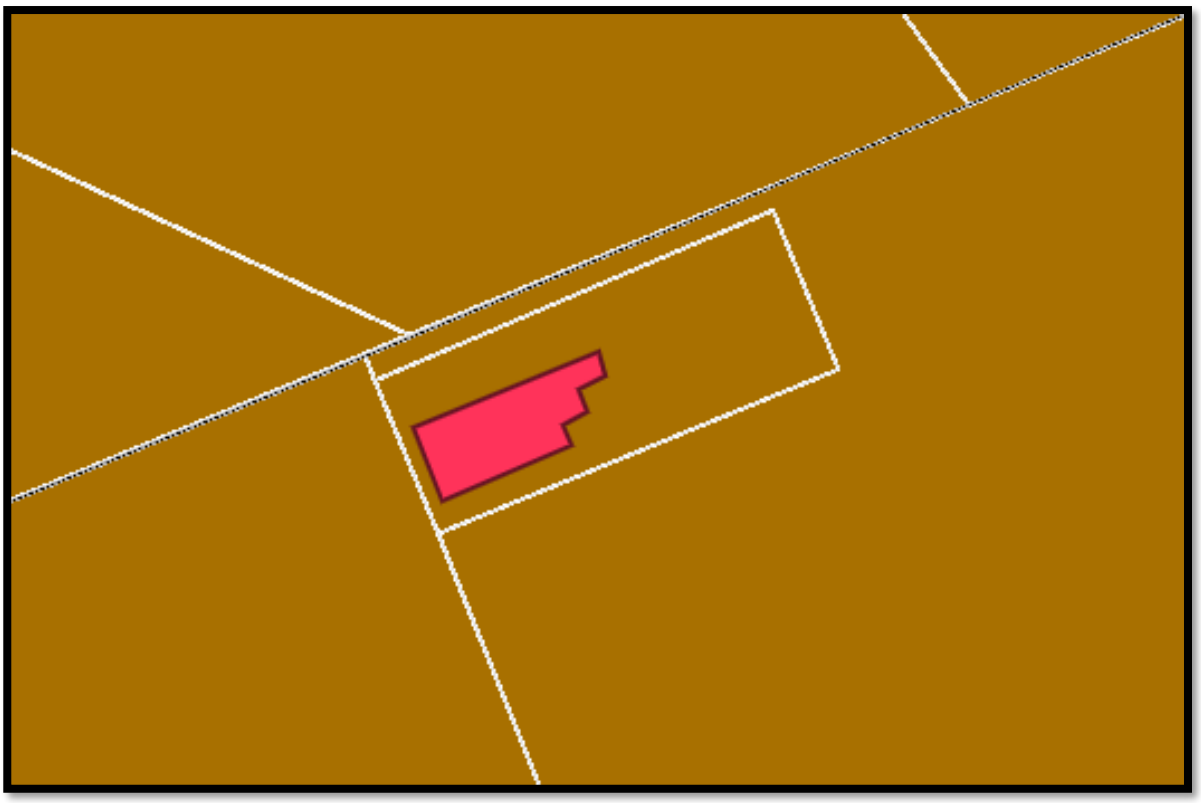


Figure 20: The Mining and Biodiversity importance map with the proposed mining footprint indicated by the green polygon. Dark brown – high biodiversity importance, high risk for mining, light brown – moderate biodiversity Importance, moderate risk for mining (image obtained from the BGIS Map Viewer – Mining Guidelines).

SITE SPECIFIC GROUNDCOVER

The following sections discuss the results from the field survey that was conducted for the proposed project, which was undertaken on the 26th of September 2024. Each sample point is described in the table below.

Table 11: Sensitivity summary of the survey points and habitat types delineated within the PAOI

Survey Point	Description	SEI	Photographs
Site GPS Reference: **Point 2** **Date: 26/09/2024** **GPS Coordinates:** **24°18'17.32"S 27°25'6.18"E**	**Modified** The modified areas have little to no remaining natural vegetation due to land transformation by historic mining activities, roads, and mismanagement. No fauna or flora SCC observed, and none expected for the habitat unit.	Very Low	

Survey Point	Description	SEI	Photographs
			
Site GPS Reference: **Marker 4** **Date: 26/09/2024** **GPS Coordinates:** **24°18'24.52"S 27°24'57.72"E**	**Modified** The modified areas have little to no remaining natural vegetation due to land transformation by historic mining activities, roads, and mismanagement. No fauna or flora SCC observed, and none expected for the habitat unit.	Very Low	 

Survey Point	Description	SEI	Photographs
Site GPS Reference: **Marker 5** **Date: 26/09/2024** **GPS Coordinates:** **24°18'26.82"S** **27°24'47.44"E**	**Degraded Western Sandy Bushveld** The Degraded Western Sandy Bushveld habitat unit features large tree species along with tall shrubs and grasses. Although it is semi-natural bushveld, it has been disturbed by past mining activities, overgrazing, and road construction. These disturbances have reduced the habitat's integrity and diversity, negatively impacting the plant communities. No fauna or flora SCC observed, and none expected to be resident within the habitat unit.	Low	 
Site GPS Reference: **Marker 6** **Date: 26/09/2024** **GPS Coordinates:** **24°18'23.06"S** **27°24'51.40"E**	**Degraded Western Sandy Bushveld** The Degraded Western Sandy Bushveld habitat unit features large tree species along with tall shrubs and grasses. Although it is semi-natural bushveld, it has been disturbed by past mining activities, overgrazing, and road construction. These disturbances have reduced	Low	

Survey Point	Description	SEI	Photographs
	the habitat's integrity and diversity, negatively impacting the plant communities. No fauna or flora SCC observed, and none expected to be resident within the habitat unit.		
Site GPS Reference: **Marker 8** **Date: 26/09/2024** **GPS Coordinates:** **24°18'17.03"S 27°24'57.61"E**	**Modified** The modified areas have little to no remaining natural vegetation due to land transformation by historic mining activities, roads, and mismanagement. No fauna or flora SCC observed, and none expected for the habitat unit.	Very Low	 

Habitat Assessment

Two (2) main habitat types were identified across the PAOI and include:

- Degraded Western Sandy Bushveld; and
- Modified.

The habitat units for the PAOI can be seen delineated in the figure below and descriptions of the habitat units can be found in the table below.

Figure 21: Habitats identified within the PAOI

Table 12: Table providing descriptions of the habitat types delineated for the PAOI

Habitat	Description and Condition
Degraded Western Sandy Bushveld	The Degraded Western Sandy Bushveld habitat unit is characterized by assemblages of large, tall species, including *Vachellia* spp., *Senegalia* spp., *Combretum* spp., and *Terminalia* spp., in conjunction with some tall shrubs and various grass species. It is considered semi-natural bushveld but exhibits various disturbances. The habitat has been negatively impacted by several factors, including edge effects from previous mining activities, overgrazing, and the creation of roads. These disturbances have led to reduced habitat integrity and diversity, adversely affecting the floral communities. The ecological services provided by this habitat type include forage for livestock, wood for charcoal production, wood for fire, non-timber products for local communities, water flow regulation, reduction of soil erosion, contribution to local hydrological cycles, carbon sequestration, climatic regulation, and climate change impact mitigation. Additionally, this habitat serves as foraging and nesting resources for livestock and local indigenous fauna species and is an important corridor for fauna dispersion within the landscape. No fauna or flora Species of Conservation Concern (SCC) (including avifauna) were observed, and none are expected to be resident/breed in the PAOI.
Modified	The modified areas exhibit minimal to no remaining natural vegetation due to extensive land transformation resulting from historic mining activities, road construction, and mismanagement. These habitats exist in a perpetually disturbed state and are unable to recover to a more natural condition due to ongoing disturbances and impacts. The ecological services provided by this habitat are significantly limited, primarily due to the extensive cover of impermeable surfaces and large expanses of bare land. Despite these limitations certain sections of the area may function as movement corridors. No fauna or flora SCC were observed, and none are expected to reside within the Project Area of Influence PAOI.

Site Ecological Importance

Based on the criteria provided in Appendix B of this report, all habitats within the PAOI were assigned a sensitivity category, i.e., a SEI category. The PAOI was categorised as possessing habitats with areas ranging from 'Very Low' to 'Low' SEI. This indicates that the findings of this assessment are contrary to the Screening Tool with respect to the Combined Terrestrial Biodiversity Theme sensitivity.

Table 13: Summary of habitat types delineated within the PAOI

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
Degraded Western Sandy Bushveld	**Medium**	**Low**	**Low**	**Medium**	**Low**
	> 50% of receptor contains natural habitat with potential to support SCC.	Small (> 1 ha but < 5 ha) area.		Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality.	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Modified	**Very Low**	**Very Low**	**Very Low**	**High**	**Very Low**
	No natural habitat remaining.	Several major current negative ecological impacts.		Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

Portions of the PAOI have been altered both presently and historically. The historical mining activities as well as livestock land use have had an impact on both the fauna and the flora of the area, which is evident in the degraded and modified habitats.

During the assessment one (*Sclerocarya birrea caffra*, Marula tree) protected tree species were recorded and is protected by the List of Protected Tree Species under the National Forests Act, 1998 (Act No. 84 of 1998) (NFA). Should they need to be removed, the appropriate permits must be procured prior to the relocation or removal of these species.

Due to the seasonal restraints at the time of this assessment, a site walkdown is recommended prior to any construction activities taking place to identify if any additional protected plant species are present on site. These must be marked and relocated to a similar habitat nearby which will not be affected by construction activities. Alternatively, as mentioned above applications for destruction permits must then be made.

Completion of the terrestrial biodiversity assessment led to the dispute of the 'Very High' classification for the terrestrial biodiversity theme sensitivity as allocated by the National Environmental Screening Tool. The PAOI is instead assigned an overall terrestrial sensitivity of 'Low'.

Impact Statement

The location, state and size of the ecosystem suggests that it is unlikely that any functional habitat or SCCs will be lost as a result of the impacts arising from the proposed activities. However, these assumptions pertain to the terrestrial habitat within the PAOI only.

Specialist Opinion

It is the opinion of the specialist that the proposed development is favourable only if all mitigation measures provided in this and other specialist reports are implemented, as well as the following:

- A site walkdown during the correct flowering season (between November and March) must be conducted for all protected plant species present on site, along with the acquisition of permits for the relocation/destruction of species;
- An alien invasion plant (AIP) management plan must be compiled and implemented; and

- A rehabilitation plan must be compiled and implemented for all areas of the PAOI impacted by the project activities.

SITE SPECIFIC FAUNA

Various small mammals and reptiles occur are likely to on the property. The fauna at the site will not be impacted by the proposed mining activities as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. The study area falls over a property that is noted to be operational game farms, should this mining permit be granted farm owner will be consulted prior to commencement of any activities to ensure that safety of animals and workers. Workers will be informed and managed to ensure that no fauna at the site is harmed. No poaching or hunting of animals will be allowed. All construction vehicles must adhere to a low-speed limit (<40km/h) to avoid collisions with susceptible species such as snakes and tortoises. Trenches and deep excavations should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.

SITE SPECIFIC CULTURAL AND HERITAGE ENVIRONMENT

As per the Heritage Impact Assessment (Appendix M2) the project area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. The hiatus of archaeological sites in the Project area can be attributed to the local geology and the topography that lack any of the abovementioned focal points. Stones sourced from hills and rocky outcrops provide building material for the stonewalled settlements as well as lookouts and defensive positions on the elevated areas and is not present in the Project area. In terms of the Stone Age the Project area also lacks raw material for manufacturing stone tools and shelters that would have been inhabited or water sources that would have been focal points during the Stone Age. This was confirmed during the field survey and no archaeological sites were recorded within the development footprint. Two observations were made including a small cement and brick foundation (48 m to the west of the development footprint) recorded as RV002 and a degraded road just to the west of the development footprint recorded as RV001. It should be noted that RV002 can be associated with unmarked graves and this area should be avoided during development. The features potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and they are of no significance apart from mentioning them in this report.

Table 14. Observations recorded during the survey.

Label	Location	Description	Significance
RV001	24°18'25.44"S 27°24'43.59"E	Degraded section of road.	GP C Low Significance
RV002	24°18'25.37"S 27°24'43.00"E	Small, square, cement and brick foundation.	GP C Low Significance

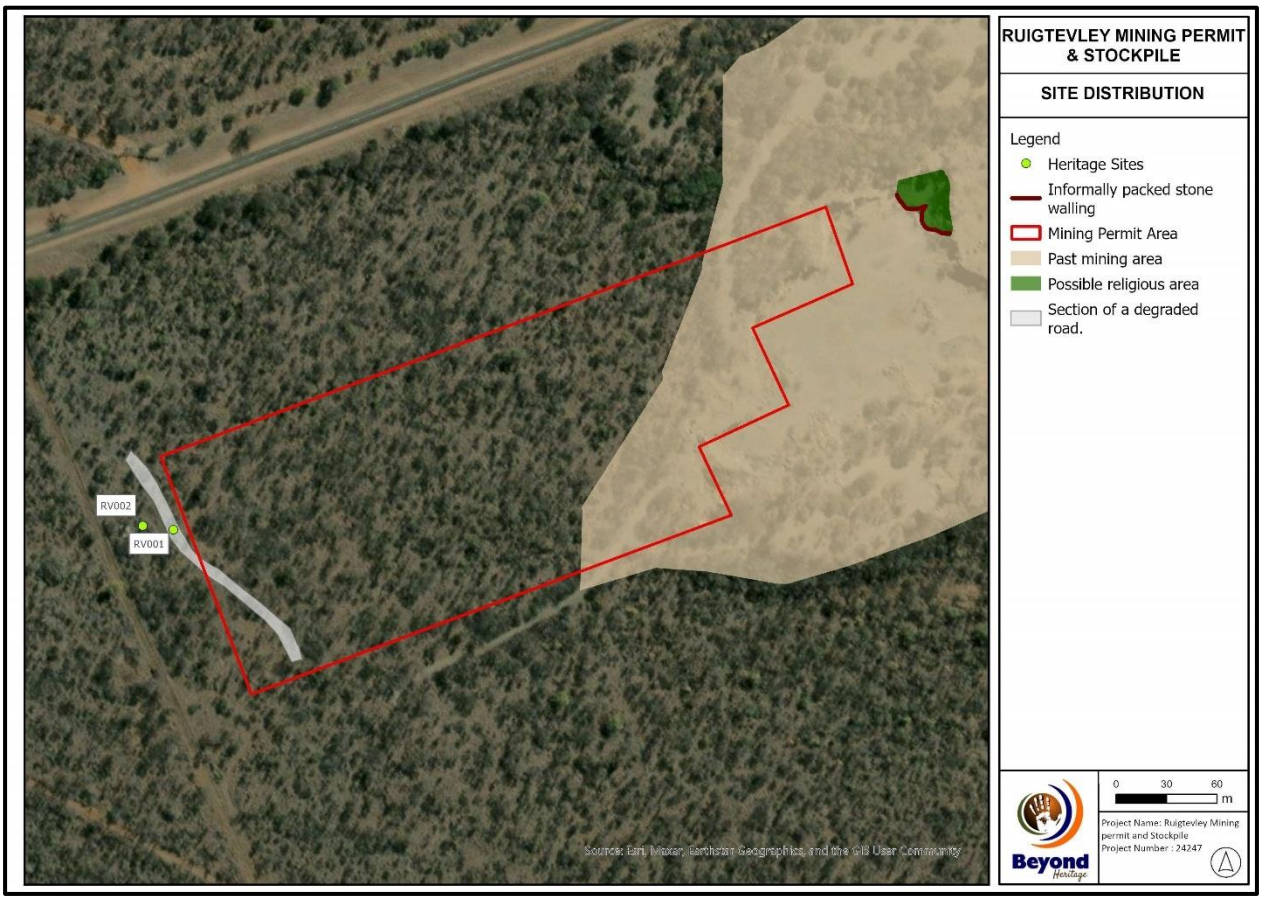


Figure 22. Recorded observations in relation the project footprint.

Cultural Landscape

The study area is in a rural setting and characterised by previous mining activities with a historical layering dating from the Stone Age to recent farming with infrastructure relating to railway lines, powerlines and gravel roads.

Paleontological Heritage

According to the SAHRA palaeontological sensitivity map, the study area is indicated as insignificant/zero palaeontological sensitivity and no further palaeontological studies are required for this aspect.

Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map

Figure 23:Paleontological sensitivity of the approximate study area (yellow polygon) as indicated on the SAHRA Palaeontological sensitivity map.

Conclusion and recommendations of the HIA report

The Project area is characterised by a wooded area with reddish sand and gravel soils. The Project area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. Two observations were made including a small cement and brick foundation (48 m to the west of the development footprint) recorded as RV002 and a degraded road just to the west of the development footprint recorded as RV001. It should be noted that RV002 can be associated with unmarked graves and this area should be avoided during development. The features potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and they are of no significance apart from mentioning them in the HIA report.

The impact to heritage resources is expected to be low provided that the recommendations in this report are adhered to and based on the South African Heritage Resource Authority (SAHRA) 's approval.

Recommendations for condition of authorisation

The following recommendations for Environmental Authorisation apply and the Project may only proceed based on approval from SAHRA:

- Development activities must be confined to the approved development footprint only;
- Monitoring of the Project area by the ECO during pre-construction and construction phases for heritage chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project as outlined in Section 9 of Appendix M2 of the DBAR.

Chance Find Procedure

Heritage Resources

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find and therefor chance find procedures should be put in place as part of the EMP. A short summary of chance find procedures is discussed below and monitoring guidelines applicable to the Chance Find procedure is discussed below and monitoring guidelines for this procedure are provided in Section 9.5 of Appendix M2 of the DBAR.

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the pre-construction phase, construction, operations or closure phases of this Project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.

- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

Reasoned Opinion

The overall impact of the Project with the recommended mitigation measures is acceptable and residual impacts can be managed to an acceptable level through implementation of the recommendations made in this report. The socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures are implemented for the Project.

Potential risk

Potential risks to the proposed Project are the occurrence of intangible features and unrecorded cultural resources (of which graves, and subsurface cultural material are the highest risk). This can cause delays during construction, as well as additional costs involved in mitigation and possible layout changes. The stakeholder engagement process will assess intangible heritage resources further if this is listed as a concern.

SITE SPECIFIC INFRASTRUCTURE

No other infrastructure has been established on the property that can be affected by the proposed development.

During the environmental impact assessment process, the feasibility of the proposed site was assessed to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant a site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.

(d) Environmental and current land use map.
(Show all environmental and current land use features)

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

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

The following potential impacts were identified of each main activity in each phase of the proposed project. The significance rating was determined using the methodology as explained

under *vi) Methodology Used in Determining and Ranking the Significance*. The impact rating listed below was determined for each impact **prior** to bringing the proposed mitigation measures into consideration. The degree of mitigation indicates the possibility of partial, full or no mitigation of the identified impact.

SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT:

Alteration of the agricultural sense of place

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	3	1	1.6	5	5	5	**8**				

Loss of agricultural land

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.6**				

Visual intrusion as a result of site establishment

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.6**				

Potential impact on fauna within the footprint area

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	1.6	4	3	3.5	**5.6**				

Potential impact on vegetation and listed and/or protected plant species.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
5	4	1	3.3	4	3	3.5	**11.6**				

Dust nuisance due to site establishment.

			Consequence			Likelihood	Significance				

							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent		Probability	Frequency		1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	3	3.5	**9.1**				

Potential impact on archaeological artefacts

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	5	5	4	1	1	1	**4**				

New job opportunities as a result of the mining operation (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: N/A**				
4	4	5	4.6	5	5	5	**23**				

STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN:

Visual intrusion caused by mining activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.6**				

Loss of stockpiled topsoil during mining and stockpiling

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	3	3.5	**9.1**				

Dust nuisance as a result of the disturbance of soil.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	3	2	2.3	4	4	4	**9.2**				

Noise nuisance generated by earthmoving machinery.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.6**				

Infestation of the topsoil heaps and mining area with weeds or invader plant species.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

Potential impact on local fauna due to disturbance and loss of available habitat.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.6**				

Potential erosion of denuded areas.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

Loss of stockpiled material due to ineffective storm water control.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

Potential contamination of footprint area and surface runoff as a result of hydrocarbon spillages

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.6**				

DRILLING AND BLASTING:

Health and safety risk posed by blasting activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	4	4	**9.2**				

Dust nuisance caused by blasting activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

Noise nuisance as a result of blasting.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

EXCAVATION, LOADING AND HAULING TO THE PROCESSING PLANT

Visual intrusion as a result of excavation and from loading and vehicles transporting the material.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.6**				

Dust nuisance due to excavation and from loading and vehicles transporting the material.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	4	4	**9.2**				

Noise nuisance as a result of the mining activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

Unsafe working environment for employees.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	4	4	**9.2**				

Soil contamination from hydrocarbon spills and/or littering.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	5	4.5	**11.7**				

Potential impact on areas of palaeontological concern.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	2	2	2	**4.6**				

Facilitation of erosion due to mining activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	5	4	4.5	10.35				

PROCESSING, STOCKPILING AND TRANSPORTING OF MATERIAL:

Dust nuisance generated at the processing plant.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

Noise nuisance stemming from operation of the processing plant.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

Visual intrusion as a result of operation of the processing plant.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

Potential contamination of environment due to improper waste management.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	4	4	**9.2**				

Overloading of trucks impacting road infrastructure

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	4	4	**10.4**				

Degradation of the access road

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	2	3	4	5	4.5	**13.5**				

CUMULATIVE IMPACTS:

Impact the broad-scale ecological processes - The loss of unprotected vegetation types on a cumulative basis from the broad area may impact the country's ability to meet its conservation targets.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
5	4	1	3.3	5	5	5	**16.6**				

Transformation of intact habitat would contribute to the fragmentation of the landscape and would potentially disrupt the connectivity of the landscape for fauna, avifauna, and flora and impair their ability to respond to environmental fluctuations.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
5	4	1	3.3	5	5	5	**16.6**				

SLOPING AND LANDSCAPING DURING REHABILITATION:

Safety risk posed by un-sloped areas

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	5	1	3	4	5	4.5	**13.5**				

Erosion of returned topsoil after rehabilitation

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	5	1	3	4	3	3.5	**10.5**				

Infestation of the reinstated areas by weeds and invader plant species

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	4	4	**10.4**				

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	4	4	**10.4**				

Return of the mining area to landscape feature upon closure (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: N/A**				
3	5	1	3	5	5	5	**15**				

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

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

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

DEFINITIONS AND CONCEPTS:

Environmental significance:

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

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

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

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

Impact

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

Consequence

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

Likelihood

A qualitative term covering both probability and frequency.

Frequency

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

Probability

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

Environment

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

Methodology that will be used

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

Environmental Significance = Overall Consequence X Overall Likelihood

Determination of Overall Consequence

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

Determination of Severity / Intensity

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

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

Table 15: Table to be used to obtain an overall rating of severity, taking into consideration the various criteria.

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

Determination of Duration

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

Table 16: Criteria for the rating of duration.

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

Determination of Extent/Spatial Scale

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

Table 17: Criteria for the rating of extent / spatial scale.

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

Determination of Overall Consequence

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

Table 18: Example of calculating overall consequence.

Consequence	Rating
Severity	Example 4
Duration	Example 2
Extent	Example 4
SUBTOTAL	**10**
TOTAL CONSEQUENCE: (Subtotal divided by 3)	**3.3**

Determination of Likelihood:

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described below and in tables 6 and 7.

Determination of Frequency

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

Table 19: Criteria for the rating of frequency.

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

Determination of Probability

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

Table 20: Criteria for the rating of probability.

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

Overall Likelihood

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

Table 21: Example of calculating overall likelihood.

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

Determination of Overall Environmental Significance:

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

Table 22: Determination of overall environmental significance.

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

Qualitative description or magnitude of Environmental Significance

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

Table 23: Description of environmental significance and related action required.

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

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

High Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and / or remedial activity to offset the impact at the spatial or time scale for

which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.

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

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

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

The environmental impact assessment process assessed the feasibility of the proposed site alternative to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant another site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing. Considering the above, the mining proposal was updated to incorporate the project related mitigation measures and monitoring programmes identified during the assessment process. The preferred development footprint was subsequently finalized and is depicted on the attached site activities plan (Appendix C). The aggregate mining area can be moved to various alternative sites within proximity of the proposed mining area but will entail disturbing

a greenfield area. However, the proposed mining area was identified as the preferred and only viable site alternative as it entails the mining of an inactive area. Considering this, S1 was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team due to the following:

- The applicant only identified one alternative site for the proposed mining as this area is the only viable area due to the position of the mineral reserve.
- If the mining permission is approved, the tribal chief of the area will be contacted before any work begins to ensure the safety of the workers and the animals on the land. This was deemed the only site alternative due to the presence of the aggregate reserve.
- Haul roads will be extended as the open cast mining progresses and will be rehabilitated as part of the final reinstatement of the area and will be rehabilitated as part of the final reinstatement of the area.
- The quality of the aggregate in the earmarked area, complies with the requirements of the Applicant's clients and/or contracts.

PROJECT ASSOCIATED POSITIVE IMPACTS:

- Possible work opportunities to local residents;
- Return of the mining area to its previous state upon closure of the project; and
- Diversification of the land use of the property.

POTENTIAL NEGATIVE IMPACTS:

Site establishment & infrastructure development

- Alteration of the agricultural sense of place;
- Loss of agricultural land;
- Visual intrusion as a result of site establishment;
- Potential impact on fauna within the footprint area;
- Potential impact on vegetation and listed and/or protected plant species
- Dust nuisance due to site establishment
- Potential impact on archaeological artefacts;

Stripping and stockpiling of topsoil and/or overburden:

- Visual intrusion caused by mining activities;
- Loss of stockpiled topsoil during mining and stockpiling;
- Dust nuisance as a result of the disturbance of soil;
- Noise nuisance generated by earthmoving machinery;
- Infestation of the topsoil heaps and mining area with weeds or invader plant species;
- Potential impact on local fauna due to disturbance and loss of available habitat;
- Potential erosion of denuded areas;

- Loss of stockpiled material due to ineffective storm water control;
- Potential contamination of footprint area and surface runoff as a result of hydrocarbon spillages.

Drilling and blasting:

- Health and safety risk posed by blasting activities;
- Dust nuisance caused by blasting activities;
- Noise nuisance as a result of blasting;

Excavation, loading and hauling to the processing plant:

- Visual intrusion as a result of excavation and from loading and vehicles transporting the material
- Dust nuisance due to excavation and from loading and vehicles transporting the material;
- Noise nuisance as a result of the mining activities;
- Unsafe working environment for employees;
- Soil contamination from hydrocarbon spills and/or littering;
- Potential impact on areas of palaeontological concern;
- Facilitation of erosion due to mining activities;

Processing, stockpiling and transporting of material:

- Dust nuisance generated at the processing plant;
- Noise nuisance stemming from operation of the processing plant;
- Visual intrusion because of operation of the processing plant
- Potential contamination of environment due to improper waste management;
- Overloading of trucks impacting road infrastructure;
- Degradation of the access road;

Cumulative impacts:

- Impact the broad-scale ecological processes;
- Transformation of intact habitat would contribute to the fragmentation of the landscape and would potentially disrupt the connectivity of the landscape for fauna, avifauna, and flora and impair their ability to respond to environmental fluctuations

Sloping and landscaping during rehabilitation:

- Safety risk posed by un-sloped areas;
- Erosion of returned topsoil after rehabilitation;
- Infestation of the reinstated areas by weeds and invader plant species;
- Potential impact associated with litter/waste left at the mining area.

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

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

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

TOPOGRAPHY

Rehabilitating/Landscaping of Mining Area:

- The excavated area must serve as a final depositing area for the placement of overburden.
- Rocks and coarse material removed from the excavation must be dumped into the excavation.
- Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- Stockpiles must be removed during the decommissioning phase, the area ripped and the topsoil returned to its original depth to provide a growth medium.
- No waste may be permitted to be deposited in the excavations.
- Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.
- If necessary, the area can be fertilized to hasten the establishment of flora. Should the site's natural vegetation not grow back within six months of its closure to spread the naturally existent flora in the area, the site could be seeded with a local or adapted indigenous seed mix. This area is seen to have low agricultural potential due to the rocky surface therefore the use of seed mixes should only be done after consultation with a qualified specialist with experience in the area as it might not apply.

- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.
- On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).
- On completion of mining operations, the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.

VISUAL CHARACTERISTICS

Visual Mitigation:

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

AIR AND NOISE QUALITY

Fugitive Dust Emission Mitigation Measures:

- The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products).
- The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.
- Speed on the haul roads must be limited to 40 km/h on the access road to prevent the generation of excess dust.
- Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining.
- The crusher plant must have operational water sprayers to alleviate dust generation from the conveyor belts.
- Fines, blowing from the drop end of the crusher plant, can be minimized by attaching strips of used conveyor belts to the conveyor's end.

- Compacted dust must weekly be removed from the crusher plant to eliminate the dust source.
- Loads must be flattened to prevent spillage during transportation on public roads.
- Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts.
- All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012).
- Best practice measures shall be implemented during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.

Noise Handling:

- The permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site.
- No loud music may be permitted at the mining area.
- All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).
- The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. Surrounding landowners must be notified in writing prior to each blasting occasion.
- A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA, 2004, SANS 10103:2008.
- Site management must strive to minimise the noise caused by generators. All generators must be maintained and equipped with sound mufflers. If at all possible, the generators must be placed as far away from the nearby land users as practicable, on the western portion of the mining area (S1). Also, to reduce vibration noise, all generators must be set up on a level surface or footing.
- Best practice measures shall be implemented to minimize potential noise impacts.

Topsoil Management:

- The upper 300 mm of the soil must be stripped and stockpiled before mining.
- Topsoil is a valuable and essential resource for rehabilitation, and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
- Topsoil must be stripped and stockpiled separately during site preparation and replaced over disturbed areas on completion.
- Topsoil stripping, stockpiling, and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time.
- The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed and inactive areas.
- Topsoil stockpiles must be protected against losses by water- and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (weeds or a cover crop) on the stockpiles will help to prevent erosion.
- Topsoil heaps may not exceed 1.5 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.
- The temporary topsoil stockpiles must be kept free of invasive plant species.
- Topsoil heaps to be stored longer than a period of 6 months needs to be vegetated with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season.
- Storm- and runoff water must be diverted around the stockpile area to prevent erosion.
- The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site.
- The permit holder must strive to re-instate topsoil at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal.
- A cover crop must be planted and established immediately after spreading of topsoil, to stabilize the soil and protect it from erosion. The cover crop must be fertilized for optimum biomass production. It is important that rehabilitation be taken up to the point of cover crop stabilization. Rehabilitation cannot be considered complete until the first cover crop is well established.
- Run-off water must be controlled via temporary berms, where necessary, on the slopes to ensure that accumulation of run-off does not cause down-slope erosion.

- The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement.
- Revegetation should occur naturally where topsoils were not severely altered.

HYDROLOGY

Erosion Control and Storm Water Management:

- Clearing of vegetation must be limited to the proposed mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place.
- Stormwater must be diverted around the topsoil heaps and mining areas to prevent erosion.
- Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms.
- When mining within steep slopes, it must be ensured that adequate slope protection is provided.
- During mining, the outflow of run-off water from the mining excavation must be controlled to prevent down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur.
- Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation.
- Any erosion problems within the mining area as a result of the mining activities observed must be rectified immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur.
- Silt/sediment traps/barriers must be used where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other sensitive areas. These sediment/silt barriers must regularly be maintained and cleared so as to ensure effective drainage of the areas.
- Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose:
- Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.
- Dirty water must be collected and contained in a system separate from the clean water system.
- Dirty water must be prevented from spilling or seeping into clean water systems.

- A storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns).
- The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan.
- Polluting activities including storage of mining fleet, equipment wash area facilities and vehicle maintenance yards must be restricted to the workshop areas and must be undertaken on impermeable hard standing surfaces, which are formally drained to a dirty water drainage system at the site.
- All fuels and chemicals stored or used on site must be contained within fit for purpose containers and stored within designated storage areas. To prevent pollution of the surrounding environment during an accidental spillage, the designated storage areas must be situated on an impermeable surface and must feature a perimeter bund and a drainage sump. The volume of the bund and sump must be sized to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. The storage areas must feature a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently.

TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER

Management of Vegetation Removal:

- The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly.
- A pre-construction walk-through should be conducted in the flowering season by a suitably qualified botanist for SCC or protected plant species that will be affected (also to comply with provincial permit conditions), and to develop a more comprehensive plant species list of the area.
- For threatened species that may not be destroyed, it is recommended that professional search and rescue service providers be used to remove such plants and to use them either for later rehabilitation work or other conservation projects.
- Cleared vegetation to be retained at any time may not be burned, but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes.
- Clearing of vegetation should be minimized and avoided where possible.
- Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further.
- The on-site ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when the majority of vegetation clearing is taking place.

- All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed.
- No plant species, whether native or exotic, should be brought into, ore removed from, the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.
- No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the ECO and without the relevant permits.
- No fires must be allowed on-site.
- If deemed necessary by the ECO, a firebreak must be made around the periphery of the site in autumn every year. Vegetated areas inside the break should be burned (upon recommendation of the ECO) on a biennial basis if deemed necessary. The relevant veld burning legislation must be adhered to.
- The following mitigation measures were provided by the terrestrial biodiversity specialist (Appendix M):
    - A site walkdown during the correct flowering season (between November and March) must be conducted for all protected plant species present on site, along with the acquisition of permits for the relocation/destruction of species;
    - An alien invasion plant (AIP) management plan must be compiled and implemented; and
    - A rehabilitation plan must be compiled and implemented for all areas of the PAOI impacted by the project activities.

Management of Invasive Plant Species:

- An invasive plant species management plan (Appendix I) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the mining activities.
- No planting or importing of any alien species to the site for landscaping, rehabilitation or any other purpose may be allowed.
- All stockpiles (topsoil & overburden) must be kept free of invasive plant species.
- Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
    - The plants can be uprooted, felled, or cut off and can be destroyed completely.

- The plants can be treated chemically by a registered pest control officer (PCO) using an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide.

FAUNA

Protection of Fauna:

- Site access should be controlled and no unauthorised persons should be allowed onto the site.
- Any fauna directly threatened by the associated activities should be removed to a safe location by a site manager.
- The collection/trapping, hunting, or poisoning of any animals at the site is strictly forbidden. Signs must be put up to enforce this. Personnel should not be allowed to wander off demarcated areas.
- Fires must not be allowed on site.
- All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel, and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.
- All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. All vehicles should adhere to a low speed limit (40 km/h) to avoid collisions with susceptible species.
- Construction vehicles must be limited to a minimal footprint on site (no movement outside of the earmarked footprint).
- Workers must be instructed to report any animals that may be trapped in the working area.
- Ensure that cables and connections are insulated successfully to reduce electrocution risk.
- Use environmentally friendly chemical products.
- No litter, food or other foreign material may be thrown or left around the site.

CULTURAL AND HERITAGE ENVIRONMENT

Archaeological, Heritage and Palaeontological Aspects:

- Development activities must be confined to the approved development footprint only;

- Monitoring of the Project area by the ECO during pre-construction and construction phases for heritage chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project as outlined in Section 9

- If any significant archaeological remains are located during this survey which cannot be avoided by, or excluded from the quarrying, they will require mitigation prior to any quarry-related activities on the site. A Workplan application will need to be made to SAHRA to conduct this work.

- Should any human remains be encountered at any stage during the works associated with the project, work must in the vicinity must cease immediately, the remains must be left in situ but made secure and the project archaeologist and SAHRA must be notified immediately to make a decision about how to deal with the remains.

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

GENERAL

<u>Waste Management:</u>

- Regular vehicle maintenance, repairs and services may only take place at the workshop and service area. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. This waste must be treated as hazardous waste and must be disposed of at a registered hazardous waste handling facility, alternatively collected by a registered hazardous waste handling contractor. The safe disposal certificates must be filed for auditing purposes.

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

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

Storage/Handling of Hazardous Substances/Chemicals:

- Chemical storage areas must be placed on level ground to prevent offsite migration of any spilled product.
- The floor of the storage area must be impermeable to prevent seepage of spilled products into the ground or ground water.
- Access to the chemicals/substances must be controlled and require prior notification of an appropriate staff member.
- A Hazardous Substances Register must be maintained, and Safety Data Sheets (SDS) must be kept current for all chemicals used on site.
- All tanks for fuel/used oil must have additional containment in the form of an impermeable bund wall and foundation, raised above the floor, on plinths. The bund capacity must be sufficient to contain 110% of the tank's maximum capacity. The distance and height of the bund wall relative to that of the tank must also be taken into consideration to ensure that any spillage does not result in hydrocarbons/other substances spouting beyond the confines of the bund.
- The site manager must establish a formal inspection routine to check all equipment in the bund area, as well as the bund area itself for malfunctions or leakages. The bund area must be inspected at least weekly, and any accumulated rainwater removed and handled as contaminated water. All valves and outlets must be checked to ensure that its intact and closed securely.
- The bund base must slope towards an oil sump of sufficient size. Contaminated water may not be allowed to mix with clean water and must be contained until it is collected by a registered hazardous waste handling contractor or disposed of at a registered hazardous waste handling facility.
- Drip trays must be used underneath all stationary equipment or vehicles. Used drip trays must be placed within a bunded area and are not stored on bare soil. The wastewater originating from the cleaning of drip trays must be discarded into the oil sump.

Management of health and safety risks:

- Workers must have access to the correct personal protection equipment (PPE) as required by law.
- Sanitary facilities must be located within 100 m from any point of work.
- All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).
- The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity.
- The surrounding landowners must be informed in writing ahead of each blasting event.
- The compliance of ground vibration and air blast levels must be monitored to USBM standards with each blasting event.
- A vibro recorder must be used to record all blasts.
- Audible warning of a pending blast must be given at least 3 minutes in advance of the blast.
- Measures to limit flyrock must be taken. All flyrock (of diameter 150 mm and larger) which falls beyond the working area, together with the rock spill must be collected and removed.

ix) Motivation where no alternative sites were considered.

Site Alternative 2 (S2) was assessed for the proposed mining but found not environmentally and practically suitable. Pristine areas will be disturbed which will result in a significant impact on the ecosystem. Site alternative 1, was deemed the only viable site alternative as this is the only area that will be viable for the applicant due to the presence of the mineral reserve and the current disturbed area done by previous mining activities. Although the position of Site Alternative 2 will still allow the development of the quarry on the property, it is believed that the impact associated with this site alternative is of higher significance without the need or motivation justifying it.

x) Statement motivating the alternative development location within the overall site.
(Provide a statement motivating the final site layout that is proposed)

Site Alternative 1 was identified during the assessment phase of the environmental impact assessment as the preferred and only site alternative. The following matters contributed to the identification of the preferred development footprint:

1. **Topography** – As mentioned earlier, The natural topography the proposed excavated area can be described as flats and undulating plains from Assen northwards past Thabazimbi and remaining west of the Waterberg Mountains towards Steenbokpan in the north. Some patches occur between the Crocodile and Marico Rivers to the westThe figure

below shows the elevation loss from the nearest road to the other side if the hill of the proposed mining footprint to be 12.5 m over 579m.

2. **Visual Characteristics** – The viewshed analysis showed that the visual impact of the proposed aggregate mining operation will be of low significance. The small scale of the proposed operation, and the mining area will be behind the hill which is semi-visible from the nearest dwellings. Should the Applicant successfully rehabilitate the mining area (upon closure), no residual visual impact is expected upon closure of the mine.

3. **Air and Noise Quality** – The proposed activity will contribute the emissions mechanical mining equipment to the receiving environment for the duration of the operational phase. Should the permit holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the traffic of the surrounding area.

4. **Hydrology** – As mentioned earlier, The proposed mining area falls within the A41A quaternary catchment which falls within the upper reaches of the Matlabas/Mokolo Sub Water Management Area that is situated in the LIMPOPO Water Management Area which is managed by the Department of Water and Sanitation (DWS). The proposed mining area is not located within 500m of any water resources. Any other water will be bought from a registered source and transported to site.

   According to the Aquatic Compliance Statement (Appendix M1), no natural wetlands were identified within the proposed development area; therefore, no ecological and impact assessments were conducted for the proposed project. As per the specialist statement, the proposed project is not anticipated to have any impact on the aquatic biodiversity of the area as no natural freshwater resources were identified within the proposed development area. Therefore, the proposed development can be favourably considered for authorisation.

5. **Geology and Soil –** The geology of the proposed area can be described as sandstone and mudstone of the Matlabas Subgroup and sandstone, subordinate conglomerate, siltstone and shale of the Kransberg Subgroup (both Mokolian Waterberg Group) are found in the north. Archaean granite and gneiss of the Swazian Erathem and granite of the Lebowa Granite Suite (Bushveld Igneous Complex) are found in the west and southeast of the area, respectively. Soils are plinthic catena, eutrophic, red-yellow apedal, freely drained, high base status, Hutton and Clovelly with some Glenrosa and Mispah soil

forms. Several areas have less sandy soil than that of SVcb 12 Central Sandy Bushveld. Land types mainly Bd, Ah, Ae and Fa.

6. **Mining, Biodiversity and Groundcover –** The area falls over an area of high risk for mining therefore the risk is seen to be significant. The Mining and Biodiversity Guideline's describes areas of high-risk biodiversity importance as: "Critically endangered and endangered ecosystems." The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

   According to the Terrestrial Biodiversity Statement (Appendix M), the location, state and size of the ecosystem suggests that it is unlikely that any functional habitat or SCCs will be lost as a result of the impacts arising from the proposed activities. However, these assumptions pertain to the terrestrial habitat within the PAOI only. It is the opinion of the specialist that the proposed development is favourable only if all mitigation measures provided in the specialist report and this EIA.

7. **Fauna -** No protected or red data species were identified to be resident within the proposed footprint area. Various small mammals and reptiles occur on the property. Larger herbivore species are very scares or absent due to the conflicting land use. The fauna at the site will not be impacted by the proposed mining activity as they will be able to move away or through the site, without being harmed. Workers will be informed and managed to ensure that no fauna at the site is harmed. No poaching or hunting of animals will be allowed. All construction vehicles must adhere to a low-speed limit (<40km/h) to avoid collisions with susceptible species such as snakes and tortoises. Trenches and deep excavations must not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed must contain soil ramps allowing fauna to escape the trench.

8. **Cultural and Heritage Environment** - According to the Heritage Impact Assessment (Appendix M2), the project area is characterised by a wooded area with reddish sand and gravel soils. The project area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. Two observations were made including a small cement and brick foundation (48 m to the west of the development footprint) recorded as RV002 and a degraded road just to the west of the development footprint recorded as RV001. It should be noted that RV002 can be associated with unmarked graves and this area should be avoided during development. The features potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and they are of no significance apart from mentioning them in this report. According to the South African Heritage Resource Authority (SAHRA) Paleontological

sensitivity map the study area is of insignificant/zero palaeontological sensitivity and no further studies are required or this aspect.

The impact to heritage resources is expected to be low provided that the recommendations in HIA report are adhered to and based on the South African Heritage Resource Authority (SAHRA) 's approval.

9. **Site Specific Infrastructure** – Apart from the rural residential dwelling approximately 39 km from the mining permit area. No other infrastructure has been established on the property that can be affected by the proposed development.

   During the environmental impact assessment process, the feasibility of the proposed site was assessed to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant a site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.

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

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

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

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

SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT:

Alteration of the agricultural sense of place

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	3	1	1.6	5	5	5	**8**				

Loss of agricultural land

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.6**				

Visual intrusion as a result of site establishment

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	3	3.5	**9.1**				

Potential impact on fauna within the footprint area

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Potential impact on vegetation and listed and/or protected plant species.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
4	2	1	2.3	4	3	2.3	**5.3**				

Dust nuisance due to site establishment.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	1	1.6	3	2	2.5	**4**				

Potential impact on archaeological artefacts

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	5	5	4	1	1	1	**4**				

New job opportunities as a result of the mining operation (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: N/A**				
4	4	5	4.6	5	5	5	**23**				

STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN:

Visual intrusion caused by mining activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	4	4	4	**9.2**				

Loss of stockpiled topsoil during mining and stockpiling

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				

Dust nuisance as a result of the disturbance of soil.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Noise nuisance generated by earthmoving machinery.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				

Infestation of the topsoil heaps and mining area with weeds or invader plant species.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	2	2	2	2	2	**4**				

Potential impact on local fauna due to disturbance and loss of available habitat.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				

Potential erosion of denuded areas.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Loss of stockpiled material due to ineffective storm water control.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				

Potential contamination of footprint area and surface runoff as a result of hydrocarbon spillages

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

DRILLING AND BLASTING:

Health and safety risk posed by blasting activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				

Dust nuisance caused by blasting activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				

Noise nuisance as a result of blasting.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				

EXCAVATION, LOADING AND HAULING TO THE PROCESSING PLANT

Visual intrusion as a result of excavation and from loading and vehicles transporting the material.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	1	2.3	4	2	3	**6.9**				

Dust nuisance due to excavation and from loading and vehicles transporting the material.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Noise nuisance as a result of the mining activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Unsafe working environment for employees.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				

Soil contamination from hydrocarbon spills and/or littering.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	1	1.6	3	3	3	**5**				

Potential impact on areas of palaeontological concern.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Facilitation of erosion due to mining activities.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	1	1.6	3	3	3	**5**				

PROCESSING, STOCKPILING AND TRANSPORTING OF MATERIAL:

Dust nuisance generated at the processing plant.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	1	1.6	2	2	2	**3.2**				

Noise nuisance stemming from operation of the processing plant.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	1	1.6	2	2	2	**3.2**				

Visual intrusion as a result of operation of the processing plant.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				

Potential contamination of environment due to improper waste management.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Overloading of trucks impacting road infrastructure

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	4	4	**9.2**				

Degradation of the access road

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	4	4	**9.2**				

CUMULATIVE IMPACTS:

Impact the broad-scale ecological processes - The loss of unprotected vegetation types on a cumulative basis from the broad area may impact the country's ability to meet its conservation targets.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
4	4	1	3	4	3	3.5	**10.5**				

Transformation of intact habitat would contribute to the fragmentation of the landscape and would potentially disrupt the connectivity of the landscape for fauna, avifauna, and flora and impair their ability to respond to environmental fluctuations.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
4	4	1	3	4	3	3.5	**10.5**				

SLOPING AND LANDSCAPING DURING REHABILITATION:

Safety risk posed by un-sloped areas

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	4	4	**9.2**				

Erosion of returned topsoil after rehabilitation

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	4	4	**9.2**				

Infestation of the reinstated areas by weeds and invader plant species

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	4	4	**9.2**				

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	4	4	**9.2**				

Return of the mining area to landscape feature upon closure (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: N/A**				
3	5	1	3	5	5	5	**15**				

j) Assessment of each identified potentially significant impact and risk

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

Table 24: Assessment of each identified potentially significant impact and risk

ACTIVITY Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)	POTENTIAL IMPACT (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, air pollution, etc…etc…etc.)	ASPECTS AFFECTED	PHASE In which impact is anticipated. (E.g. Construction, commissioning, operational Decommissioning closure, post closure.)	SIGNIFICANCE If not mitigated.	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc etc) E.g. Modify through alternative method Control through noise control Control through management and monitoring through rehabilitation.	SIGNIFICANCE If mitigated.
• Demarcation of site with visible beacons.	• No impact could be identified other than the beacons being outside the boundaries of the approved mining area.	N/A	Site Establishment & Operational Phase	• N/A	Control through management and monitoring.	• N/A
• Site establishment and infrastructure development**.**	• Alteration of the agricultural sense of place.	The impact may affect the agricultural opportunities of the property.	Site Establishment- and Decommissioning phase	• Low-Medium	<u>Control & Remedy:</u> Proper housekeeping and storm water management.	• Low-Medium
• Site establishment and infrastructure development**.**	• Loss of agricultural land	The impact may affect the agricultural	Site Establishment-, Operational- and	• Low-Medium	<u>Control:</u> Implementing soil- and storm water management.	• Low-Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
		opportunities of the property.	Decommissioning phase			
• Site establishment and infrastructure development. • Stripping and stockpiling of topsoil and overburden.	• Visual intrusion as a result of site establishment. • Visual intrusion caused by mining activities.	The visual impact may affect the aesthetics of the landscape.	Site Establishment- and Operational phase	• Medium	Control & Stop: Implementing good management practices.	• Low-Medium
• Site establishment and infrastructure development.	• Potential impact on vegetation and listed and/or protected plant species.	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	• Medium	Control: Noise suppression methods and proper housekeeping.	• Low - Medium
• Site establishment and infrastructure development. • Stripping and stockpiling of topsoil and overburden.	• Potential impact on fauna within the footprint area. • Potential impact on local fauna due to distrubance and loss of available habitat.	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	• Low-Medium • Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low • Low-Medium
• Site establishment and infrastructure development • Stripping and stockpiling of topsoil and overburden.	• Dust nuisance due to site establishment	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low
	• Noise nuisance generated by earthmoving machinery.	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	• Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low-Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
• Excavation, Loading and Hauling to the processing plant	• Unsafe working environment for employees	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low - medium
	• Soil contamination from hydrocarbon spills and/or littering	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	• Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low - Medium
• Site establishment and infrastructure development. • Excavation, loading and hauling to the processing plant.	• Potential impact on archaeological artefacts. • Potential impact on areas of palaeontological concerns.	This could impact on the cultural and heritage legacy of the receiving environment.	Operational Phase	• Low • Low	Control & Stop: Implementing good management practices, as well as the chance-find protocol.	• Low • Low
• Drilling and Blasting	• Health and safety risk posed by blasting activities	This will impact on the biodiversity of the receiving environment	Operational Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low - Medium
	• Dust nuisance caused by blasting activities	This will impact on the biodiversity of the receiving environment	Operational Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low - Medium
	• Noise nuisance as a result of blasting	This will impact on the biodiversity of the receiving environment	Operational Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low - Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
• Site establishment and infrastructure development.	• New job opportunities as a result of the mining operation (+)	Contribution to the socio-economic status of the area.	Operational Phase	• Medium-High	Control: Proper site management.	• Medium-High
• Processing, Stockpiling and transporting of material	• Dust nuisance generated at the processing plant	This will impact on the biodiversity of the receiving environment	Operational Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	• Low
	• Noise nuisance stemming from operation of the processing plant	This will impact on the biodiversity of the receiving environment	Operational Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	• Low
	• Potential contamination of environment due to improper waste management	This will impact on the biodiversity of the receiving environment	Operational Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	• Low
	• Overloading of trucks impacting road infrastructure	This will impact on the biodiversity of the receiving environment	Operational Phase	• Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	• Low-Medium
	• Degradation of the access road	This will impact on the biodiversity of the receiving environment	Operational Phase	• Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	• Low-Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
• Sloping and landscaping during rehabilitaition	• Safety risk posed by un-sloped areas	This will impact on the biodiversity of the receiving environment	Decommissioning Phase	• Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	• Low - Medium
	• Erosion of returned topsoil after rehabilitation	This will impact on the biodiversity of the receiving environment	Decommissioning Phase	• Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	• Low - Medium
	• Infestation of the reinstated areas by weeds and invader plant species	This will impact on the biodiversity of the receiving environment	Decommissioning Phase	• Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	• Low - Medium
	• Potential impact associated with litter/waste left at the mining area	This will impact on the biodiversity of the receiving environment	Decommissioning Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	• Low
• Cumulative Impacts	• Impact the broad-scale ecological processes - The loss of unprotected vegetation types on a cumulative basis from the broad area may impact the country's ability to meet its conservation targets.	This will impact on the biodiversity of the receiving environment	Site Establishment-, Operational-, and Decommissioning Phase	• High-Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	• Medium
	• Transformation of intact habitat would contribute to the fragmentation of the	This will impact on the biodiversity of the receiving environment	Site Establishment-, Operational-, and	• High- Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and	• Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	landscape and would potentially disrupt the connectivity of the landscape for fauna, avifauna, and flora and impair their ability to respond to environmental fluctuations.		Decommissioning Phase		waste management plan and Proper site management	

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

k) Summary of specialist reports.

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

Table 25: Summary of specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
The screening report for an environmental authorisation, as required in terms of the 2014 NEMA EIA Regulations on a portion of Portion 1 of Farm Ruigtevley 97 KQ, Thabazimbi Local Municipality, Limpopo Province identified the following list of specialist assessment for inclusion in the assessment report: • Agricultural Impact Assessment; • Archaeological and Cultural Heritage Impact Assessment; • Paleontology Impact Assessment; • Terrestrial Biodiversity Impact Assessment; • Aquatic Biodiversity Impact Assessment;			

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
• Hydrology Assessment; • Noise Impact Assessment; • Radioactivity Impact Assessment; • Traffic Impact Assessment; • Geotechnical Assessment; • Socio-economic Assessment; • Plant Species Assessment; • Animal Species Assessment. Inzalo Crushing and Aggregates Pty) Ltd (hereafter referred to as the applicant) appointed Greenmined Environmental (Pty) Ltd as the environmental impact assessment practitioner (EAP) to undertake the EIA associated with the mining permit application. In light of this Greenmined would like to respond as follows to the list of required specialist studies: • Agricultural Impact Assessment (AIA): As mentioned earlier, the geology of the proposed area can be described as sandstone and mudstone of the Matlabas Subgroup and sandstone, subordinate conglomerate, siltstone and shale of the Kransberg Subgroup (both Mokolian Waterberg Group) are found in the north. Archaean granite and gneiss of the Swazian Erathem and granite of the Lebowa Granite Suite (Bushveld Igneous Complex) are found in the west and southeast of the area, respectively. Soils are plinthic catena, eutrophic, red-yellow apedal, freely drained, high base status, Hutton and Clovelly with some Glenrosa and Mispah soil forms. Several areas have less sandy soil than that of SVcb 12 Central Sandy Bushveld. Land types mainly Bd, Ah, Ae and Fa.			
• Archaeological and Cultural Heritage Impact Assessment (HIA) & Paleontology Impact Assessment (PIA): According to the Heritage Impact Assessment (Appendix M2), the project area is characterised by a wooded area with reddish sand and gravel soils. The project area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. Two observations were made including a small cement and brick foundation			

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
(48 m to the west of the development footprint) recorded as RV002 and a degraded road just to the west of the development footprint recorded as RV001. It should be noted that RV002 can be associated with unmarked graves and this area should be avoided during development. The features potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and they are of no significance apart from mentioning them in this report. According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant/zero palaeontological sensitivity and no further studies are required or this aspect. The impact to heritage resources is expected to be low provided that the recommendations in HIA report are adhered to and based on the South African Heritage Resource Authority (SAHRA) 's approval.			

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

- Terrestrial Biodiversity Impact Assessment (TBIA) & Animal Species Assessment (ASA):

According to the Terrestrial Biodiversity Statement (Appendix M), the location, state and size of the ecosystem suggests that it is unlikely that any functional habitat or SCCs will be lost as a result of the impacts arising from the proposed activities. However, these assumptions pertain to the terrestrial habitat within the PAOI only. It is the opinion of the specialist that the proposed development is favourable only if all mitigation measures provided in this and other specialist reports are implemented, as well as the following:

- A site walkdown during the correct flowering season (between November and March) must be conducted for all protected plant species present on site, along with the acquisition of permits for the relocation/destruction of species;
- An alien invasion plant (AIP) management plan must be compiled and implemented; and
- A rehabilitation plan must be compiled and implemented for all areas of the PAOI impacted by the project activities.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
• Aquatic Biodiversity Impact Assessment (ABIA) & Hydrology Assessment (HA): The proposed mining area falls within the A41A quaternary catchment which falls within the upper reaches of the Matlabas/Mokolo Sub Water Management Area that is situated in the LIMPOPO Water Management Area which is managed by the Department of Water and Sanitation (DWS). The proposed mining area is not located within 500m of any water resources. Any other water will be bought from a registered source and transported to site. According to the Aquatic Compliance Statement (Appendix M1), no natural wetlands were identified within the proposed development area; therefore, no ecological and impact assessments were conducted for the proposed project. As per the specialist statement, the proposed project is not anticipated to have any impact on the aquatic biodiversity of the area as no natural freshwater resources were identified within the proposed development area. Therefore, the proposed development can be favourably considered for authorisation.			
• Noise Impact Assessment (NIA): The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the machinery already operational at the property. Due to the small scale of the operation a NIA is not deemed applicable.			
• Radioactivity Impact Assessment A radioactivity impact assessment is not deemed necessary for the proposed mining operation that will not store any chemicals on site, perform activities of radioactive nature or generate hazardous waste of radioactive nature.			
• Traffic Impact Assessment (TIA): Access to the proposed mining area will be via the R510, making use of the existing internal/haul roads to access the mining area. Haul roads will be extended as the open cast mining progress and will be rehabilitated as part of the final reinstatement of the area. Trucks delivering the materials to the destinations will take the R510 national route. In light of the small scale of the proposed operation a TIA is not deemed necessary, should the Applicant implement the mitigation measures to be proposed in the EMPr.			

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
• Geotechnical Assessment: No reason for a geotechnical assessment could be identified as no permanent infrastructure will be established at the proposed mining area.			
• Socio-economic Assessment (SEA): The material to be sourced from the mining area will be used for the upgrading of the road infrastructure in the vicinity of the site. The proposed mine will be operated on an area with very low agricultural potential. Should any additional workers to be required on this mining activity they will be sourced from the local community. Workers will daily be transported to the site. The establishment of the mining area on the farm will also assist the property owner in the diversification of their income. Considering this a SEA is not deemed applicable to this project. In light of the above mentioned, we propose that the no specialist studies are currently deemed applicable to the proposed mining operation.			

l) Environmental impact statement

i) Summary of the key findings of the environmental impact assessment;

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

Project Proposal

The Applicant, Inzalo Crushing and Aggregates Pty) Ltd, applied for environmental authorisation (EA) and a mining permit to mine aggregate on a portion of Portion 1 of Farm Ruigtevley 97 KQ, Thabazimbi Local Municipality, Limpopo Province The mining method will make use of blasting to loosen the hard rock; the material will then be loaded and hauled to the crushing plant where it will be screened to various sized stockpiles. The aggregate will be stockpiled until it is transported from site using tipper trucks. All mining related activities will be contained within the approved mining permit boundaries. The proposed mining area is approximately 4.9 ha in extent and the applicant, intents to win material from the area for at least 2 years with a possible extension of another 3 years. The aggregate to be removed from the quarry will be used for construction industry in the vicinity. The proposed quarry will contribute to the upgrading / maintenance of road infrastructure, renewable energy projects and building contracts in and around the Thabazimbi area.

Topography

As mentioned earlier,the natural topography the proposed excavated area can be described as flats and undulating plains from Assen northwards past Thabazimbi and remaining west of the Waterberg Mountains towards Steenbokpan in the north. Some patches occur between the Crocodile and Marico Rivers to the westThe figure below shows the elevation loss from the nearest road to the other side if the hill of the proposed mining footprint to be 12.5 m over 579m.

Visual Characteristics

The viewshed analysis showed that the visual impact of the proposed aggregate mining operation will be of low significance. The small scale of the proposed operation, and the mining area will be behind the hill which is semi-visible from the nearest dwellings. Should the Applicant successfully rehabilitate the mining area (upon closure), no residual visual impact is expected upon closure of the mine.

Air and Noise Quality

The proposed activity will contribute the emissions mechanical mining equipment to the receiving environment for the duration of the operational phase. Should the permit holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use. The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the traffic of the surrounding area.

Geology and Soil

The geology of the proposed area can be described as sandstone and mudstone of the Matlabas Subgroup and sandstone, subordinate conglomerate, siltstone and shale of the Kransberg Subgroup (both Mokolian Waterberg Group) are found in the north. Archaean granite and gneiss of the Swazian Erathem and granite of the Lebowa Granite Suite (Bushveld Igneous Complex) are found in the west and southeast of the area, respectively. Soils are plinthic catena, eutrophic, red-yellow apedal, freely drained, high base status, Hutton and Clovelly with some Glenrosa and Mispah soil forms. Several areas have less sandy soil than that of SVcb 12 Central Sandy Bushveld. Land types mainly Bd, Ah, Ae and Fa.

The aggregate of the study area is aggregate highly suitable for construction purposes. The mining method will make use of blasting to loosen the hard rock; upon which the loosened material will be transported to a processing area (inside mining boundary) where it will be crushed and screened to various sized stockpiles, before being sold and transported from site to clients.

Mining, Biodiversity and Groundcover

The area falls over an area of high risk for mining therefore the risk is seen to be significant. The Mining and Biodiversity Guideline's describes areas of high-risk biodiversity importance as: "Critically endangered and endangered ecosystems." The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

Fauna

Various small mammals and reptiles occur are likely to on the property. The fauna at the site will not be impacted by the proposed mining activities as they will be able to move away or through the site, without being harmed. Workers should be educated and managed to ensure that no fauna at the site is harmed. Workers will be informed and managed to ensure that no fauna at the site is harmed. No poaching or hunting of animals will be allowed. All construction vehicles must adhere to a low speed limit (<40km/h) to avoid collisions with susceptible species such as snakes and tortoises. Trenches and deep excavations should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.

Cultural and Heritage Environment

According to the Heritage Impact Assessment (Appendix M2), the project area is characterised by a wooded area with reddish sand and gravel soils. The project area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. Two observations were made including a small cement and brick foundation (48 m to the west of the development footprint) recorded as RV002 and a degraded road just to the west of the development footprint recorded as RV001. It should be noted that RV002 can be associated with unmarked graves and this area should be avoided during development. The features potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and they are of no significance apart from mentioning them in this report. According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant/zero palaeontological sensitivity and no further studies are required or this aspect.

The impact to heritage resources is expected to be low provided that the recommendations in HIA report are adhered to and based on the South African Heritage Resource Authority (SAHRA) ’s approval.

Site Specific Infrastructure

Apart from the rural residential dwelling approximately 39 km from the mining permit area. No other infrastructure has been established on the property that can be affected by the proposed development.

During the environmental impact assessment process, the feasibility of the proposed site was assessed to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant a site or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.

ii) Final Site Map

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

See the map indicating site activities attached as Appendix C.

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

The positive impacts associated with the project include:

- Possible work opportunities to local residents.
- Return of the mining area to its previous state upon closure of the project; and
- Diversification of the land use of the property.

Table 26:Potential negative impacts with a low-medium or higher significance/risk.

POTENTIAL IMPACT	SIGNIFICANCE (AFTER MITIGATION)
ℑ Alteration of the agricultural sense of place	• Low-Medium
ℑ Loss of agricultural land	ℑ Medium
ℑ Visual intrusion because of site establishment.	ℑ Low-Medium
ℑ Potential impact on fauna within the footprint area	ℑ Low
ℑ Potential impact on vegetation and listed and/or protected plant species.	ℑ Low - Medium
ℑ Dust nuisance due to site establishment.	ℑ Low

POTENTIAL IMPACT	SIGNIFICANCE (AFTER MITIGATION)
ℑ Potential impact on archaeological artefacts	ℑ Low
ℑ Visual intrusion caused by mining activities	ℑ Low – Medium
ℑ Loss of stockpiled topsoil during mining and stockpiling	ℑ Low-Medium
ℑ Dust nuisance as a result of the disturbance of soil.	ℑ Low
ℑ Noise nuisance generated by earthmoving machinery.	ℑ Low-Medium
ℑ Infestation of the topsoil heaps and mining area with weeds or invader plant species	ℑ Low
ℑ Potential impact on local fauna due to disturbance and loss of available habitat.	ℑ Low - Medium
ℑ Potential erosion of denuded areas.	ℑ Low
ℑ Loss of stockpiled material due to ineffective storm water control.	ℑ Low – Medium
ℑ Potential contamination of footprint area and surface runoff as a result of hydrocarbon spillages	ℑ Low
ℑ Health and safety risk posed by blasting activities.	ℑ Low - Medium
ℑ Dust nuisance caused by blasting activities.	ℑ Low – Medium
ℑ Noise nuisance as a result of blasting.	ℑ Low – Medium

POTENTIAL IMPACT	SIGNIFICANCE (AFTER MITIGATION)
ℑ Visual intrusion as a result of excavation and from loading and vehicles transporting the material.	ℑ Low – Medium
ℑ Dust nuisance due to excavation and from loading and vehicles transporting the material.	ℑ Low
ℑ Noise nuisance as a result of the mining activities.	ℑ Low
ℑ Unsafe working environment for employees.	ℑ Low-Medium
ℑ Soil contamination from hydrocarbon spills and/or littering.	ℑ Low-Medium
ℑ Potential impact on areas of palaeontological concern.	ℑ Low
ℑ Facilitation of erosion due to mining activities.	ℑ Low-Medium
ℑ Dust nuisance generated at the processing plant.	ℑ Low
ℑ Noise nuisance stemming from operation of the processing plant.	ℑ Low
ℑ Visual intrusion as a result of operation of the processing plant.	ℑ Low-Medium
ℑ Potential contamination of environment due to improper waste management.	ℑ Low
ℑ Overloading of trucks impacting road infrastructure	ℑ Low-Medium
ℑ Degradation of the access road	ℑ Low-Medium
ℑ Safety risk posed by un-sloped areas	ℑ Low-Medium
ℑ Erosion of returned topsoil after rehabilitation	ℑ Low-Medium

POTENTIAL IMPACT	SIGNIFICANCE (AFTER MITIGATION)
ℑ Infestation of the reinstated areas by weeds and invader plant species	ℑ Low-Medium
ℑ Potential impact associated with litter/waste left at the mining area	ℑ Low-Medium
ℑ Impact the broad-scale ecological processes - The loss of unprotected vegetation types on a cumulative basis from the broad area may impact the country's ability to meet its conservation targets.	ℑ Medium
ℑ Transformation of intact habitat would contribute to the fragmentation of the landscape and would potentially disrupt the connectivity of the landscape for fauna, avifauna, and flora and impair their ability to respond to environmental fluctuations.	ℑ Medium

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

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

Table 27: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
TOPOGRAPHY Landscaping of Mining Area	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Use the excavated area for the final depositing of overburden. • Dump rocks and coarse material removed from the excavation into the excavation. • Remove coarse natural material used for the construction of ramps and dump it into the excavations. • Remove stockpiles during the decommissioning phase, rip the area and return the topsoil to its original depth to provide a growth medium. • Do not permit any waste to be deposited into the excavations. • Return the previously stored topsoil to its original depth, once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures. • If necessary, the area can be fertilized to hasten the establishment of flora. Should the site's natural vegetation not grow back within six months of its closure to spread the naturally existent flora in the area, the site could be seeded with a local or adapted indigenous seed mix. This area is seen to have low agricultural potential due to the rocky surface therefore the use of seed mixes should only be done after	• Effectively restoring the mined area to allow the return of land use to agricultural purposes.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		consultation with a qualified specialist with experience in the area as it might not apply. • If required by the Regional Manager (DMRE) the soil must be analysed and any deleterious effects on the soil arising from the mining operation must be corrected and the area be seeded with a vegetation seed mix to his/her specification. • On completion of operations, deal with all structures or objects in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). • On completion of mining operations, scarify the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and dumping operations, to a depth of at least 200mm and graded it to an even surface condition. Where applicable/possible return topsoil to its original depth over the area.	
VISUAL CHARACTERISTICS Visual mitigation	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Ensure that the site have a neat appearance and is kept in good condition at all times. • Store mining equipment in a dedicated area when not in use. • Limit vegetation removal, and only strip topsoil immediately prior to the mining/use of a specific area. • Contain excavations to the approved footprint of the permitted area. • Upon closure, rehabilitate the site to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum.	• Minimise the impact of the mining operations on the visual characteristics of the receiving environment during the operational phase, and minimise the residual impact after closure.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
AIR AND NOISE QUALITY Dust Mitigation	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Control the liberation of dust into the surrounding environment by the use of; inter alia, water spraying and/or other dust-allaying agents. • Ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Limit speed on the haul roads to 40 km/h on the access road to prevent the generation of excess dust. • Minimise areas devoid of vegetation, and only remove vegetation immediately prior to mining. • Install water sprayers at the crusher plant to alleviate dust generation from the conveyor belts. • Minimise fines, blowing from the drop end of the crusher plant by attaching strips of used conveyor belts to the conveyor's end. • Weekly remove compacted dust from the crusher plant to eliminate the dust source. • Flatten loads to prevent spillage during transportation on public roads. • Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012). • Implement best practice measures during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.	• Dust prevention measures are applied to minimise the impact.
AIR AND NOISE QUALITY Noise Mitigation	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	• Ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the mining area.	• Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
	Compliance to be monitored by the Environmental Control Officer.	• Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. • Plan the type, duration and timing of the blasting procedures with due cognizance of other land users and structures in the vicinity. Notify the surrounding land owners in writing prior to each blasting occasion. • Contract a qualified occupational hygienist to quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring must be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA 2004, SANS 10103:2008. • Implement best practice measures to minimise potential noise impacts.	
GEOLOGY AND SOIL Topsoil Handling	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Strip and stockpile the upper 300 mm of the soil before mining. • Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process. • Ensure topsoil stripping, stockpiling and re-spreading is done in a systematic way. Plan mining in such a way that topsoil is stockpiled for the minimum possible time. • Place the topsoil on a levelled area, within the mining footprint. Do not stockpile topsoil in undisturbed and inactive areas. • Protect topsoil stockpiles against losses by water- and wind erosion. Position stockpiles so it is not vulnerable to erosion by wind and water. The establishment of	• Adequate fertile topsoil is available to rehabilitate the mined area.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		plants (weeds or a cover crop) on the stockpiles will help to prevent erosion. • Ensure that topsoil heaps do not exceed 1.5 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. • Keep temporary topsoil stockpiles free of invasive plant species. • Vegetate the topsoil heaps to be stored longer than 6 months with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season. • Divert storm- and runoff water around the stockpile area to prevent erosion. • Spread the topsoil evenly, to a depth of 300 mm, over the rehabilitated area upon closure of the site. • Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. • Plant a cover crop immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the cover crop for optimum production. Rehabilitation extends until the first cover crop is well established. • Control run-off water with temporary banks, where necessary, to prevent accumulation of run-off causing down-slope erosion. • Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement.	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
HYDROLOGY Erosion Control and Storm Water Management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Limit clearing of vegetation to the proposed mining footprint and associated infrastructure. Ensure no clearing takes place outside the minimum required footprint. • Divert stormwater around the topsoil heaps and mining areas to prevent erosion. • Protect stockpiles from erosion, and store it on flat areas surrounded by appropriate berms where possible. • Ensure that adequate slope protection is provided when mining within steep slopes. • Control the outflow of run-off water from the mining excavation to prevent down-slope erosion, by constructing temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur. • Regularly monitor roads and other disturbed areas within the project for erosion, and ensure problem areas receive follow-up monitoring to assess the success of the remediation. • Rectify erosion problems within the mining area because of the mining activities immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur. • Use silt/sediment traps/barriers where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other sensitive areas. Regularly maintain and clear the sediment/silt barriers to ensure effective drainage of the areas.	• Impact on the environment caused by stormwater discharge is avoided and erosion is managed.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		• Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWS. • Restrict polluting activities including storage of mining fleet, equipment wash down facilities and vehicle maintenance yards to the workshop areas and ensure it takes place on impermeable hard standing surfaces, which formally drain to a dirty water drainage system at the site. • Contain all fuels and chemicals stored or used on site in fit for purpose containers and store within designated storage areas. Ensure the designated storage areas are situated on an impermeable surface with a perimeter bund and a drainage sump. Size the volume of the bund and sump to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. Ensure that the storage areas have a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently.	
TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER Management of vegetation removal.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly. • For threatened species that may not be destroyed, it is recommended that professional search and rescue	• Vegetation clearing is restricted to the authorised development footprint of the mine.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		service providers be used to remove such plants and to use them either for later rehabilitation work or other conservation projects. • Permits must be kept on-site and in the possession of the flora search and rescue team at all times. • Blanket clearing of vegetation must be limited to the proposed footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place. • Clearing of vegetation should be minimized and avoided where possible. • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. • The on-site ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when the majority of vegetation clearing is taking place. • All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed.	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		• No plant species, whether native or exotic, should be brought into, ore removed from, the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants. • No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the ECO and without the relevant permits. • No fires must be allowed on-site. • If deemed necessary by the ECO, a firebreak must be made around the periphery of the site in autumn every year. Vegetated areas inside the break should be burned (upon recommendation of the ECO) on a biennial basis if deemed necessary. The relevant veld burning legislation must be adhered to. • The following mitigation measures were provided by the terrestrial biodiversity specialist (Appendix M): o A site walkdown during the correct flowering season (between November and March) must be conducted for all protected plant species present on site, along with the acquisition of permits for the relocation/destruction of species; o An alien invasion plant (AIP) management plan must be compiled and implemented; and	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		○ A rehabilitation plan must be compiled and implemented for all areas of the PAOI impacted by the project activities.	
TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER Management of invasive plant species.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Implement an invasive plant species management plan to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. Do weed/alien ongoing clearing on throughout the life of the mining activities. • Do not allow planting or importing of any alien species to the site for landscaping, rehabilitation or any other purpose. • Keep all stockpiles (topsoil & overburden) free of invasive plant species. • Control declared invader or exotic species on the rehabilitated areas.	• Mining area is kept free of invasive plant species.
FAUNA Protection of fauna	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Site access should be controlled and no unauthorised persons should be allowed onto the site. • Any fauna directly threatened by the associated activities should be removed to a safe location by a site manager. • The collection/trapping, hunting, or poisoning of any animals at the site is strictly forbidden. Signs must be put up to enforce this. Personnel should not be allowed to wander off demarcated areas. • Fires must not be allowed on site. • All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel, and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.	• Disturbance to fauna is minimised.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		• All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. All vehicles should adhere to a low speed limit (40 km/h) to avoid collisions with susceptible species. • Construction vehicles must be limited to a minimal footprint on site (no movement outside of the earmarked footprint). • All personnel must undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Workers must be instructed to report any animals that may be trapped in the working area. • Ensure that cables and connections are insulated successfully to reduce electrocution risk. • Use environmentally friendly chemical products. • No litter, food or other foreign material may be thrown or left around the site. •	
CULTURAL AND HERITAGE ENVIRONMENT Archaeological, heritage and palaeontological aspects.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Confine all mining to the development footprint area. • Implement the following change find procedure when discoveries are made on site: • If any significant archaeological remains are located during this survey which cannot be avoided by, or excluded from the quarrying, they will require mitigation prior to any quarry-related activities on the site. A Workplan application will need to be made to SAHRA to conduct this work.	• Impact to cultural/heritage resources is avoided or at least minimised.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		• Should any human remains be encountered at any stage during the works associated with the project, work must in the vicinity must cease immediately, the remains must be left in situ but made secure and the project archaeologist and SAHRA must be notified immediately to make a decision about how to deal with the remains. All mining must be confined to the development footprint area. • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. • The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify the SAHRA.	
LAND USE Loss of agricultural land for duration of mining.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	• If needed, sign mined-out/rehabilitated areas back to agricultural use once the cover crop stabilised.	• Mining has the least possible impact on the operation of the property.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
	Compliance to be monitored by the Environmental Control Officer.		
EXISTING INFRASTRUCTURE Management of the access road.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Divert storm water around the access road to prevent erosion. • Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed and inactive areas. • Repair rutting and erosion of the access road caused as a direct result of the mining activities. • Prevent the overloading of the trucks and file proof of load weights for auditing by relevant officials. • Restrict the speed of all mining equipment/vehicles to 40 km/h on the access roads.	• The access road remains accessible to the landowner and lawful occupiers during the operational phase, and upon closure, the road is returned in a better, or at least the same state as received by the permit holder.
GENERAL Waste management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Ensure regular vehicle maintenance, repairs and services only take place at the workshop and service area. Ensure drip trays are present if emergency repairs are needed on equipment not able to move to the workshop. Dispose all waste products in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. Treat this as hazardous waste and dispose of it at a registered hazardous waste handling facility, alternatively arrange collection by a registered hazardous waste handling contractor. File safe disposal certificates for auditing purposes. • If a diesel bowser is used on site, always equip it with a drip tray. Use drip trays during each and every	• Wastes are appropriately handled and safely disposed of at recognised waste facilities.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. • Ensure drip trays are cleaned after each use. Do not allow dirty drip trays to be used on site. Dispose of dirty rags used to clean the drip trays as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and remove it from the site, either for resale or for appropriate disposal at a recognized facility. File proof. • Obtain an oil spill kit, and train the employees in the emergency procedures to follow when a spill occurs as well as the application of the spill kit. • Clean spills immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMRE) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a recognised facility. File proof. • Ensure suitable covered receptacles are always available and conveniently placed for the disposal of general waste. • Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., in a container with a closable lid at a collecting point to be collected at least once a month and disposed of at a recognized landfill site. Take specific precautions to prevent refuse from being dumped on or in the vicinity of the mine area. File proof of disposal.	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		• Handle biodegradable refuse as indicated above. • Encourage re-use or recycling of waste products. • Do not bury or burn waste on the site. • Provide ablution facilities in the form of a chemical toilet/s. Anchor the chemical toilet (to prevent blowing/falling over) and arrange that it is serviced at least once a week for the duration of the mining activities by a registered liquid waste handling contractor. File the safe disposal certificates. • Ensure that the use of any temporary, chemical toilet facilities do not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately. • Do not discharge water containing waste into the natural environment. • Implement measures to contain the wastewater and safely dispose thereof. • Report any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities to the Department of Water and Sanitation and other relevant authorities. • Implement the use of waste registers to keep record of the waste generated and removed from the mining area.	
GENERAL	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	• Place chemical storage areas on level ground to prevent offsite migration of any spilled product.	• The chemical/hazardous substances used on site are stored according to specifications without contaminating the receiving environment.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
Storage/handling of hazardous substances/chemicals.	Compliance to be monitored by the Environmental Control Officer.	• Ensure that the floor of the storage area is impermeable to prevent seepage of spilled products into the ground or ground water. • Control access to the chemicals/substances and implement a notification system of an appropriate staff member. • Ensure that the storage area is out of the 1:100 year floodline or further than 100 m from the edge of a watercourse, whichever is greatest. • Maintain a Hazardous Substances Register, and keep Safety Data Sheets (SDS) current for all chemicals used on site. • Ensure any fuel/used oil tanks have secondary containment in the form of an impermeable bund wall and base within which the tanks sit, raised above the floor, on plinths. Check that the bund capacity is sufficient to contain 110% of the tank's maximum capacity. Ensure that the distance and height of the bund wall relative to that of the tank is taken into consideration to ensure that any spillage does not result in hydrocarbons/other substances spouting beyond the confines of the bund. • Establish a formal inspection routine to check all equipment in the bund area, as well as the bund area itself for malfunctions or leakages. Inspect the bund area at least weekly and remove any accumulated rainwater and hand it as contaminated water. Check all valves and outlets to ensure that its intact and closed securely. • Ensure that the bund base slope towards an oil sump of sufficient size. Do not allow contaminated water to mix with clean water, and contain it until it is collected	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
		by a registered hazardous waste handling contractor or disposed of at a registered hazardous waste handling facility. • Use drip trays under all stationary equipment or vehicles. Place used drip trays within a bunded area and do not store on the bare soil. Discard the wastewater originating from the cleaning of drip trays into the oil sump.	
GENERAL Management of health and safety risks	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Ensure that workers have access to the correct PPE as required by law. • Locate sanitary facilities within 100 m from any point of work. • Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). • Plan the type, duration and timing of blasting with due cognizance of other land users and structures in the vicinity. • Inform the surrounding landowners and communities in writing ahead of any blasting event. • Monitor the compliance of ground vibration and airblast levels to USBM standards with each blasting event. • Record all blasts with a vibro recorder. • Give audible warning of a pending blast at least 3 minutes in advance of the blast. • Limit fly rock and collect and remove flyrock and rock spill that falls beyond the working area.	• Employees work in a healthy and safe environment.

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

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

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

(Which relate to the assessment and mitigation measures proposed)

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

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

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

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

ii) Conditions that must be included in the authorisation

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

q) Period for which the Environmental Authorisation is required.

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

r) Undertaking

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

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

s) Financial Provision

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

i) Explain how the aforesaid amount was derived

The annual amount required to manage and rehabilitate the environment was estimated to be R1,097,500. Please see the explanation as to how this amount was derived at attached as Appendix H – Financial and Technical Competence Report.

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

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

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

t) Specific Information required by the competent Authority

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

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

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

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

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

  The viewshed analysis showed that the visual impact of the proposed aggregate mining operation will be of low significance. The small scale of the proposed operation, and the mining area will be behind the hill which is semi-visible from the nearest dwellings. Should the Applicant successfully rehabilitate the mining area (upon closure), no residual visual impact is expected upon closure of the mine.

- **Dust nuisance caused as a result of the proposed mining activities:**

  The proposed activity will contribute the emissions mechanical mining equipment to the receiving environment for the duration of the operational phase. Should the permit holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use.

- **Noise nuisance as a result of mining activities:**

  The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the traffic of the surrounding area. The distance of the proposed mining area from residential infrastructure further lessens the potential noise impact.

- **Employment opportunities and socio-economic impact:**

  The proposed labour component of the activity will be between 40 to 60 people. The operation will contribute to the local economy in the area, both directly and through the multiplier effect that its continued presence will create.

  Equipment and supplies will be purchased locally, and wages are spent at local businesses, generating both jobs and income in the area. Although the employees are not resident on the site, they will be from the surrounding community.

- **Compliance Management:**
  Should the MP application be approved, compliance with the mitigation measures and conditions approved as part of the EMPR and the Environmental Authorisation (EA) will be compulsory to the Permit Holder as both the EMPR and EA are legally binding documents. In terms of Section 34 of the NEMA EIA Regulations, 2014 (as amended 2017) the holder of an EA must: “(a) ensure that the compliance with the conditions of the environmental authorisation and the EMPR, and where applicable the closure plan, I audited; and (b) submit an environmental audit report to the relevant competent authority”. The regulations further stipulate that the environmental audit report (EAR) must be prepared by an independent person with the relevant environmental auditing expertise; provide verifiable findings on the level of performance against and compliance

with the provisions of the requisite EA, EMP and Closure Plan, and the ability of the measures contained in the EMPR and Closure Plan to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking. Within 7 days of the date of submission of an EAR to the competent authority (DMRE) the holder of the EA must notify all potential and registered I&AP's of the submission of that report, and make such report immediately available to anyone on request, and on a publicly accessible website.

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

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

According to the Heritage Impact Assessment (Appendix M2), the project area is characterised by a wooded area with reddish sand and gravel soils. The project area is generally flat and does not have any hills or topographical focal points that would have attracted human settlement in antiquity. Two observations were made including a small cement and brick foundation (48 m to the west of the development footprint) recorded as RV002 and a degraded road just to the west of the development footprint recorded as RV001. It should be noted that RV002 can be associated with unmarked graves and this area should be avoided during development. The features potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and they are of no significance apart from mentioning them in this report. According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant/zero palaeontological sensitivity and no further studies are required or this aspect. The impact to heritage resources is expected to be low provided that the recommendations in HIA report are adhered to and based on the South African Heritage Resource Authority (SAHRA) 's approval.

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

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

Site Alternative 1 (S1) (Preferred Alternative and only site alternative): The Applicant, applied for a 4.9 ha mining permit to mine stone aggregate/ gravel on a portion of Portion 1 of Farm Ruigtevley 97 KQ, Thabazimbi Local Municipality, Limpopo Province. The proposed mining area is over an undisturbed and inactive area of the farm.

The proposed area was deemed as the preferred area due to the location of the mineral reserve which is situated over an undisturbed and inactive area of the farm.

An alternative layout for the quarry, has been assessed in the pre application phase – Site Alternative 2 but not found viable as explained below.

Site Alternative 2 (S2) was assessed for the proposed mining but found not environmentally and practically suitable. Pristine areas will be disturbed which will result in a significant impact on the ecosystem. Site alternative 1, was deemed the only viable site alternative as this is the only area that will be viable for the applicant due to the presence of the mineral reserve and the current disturbed area done by previous mining activities. Although the position of Site Alternative 2 will still allow the development of the quarry on the property, it is believed that the impact associated with this site alternative is of higher significance without the need or motivation justifying it.

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

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME.

a) Details of the EAP,

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

The details and expertise of Zoë Norval and Sonette Smit of Greenmined Environmental that acts as EAPs on this project has been included in Part A Section 1(a) as well as Appendix K as required.

b) Description of the Aspects of the Activity

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

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

c) Composite Map

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

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

d) Description of impact management objectives including management statements

i) Determination of closure objectives.

(Ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

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

- Remove all temporary infrastructure and waste from the mine as per the requirements of this EMPR and of the Provincial Department of Minerals and Resources.
- Shape and contour disturbed areas in compliance with the EMPR.

- Ensure that permanent changes in topography (due to mining) are sustainable and do not cause erosion or the uncontrolled damming of surface water.
- Securing all excavations.
- Use the topsoil effectively to promote the re-establishment of vegetation.
- Ensure that all rehabilitated areas are stable and self-sustaining in terms of vegetation cover.
- Eradicate all weeds/invader plant species by intensive management of the mining area.

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

The reinstatement of the processing area will be required during the decommissioning phase by removing the stored materials, site infrastructure/equipment, and altered footprints. The rehabilitation option is to transform the quarry into a modest landscape feature because it is impracticable to import significant volumes of fill to return the quarry area to its original topography. To accomplish this, a succession of erratic benches will be built along the quarry sides, with the top edges of each bench being blasted away to create scree slopes below, therefore lowering the overall face angle. If vegetation does not organically form in the area within six months of the replacement of the topsoil, the benches will be top-dressed with topsoil and planted with a suitable grass mix.

The decommissioning activities will therefore consist of the following:

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

The future land use of the proposed area will revert back to its previous state. The current state of the area is undisturbed and inactive area. Upon replacement of the topsoil, the area around the excavation will once again return to the previous state, and the planting of the cover crop (to protect the topsoil) will tie in with the rehabilitation.

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

- Rehabilitation of the excavated area:

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

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

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

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

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

- Rehabilitation of plant, office and service areas:

  Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.

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

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

  - Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.

- Areas containing French drains shall be compacted and covered with a final layer of topsoil to a height of 10 cm above the surrounding ground surface.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

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

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

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

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

- <u>Final rehabilitation:</u>

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

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

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

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

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

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

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

As no washing is proposed for this project, the applicant will exclusively use water for dust suppression purposes on the access road when needed. Approximately 30 000 litre water/day will be needed during the dry months. The water will be bought and transported to the mining area in a water truck that will moisten the problem area.

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

Considering the findings in the Aquatic Compliance Statement (Appendix M1), no natural wetlands were identified within the proposed development area; therefore, no ecological and impact assessments were conducted for the proposed project. As per the specialist statement, the proposed project is not anticipated to have any impact on the aquatic biodiversity of the area as no natural freshwater resources were identified within the proposed development area. Therefore, the proposed development can be favourably considered for authorisation. With being said, a water use application in terms of the National Water Act, 1998 (Act No 36 of 1998) is deemed not necessary. Any water required for the implementation of the project will be bought and transported to the site.

iv) Impacts to be mitigated in their respective phases

Table 28: Impact to be mitigated in their respective phases

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
(as listed in 2.11.1)	of operation in which activity will take place. State; Planning and design, Pre-Construction, Operational, Rehabilitation, Closure, Post closure	(volumes, tonnages and hectares or m^2)	(describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either – Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Demarcation of site with visible beacons.	Site Establishment phase	4.9 ha	Demarcation of the site will ensure that all employees are aware of the boundaries of the mining area, and that work stay within the approved area.	Mining of aggregate is only allowed within the boundaries of the approved area. • MPRDA, 2008 • NEMA, 1998	Beacons need to be in place throughout the life of the activity.
Site establishment and infrastructure development**.**	Site Establishment & Operational Phase	4.9 ha	**<u>Loss of agricultural land for duration of mining:</u>** The Applicant signed a site usage agreement with the landowner to compensate for the loss of agricultural land for the duration of the mining period. If needed, mined-out/rehabilitated areas could revert	Use of agricultural land must be managed in accordance with the: • CARA, 1983 Closure Plan (Appendix L)	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			back to agricultural use once the cover crop stabilised.		
• Site establishment and stockpiling of topsoil and overburden	Site Establishment & Operational Phase	4.9 ha	**Visual Mitigation** • The site must have a neat appearance and be kept in good condition at all times. • Mining must be contained to the boundaries of the permitted area. • Mining equipment must be stored neatly in dedicated areas when not in use. • The permit holder must limit vegetation removal (if applicable) and stripping of topsoil may only be done immediately prior to the use of a specific area. • The excavation must be contained in within the approved footprint of the permitted area. • Upon closure the mining area must be rehabilitated and levelled to remove the visual impact on the aesthetic value of the area.	Management of the mining area must be in accordance with the: • MPRDA, 2008 • NEMA, 1998	Throughout the site establishment-, and operational phase.
• Site establishment and infrastructure development. • Cumulative Impacts	Site Establishment phase	4.9 ha	**Management of vegetation removal:** • The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly. • A pre-construction environmental induction must be provided for all staff to ensure compliance with basic environmental principles.	Natural vegetated areas must be managed in accordance with the: • NEM:BA 2004 • Limpopo Conservation Plan	Throughout the site establishment phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			This includes awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, and remaining within demarcated construction areas. Bush-clearance may only commence once the recommendations of the specialist (pre-commencement walkthrough) have been implemented. • Cleared vegetation to be retained at any time may not be burned, but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes. • Clearing of vegetation should be minimized and avoided where possible. • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. • The on-site ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when the majority of vegetation clearing is taking place. • All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed. • No plant species, whether native or exotic, should be brought into, ore removed from, the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the ECO and without the relevant permits. • No fires must be allowed on-site. • The following mitigation measures were provided by the terrestrial biodiversity specialist (Appendix M): o A site walkdown during the correct flowering season (between November and March) must be conducted for all protected plant species present on site, along with the acquisition of permits for the relocation/destruction of species; o An alien invasion plant (AIP) management plan must be compiled and implemented; and o A rehabilitation plan must be compiled and implemented for all areas of the PAOI impacted by the project activities. o		
• Site establishment. • Sloping and landscaping upon closure of the mining area.	Site Establishment- and Decommissioning phase	±4.9 ha	**<u>Topsoil Management:</u>** • The upper 300 mm of the soil must be stripped and stockpiled. • Topsoil is a valuable and essential resource for rehabilitation and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes. • Topsoil stripping, stockpiling and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time.	Topsoil must be managed in accordance with the: • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008	Throughout the site establishment-, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed and inactive areas. • Topsoil stockpiles must be protected against losses by water and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (weeds or a cover crop) on the stockpiles will help to prevent erosion. • Topsoil heaps may not exceed 1.5 m to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. • The temporary topsoil stockpiles must be kept free of invasive plant species. • Storm- and runoff water must be diverted around the mining area to prevent erosion. • The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site. • The permit holder must strive to re-instate topsoil to its previous natural state and at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal. • The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
• Site establishment. • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area.	Site Establishment-, Operational- and Decommissioning phase	±1 ha	**Management of Invader Plant Species:** • An invasive plant species management plan (Appendix I) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the mining activities. • All stockpiles (topsoil) must be kept free of invasive plant species. • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: ▪ The plants can be uprooted, felled or cut off and can be destroyed completely. ▪ The plants can be treated chemically by a registered pest control officer (PCO) through the use of an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide.	Invader plants must be managed in accordance with the: • CARA, 1983 • NEM:BA 2004 • Invasive Plant Species Management Plan (Appendix I)	Throughout the site establishment-, operational, and decommissioning phase.
• Site establishment. • Mining of aggregate	Site Establishment- and Operational phase	4.9 ha	**Protection of fauna** • Site access should be controlled and no unauthorised persons should be allowed onto the site. • Any fauna directly threatened by the associated activities should be removed to a safe location by a site manager.	Fauna must be managed in accordance with the: • NEM:BA 2004	Throughout the site establishment-, and operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• The collection/trapping, hunting, or poisoning of any animals at the site is strictly forbidden. Signs must be put up to enforce this. Personnel should not be allowed to wander off demarcated areas. • Fires must not be allowed on site. • All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel, and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. All vehicles should adhere to a low speed limit (40 km/h) to avoid collisions with susceptible species. • Construction vehicles must be limited to a minimal footprint on site (no movement outside of the earmarked footprint). • All personnel must undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Workers must be instructed to report any animals that may be trapped in the working area. • Ensure that cables and connections are insulated successfully to reduce electrocution risk. • Use environmentally friendly chemical products. • No litter, food or other foreign material may be thrown or left around the site.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
• Site establishment and infrastructure development. • Excavation, loading and hauling to the processing plant.	Site Establishment, & Operational Phase.	4.9 ha	**Archaeological, Heritage and Palaeontological Aspects:** • All mining must be confined to the development footprint area. • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. • The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify the SAHRA. Work may only continue once the go-ahead was issued by SAHRA.	Cultural/heritage aspects on site must be managed in accordance with the: NHRA, 1999	Throughout the site establishment-, and operational phases.
• Stripping and stockpiling of topsoil and/or overburden. • Drilling and blasting.	Site Establishment-, Operational Phase	±1 ha	**Fugitive Dust Emission Mitigation:** • The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly dust-allaying	Dust generation must be managed in accordance with the: • NEM:AQA. 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827	Throughout the site establishment-, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
• Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material.			agents that contains no PCB's (e.g. DAS products). • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Speed on the haul roads must be limited to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust. • Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining. • The crusher plant must have operational water sprayers to alleviate dust generation from the conveyor belts. • Fines, blowing from the drop end of the crusher plant, can be minimized by attaching strips of used conveyor belts to the conveyor's end. • Compacted dust must weekly be removed from the crusher plant to eliminate the dust source. • Loads must be flattened to prevent spillage during transportation on public roads. • Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts. • All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012). • Best practice measures shall be implemented during the stripping of topsoil, excavation, and	• ASTM D1739 (SANS 1137:2012)	

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			transporting of material from site to minimize potential dust impacts.		
• Site establishment. • Mining of aggregate • Crushing, screening, stockpiling and transporting material from site. • Sloping and landscaping upon closure of the mining area.	Site Establishment-, Operational-, and Decommissioning Phase	4.9 ha	**Noise Handling:** • The permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the mining area. • All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). • Best practice measures shall be implemented in order to minimize potential noise impacts. • A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA, 2004, SANS 10103:2008.	Noise generation must be managed in accordance with the: • NEM:AQA. 2004 Regulation 6(1) • NRTA, 1996	Throughout the site establishment-, operational-, and decommissioning phase.
• Stripping and stockpiling of topsoil and/or overburden. • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material.	Site Establishment-, Operational-, and Decommissioning Phase	4.9 ha	**Waste Management:** • Regular vehicle maintenance, repairs and services may only take place in a demarcated service area of the permit holder. If emergency repairs are needed on equipment not able to move to the workshop / service area, drip trays must be present. All waste products must be disposed of in a 200 litre closed container/bin to be removed from the emergency service area to the workshop in order to ensure proper disposal.	Mining related waste must be managed in accordance with the: • NWA, 1998 • NEM:WA, 2008 • NEM:WA, 2008: National norms and standards for the storage of waste (GN 926) • NEMA, 1998 (Section 30)	Throughout the site establishment-, operational-, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
• Sloping and landscaping during rehabilitation phase.			• Ablution facilities must be provided in the form of a chemical toilet. The chemical toilet must be placed outside the 1:100 year floodline of any open water resource, and must be serviced at least once every two weeks for the duration of the mining activities. • The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the permit holder. • If a diesel bowser is used on site, it must be equipped with a drip tray at all times. Drip trays must be used during each and every refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. • Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. • A spill kit must be available on-site which can be operated by trained employees for the adhoc remediation of minor chemical and hydrocarbon spillages. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed. • A waste management plan must be compiled by site management and implemented on site. The plan must focus on the waste hierarchy of the NEM:WA. • General waste must be contained in marked, sealable, refuse bins placed at a designated area, to be removed when filled to a recognised general waste landfill site. • No waste may be buried or burned on the site. • No chemicals or hazardous materials may be stored at the mining area. • It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities is reported to the Department of Water and Sanitation and other relevant authorities.		
• Stripping and stockpiling of topsoil and overburden. • Excavation, loading and hauling to the processing plant. • Sloping and landscaping during rehabilitation.	Operational Phase	4.9 ha	**<u>Erosion Control and Storm Water Management:</u>** • Clearing of vegetation must be limited to the proposed mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place. • Stormwater must be diverted around the topsoil heaps and mining areas to prevent erosion. • Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms. • When mining within steep slopes, it must be ensured that adequate slope protection is provided. • During mining, the outflow of run-off water from the mining excavation must be controlled to	Storm water must be managed in accordance with the: • CARA, 1983 • NEMA, 1998 • NWA, 1998	Throughout the operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			prevent down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur. • Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation. • Any erosion problems within the mining area because of the mining activities observed must be rectified immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur. • Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose: ▪ Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. ▪ Dirty water must be collected and contained in a system separate from the clean water system. ▪ Dirty water must be prevented from spilling or seeping into clean water systems. ▪ A storm water management plan must apply for the entire life cycle of the mining		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			activity and over different hydrological cycles (rainfall patterns). ▪ The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan. • Polluting activities including storage of mining fleet, equipment wash down facilities and vehicle maintenance yards must be restricted to the workshop areas and must be undertaken on impermeable hard standing surfaces, which are formally drained to a dirty water drainage system at the site. • All fuels and chemicals stored or used on site must be contained within fit for purpose containers and stored within designated storage areas. In order to prevent pollution of the surrounding environment during an accidental spillage, the designated storage areas must be situated on an impermeable surface and must feature a perimeter bund and a drainage sump. The volume of the bund and sump must be sized to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. The storage areas must feature a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently.		
• Crushing, screening, stockpiling and transporting material from site.	Operational Phase	±1 ha	**<u>Access Road Mitigation:</u>** • Storm water must be diverted around the access road to prevent erosion.	The access road must be managed in accordance with the: • NRTA, 1996	Throughout the operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Vehicular movement must be restricted to the existing access road to prevent crisscrossing of tracks through undisturbed and inactive areas. • Rutting and erosion of the access road caused as a direct result of the mining activities must be repaired by the permit holder. • Overloading of the truck must be prevented, and proof of load weights must be filed for auditing purposes.		
• Drilling and blasting. • Excavation, loading and hauling to the processing plant. • Sloping and landscaping during rehabilitation phase.	Site Establishment-, Operational-, and Decommissioning phase	4.9 ha	**Management of health and safety risks:** • Workers must have access to the correct personal protection equipment (PPE) as required by law. • Sanitary facilities must be located within 100 m from any point of work. • All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). • The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. • The surrounding landowners must be informed in writing ahead of each blasting event. • The compliance of ground vibration and airblast levels must be monitored to USBM standards with each blasting event. • A vibro recorder must be used to record all blasts. • Audible warning of a pending blast must be given at least 3 minutes in advance of the blast. • Measures to limit flyrock must be taken. All flyrock (of diameter 150 mm and larger) which falls beyond the working area, together with the rock spill must be collected and removed.	Health and safety aspects must be managed in accordance with the: • MHSA, 1996 • OHSA, 1993 • OHSAS, 18001	Throughout the site establishment-, operational and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
• Site establishment and infrastructure development.	Site Establishment, & Operational Phase.	±500 m²	**Storage/Handling of Hazardous Substances/Chemicals:** • Chemical storage areas must be placed on level ground to prevent offsite migration of any spilled product. • The floor of the storage area must be impermeable to prevent seepage of spilled products into the ground or ground water. • Access to the chemicals/substances must be controlled and require prior notification of an appropriate staff member. • A Hazardous Substances Register must be maintained, and Safety Data Sheets (SDS) must be kept current for all chemicals used on site. • Any fuel/used oil tanks must have secondary containment in the form of an impermeable bund wall and base within which the tanks sit, raised above the floor, on plinths. The bund capacity must be sufficient to contain 110% of the tank's maximum capacity. The distance and height of the bund wall relative to that of the tank must also be taken into consideration to ensure that any spillage does not result in hydrocarbons/other substances spouting beyond the confines of the bund. • The site manager must establish a formal inspection routine to check all equipment in the bund area, as well as the bund area itself for malfunctions or leakages. The bund area must be inspected at least weekly and any accumulated rainwater removed and handled as contaminated water. All valves and outlets	Chemicals/hazardous substances must be stored in accordance with the: • HSA,1973 • NWA, 1998 • NEM:WA, 2008	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			must be checked to ensure that its intact and closed securely. • The bund base must slope towards an oil sump of sufficient size. Contaminated water may not be allowed to mix with clean water, and must be contained until it is collected by a registered hazardous waste handling contractor or disposed of at a registered hazardous waste handling facility. • Drip trays must be used underneath all stationary equipment or vehicles. Used drip trays must be placed within a bunded area and are not be stored on bare soil. The waste water originating from the cleaning of drip trays must be discarded into the oil sump.		
• Sloping and landscaping during rehabilitation phase.	Decommissioning Phase	4.9 ha	**Rehabilitation/landscaping of mining area:** • The excavated area must serve as a final depositing area for the placement of overburden. • Rocks and coarse material removed from the excavation must be dumped into the excavation. • Coarse natural material used for the construction of ramps must be removed and dumped into the excavations. • Stockpiles must be removed during the decommissioning phase, the area ripped and the topsoil returned to its original depth to provide a growth medium. • No waste may be permitted to be deposited in the excavations. • Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and	Rehabilitation of the mining area must be in accordance with the: ❖ CARA, 1983 ❖ NEM:BA, 2004 ❖ MPRDA, 2002 Closure Plan (Appendix L)	Throughout the decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			erosion control measures, the topsoil previously stored must be returned to its original depth over the area. • If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification. • On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). • On completion of mining operations, the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.		

e) Impact Management Outcomes

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

Table 29: Impact Management Outcomes

ACTIVITY whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure))	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc..) E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
• Demarcation of site with visible beacons.	• No impact could be identified other than the beacons being outside the boundaries of the approved mining area.	N/A	Site Establishment phase	Control through management and monitoring.	Mining of aggregate is only allowed within the boundaries of the approved area. • MPRDA, 2008 • NEMA, 1998
• Site establishment and infrastructure development. • Stripping and stockpiling of topsoil and overburden.	• Visual intrusion as a result of site establishment.	The visual impact may affect the aesthetics of the landscape.	Site Establishment & Operational Phase	<u>Control:</u> Implementing proper housekeeping.	Management of the mining area must be in accordance with the: • MPRDA, 2008 • NEMA, 1998
• Site establishment and infrastructure development**.**	• Loss of agricultural land for duration of mining.	The impact may affect the agricultural opportunities of the property.	Site Establishment & Operational Phase	Should the proposed project be approved, the operation will temporarily interrupt the agricultural activities of the footprint area, only to be reversed upon the closure of the mine. The impact could be controlled through progressive rehabilitation.	Use of agricultural land must be managed in accordance with the: • CARA, 1983 Closure Plan (Appendix L)

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
• Stripping and stockpiling of topsoil and overburden. • Excavation, loading and hauling to the processing plant. • Sloping and landscaping during rehabilitation.	• Loss of stockpiled topsoil during mining and stockpiling. • Potential erosion of denuded areas. • Facilitation of erosion due to mining activities. • Erosion of returned topsoil after rehabilitation.	Loss of topsoil will affect the rehabilitation success upon closure of the mine.	Site Establishment-, Operational and Decommissioning Phase	Control & Remedy: Proper housekeeping and storm water management.	Topsoil must be managed in accordance with the: • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008
• Site establishment • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area.	• Infestation of the topsoil heaps and mining area with invader plant species. • Infestation of denuded areas with invader plant species • Infestation of the reinstated area with invader plant species.	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational- and Decommissioning phase	Control: Implementing soil- and storm water management.	Invader plants must be managed in accordance with the: • CARA, 1983 • NEM:BA 2004 • Invasive Plant Species Management Plan (Appendix I)
• Site establishment and infrastructure development. • Stripping and stockpiling of topsoil and overburden.	• Potential impact on fauna within the footprint area.	This will impact on the biodiversity of the receiving environment.	Site Establishment- and Operational phase	Control & Stop: Implementing good management practices.	Fauna must be managed in accordance with the: • NEM:BA 2004 Any water related matters must be managed in accordance with the: • NWA, 1998 • WUL conditions

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
• Stripping and stockpiling of topsoil and/or overburden. • Drilling and blasting. • Construction of site access road • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material.	• Dust nuisance as a result of the mining activities. • Dust nuisance as a result of the mining activities.	Increased dust generation will impact on the air quality of the receiving environment.	Site Establishment- and Operational Phase	Control: Dust suppression methods and proper housekeeping.	Dust generation must be managed in accordance with the: • NEM:AQA. 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)
• Stripping and stockpiling of topsoil and/or overburden. • Drilling and blasting. • Construction of site access road • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material.	• Noise nuisance generated by earthmoving machinery. • Noise nuisance as a result of blasting. • Noise nuisance as a result of the mining activities. • Noise nuisance stemming from operation of the processing plant.	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	Control: Noise suppression methods and proper housekeeping.	Noise generation on site must be managed in accordance with the: • NEM:AQA, 2004 Regulation 6(1) • NRTA, 1996
• Mining of aggregate . • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area.	• Soil contamination from hydrocarbon spills. • Potential impact assocaited with littering and hydrocarbon spills.	Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the groundwater. It will also incur additional	Site Establishment-, Operational-, and Decommissioning Phase	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	Mining related waste must be managed in accordance with the: • NWA, 1998 • NEM:WA, 2008 • NEM:WA, 2008: National norms and standards for the storage of waste (GN 926) • NEMA, 1998 (Section 30)

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	• Potential impact associated with litter left at the mining area.	costs to the permit holder.			
• Site establishment and infrastructure development. • Excavation, loading and hauling to the processing plant.	• Potential impact on area/infrastructure of heritage or cultural concern.	This could impact on the cultural and heritage legacy of the receiving environment.	Operational Phase	Control & Stop: Implementing good management practices, as well as the chance-find protocol.	Cultural/heritage aspects must be managed in accordance with the: • NHRA, 1999
• Drilling and blasting. • Excavation, loading and hauling to the processing plant. • Sloping and landscaping during rehabilitation phase.	• Health and safety risk posed by blasting activities. • Unsafe working environment for employees. • Safety risk posed by un-sloped areas.	An unsafe working environment affects the labour force, as well as pose a threat to animals and humans that may enter the mining footprint.	Operational-, and Decommissioning Phase	Stop & Control: Adherance to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	Health and safety aspects on site must be managed in accordance with the: • MHSA, 1996 • OHSA, 1993 • OHSAS 18001 USBM standards
• Screening, stockpile, and transporting material from site.	• Overloading of trucks having an impact on the public roads.	Overloading will negatively affect the roads in the vicinity of the mining area.	Operational Phase	Control: Proper site management.	Load weights must be managed in accordance with the: • NRTA, 1996

f) Impact Management Actions

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

Table 30: Impact Management Actions

ACTIVITY whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	**POTENTIAL IMPACT** (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)	**MITIGATION TYPE** (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc... etc.) E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation.	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either: Upon cessation of the individual activity Or. Upon the cessation of mining bulk sampling or alluvial diamond prospecting as the case may be.	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
• Demarcation of site with visible beacons.	• No impact could be identified other than the beacons being outside the boundaries of the approved mining area.	Demarcation of the site will ensure that all employees are aware of the boundaries of the mining area, and that work stay within the approved area.	Beacons need to be in place throughout the life of the activity.	Mining of aggregate is only allowed within the boundaries of the approved area. • MPRDA, 2008 • NEMA, 1998
• Site establishment	• Visual intrusion as a result of site establishment.	**<u>Visual Mitigation</u>** • Mining must be contained to the boundaries of the permitted area.	Throughout the site establishment-, and operational phase.	Management of the mining area must be in accordance with the: • MPRDA, 2008

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• The site must have a neat appearance and be always kept in good condition. • The permit holder must limit vegetation removal (if applicable) and stripping of topsoil may only be done immediately prior to the use of a specific area. • Upon closure the mining area must be rehabilitated and levelled to remove the visual impact on the aesthetic value of the area. **Management of vegetation removal** • The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly. • A pre-construction environmental induction must be provided for all staff to ensure compliance with basic environmental principles. This includes awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, and remaining within demarcated construction areas. • Cleared vegetation to be retained at any time may not be burned, but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes. • Clearing of vegetation should be minimized and avoided where possible.		• NEMA, 1998

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. • The on-site ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when the majority of vegetation clearing is taking place. • All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed. • No plant species, whether native or exotic, should be brought into, ore removed from, the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants. • No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the ECO and without the relevant permits. • No fires must be allowed on-site. • If deemed necessary by the ECO, a firebreak must be made around the periphery of the site in autumn every year. Vegetated areas inside the break should be burned (upon recommendation of the ECO) on a biennial basis if deemed necessary. The relevant veld burning legislation must be adhered to.		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Site establishment • Crushing, screening, stockpiling and transporting material from site. • Sloping and landscaping upon closure of the mining area. • Construction of site access road	• Loss of topsoil and fertility during mining and stockpiling • Loss of stockpiled material due to ineffective storm water control. • Erosion of returned topsoil after rehabilitation • Loss of the unnamed tributary due to extension/construction of access road.	**<u>Topsoil Management:</u>** • The upper 300 mm of the soil must be stripped and stockpiled. • Topsoil is a valuable and essential resource for rehabilitation and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes. • Topsoil stripping, stockpiling and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time. • The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed and inactive areas. • Topsoil stockpiles must be protected against losses by water and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (weeds or a cover crop) on the stockpiles will help to prevent erosion. • Topsoil heaps may not exceed 1.5 m to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. • The temporary topsoil stockpiles must be kept free of invasive plant species. • Storm- and runoff water must be diverted around the mining area to prevent erosion.	Throughout the site establishment-, operational, and decommissioning phase.	Topsoil must be managed in accordance with the: • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site. • The permit holder must strive to re-instate topsoil to its previous natural state at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal. • The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement. • Control: Implementing the WUL conditions and specifications.		
• Site establishment • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area. • Construction of site access road	• Infestation of the topsoil heaps and mining area with invader plant species. • Infestation of denuded areas with invader plant species • Infestation of the reinstated area with invader plant species.	**<u>Management of Invader Plant Species:</u>** • An invasive plant species management plan (Appendix I) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the mining activities. • All stockpiles (topsoil) must be kept free of invasive plant species. • Management must take responsibility to control declared invader or exotic species on	Throughout the site establishment-, operational, and decommissioning phase.	Invader plants must be managed in accordance with the: • CARA, 1983 • NEM:BA 2004 • Invasive Plant Species Management Plan (Appendix I)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		the rehabilitated areas. The following control methods can be used: ▪ The plants can be uprooted, felled or cut off and can be destroyed completely. ▪ The plants can be treated chemically by a registered pest control officer (PCO) using an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide.		
• Site establishment. • Mining of aggregate.	• Potential impact on fauna within the footprint area.	**<u>Protection of Fauna:</u>** • The site manager must ensure no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set or nests raided for eggs or young.	Throughout the site establishment-, and operational phase.	Fauna must be managed in accordance with the: • NEM:BA 2004
• Site establishment • Screening, stockpile, and transporting material from site. • Construction of site access road	• Dust nuisance as a result of the mining activities. • Dust nuisance as a result of the mining activities.	**<u>Fugitive Dust Emission Mitigation:</u>** • The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Speed on the access road must be limited to 40 km/h to prevent the generation of excess dust.	Throughout the site establishment-, operational, and decommissioning phase.	Dust generation must be managed in accordance with the: • NEM:AQA. 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining. • Loads must be flattened and covered to ensure that minimal spillage of material takes place during transportation, also preventing windblown dust. • Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts. • All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012). • Best practice measures shall be implemented during the stripping of topsoil, loading, and transporting of the aggregate from site to minimize potential dust impacts.		
• Site establishment • Mining of aggregate • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area. •	• Noise nuisance as a result of the mining activities. • Noise nuisance as a result of the decomissiononig activities.	**<u>Noise Handling:</u>** • The permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the mining area. • All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). • Best practice measures shall be implemented in order to minimize potential noise impacts.	Throughout the site establishment-, operational-, and decommissioning phase.	Noise generation must be managed in accordance with the: • NEM:AQA. 2004 Regulation 6(1) • NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA, 2004, SANS 10103:2008.		
• Mining of aggregate. • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area.	• Soil contamination from hydrocarbon spills. • Potential impact assocaited with littering and hydrocarbon spills. • Potential impact associated with litter left at the mining area.	**<u>Waste Management:</u>** • Regular vehicle maintenance, repairs and services may only take place in a demarcated service area of the permit holder. If emergency repairs are needed on equipment not able to move to the workshop / service area, drip trays must be present. All waste products must be disposed of in a 200 litre closed container/bin to be removed from the emergency service area to the workshop in order to ensure proper disposal. • Ablution facilities must be provided in the form of a chemical toilet. The chemical toilet must be placed outside the 1:100 year floodline of any open water resource, and must be serviced at least once every two weeks for the duration of the mining activities. • The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the permit holder.	Throughout the site establishment-, operational-, and decommissioning phase.	Mining related waste must be managed in accordance with the: • NWA, 1998 • NEM:WA, 2008 • NEM:WA, 2008: National norms and standards for the storage of waste (GN 926) • NEMA, 1998 (Section 30)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• If a diesel bowser is used on site, it must be equipped with a drip tray at all times. Drip trays must be used during each and every refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. • Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. • A spill kit must be available on-site which can be operated by trained employees for the adhoc remediation of minor chemical and hydrocarbon spillages. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed. • A waste management plan must be compiled by site management and implemented on site. The plan must focus on the waste hierarchy of the NEM:WA. • General waste must be contained in marked, sealable, refuse bins placed at a designated area, to be removed when filled to capacity to a recognised general waste landfill site. • No waste may be buried or burned on the site.		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• No chemicals or hazardous materials may be stored at the mining area. • It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities is reported to the Department of Water and Sanitation and other relevant authorities.		
• Mining of aggregate.	• Potential impact on area/infrastructure of heritage or cultural concern.	**<u>Archaeological, Heritage and Palaeontological Aspects:</u>** • All mining must be confined to the development footprint area. • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area. • The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify SAHRA.	Throughout the operational phase.	Cultural/heritage aspects must be managed in accordance with the: • NHRA, 1999

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• Work may only continue once the go-ahead was issued by SAHRA.		
• Crushing, screening, stockpiling and transporting material from site. • Mining of aggregate	• Loss of stockpiled material due to ineffective storm water control.	**<u>Storm Water Mitigation:</u>** • Storm water must be diverted around the topsoil heaps and mining area to prevent erosion. • Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose: ▪ Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. ▪ Dirty water must be collected and contained in a system separate from the clean water system. ▪ Dirty water must be prevented from spilling or seeping into clean water systems.	Throughout the operational phase.	Storm water must be managed in accordance with the: • CARA, 1983 • NEMA, 1998 • NWA, 1998

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Screening, stockpile, and transporting material from site.	• Deterioration of the access road to the mining area. • Overloading of trucks having an impact on the public roads.	**Access Road Mitigation:** • Storm water must be diverted around the access road to prevent erosion. • Vehicular movement must be restricted to the existing access road to prevent crisscrossing of tracks through undisturbed and inactive areas. • Rutting and erosion of the access road caused as a direct result of the mining activities must be repaired by the permit holder. • Overloading of the truck must be prevented, and proof of load weights must be filed for auditing purposes.	Throughout the operational phase.	The access road must be managed in accordance with the: • NRTA, 1996
• Site establishment. • Mining of aggregate • Crushing, screening, stockpiling and transporting material from site. • Sloping and landscaping upon closure of the mining area.	• Potential health and safety risk to employees.	**Management of Health and Safety Risks:** • Adequate ablution facilities and water for human consumption must daily be available on site. • Workers must have access to the correct personal protection equipment (PPE) as required by law. • All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).	Throughout the site establishment-, operational and decommissioning phase.	Health and safety aspects must be managed in accordance with the: • MHSA, 1996 • OHSA, 1993 • OHSAS, 18001

i) Financial Provision

(1) Determination of the amount of Financial Provision.

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

The decommissioning phase will entail the reinstatement of the processing area by removing the mining machinery from the site. Removal of the crushing and screening plant, containers, weighbridge and chemical toilet from the mining area, removal/levelling of all stockpiled material and the landscaping of the mining area to allow the replacement of stockpiled topsoil.

The reinstated area will be vegetated and invasive plant species will be controlled during a 12 months' aftercare period to address germination of problem plants in the area. The Applicant will comply with the minimum closure objectives as prescribed by DMRE.

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

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

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

The requested rehabilitation plan is attached as Appendix E.

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

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

- Rehabilitation of the Excavated Area:

  Implementing the following mitigation actions will lower the danger of unsloped and unrehabilitated sites posing a safety risk to be Low:

  - The excavated area must serve as a final depositing area for the placement of overburden.
  - Rocks and coarse material removed from the excavation must be dumped into the excavation.
  - No waste may be permitted to be deposited in the excavations.
  - Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.
  - If necessary, the area can be fertilized to hasten the establishment of flora. Should the site's natural vegetation not grow back within six months of its closure to spread the naturally existent flora in the area, the site could be seeded with a local or adapted indigenous seed mix. This area is seen to have low agricultural potential due to the rocky surface therefore the use of seed mixes should only be done after consultation with a qualified specialist with experience in the area as it might not apply.
  - Where re-vegetation work will be done on the disturbed areas, only suitable crops, or locally indigenous, endemic vegetation must be used, and no “alien Plant” species are allowed.
  - If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.

- Rehabilitation of the Mining area:

  Stockpiles will be removed during the decommissioning phase, the area ripped and the topsoil returned to its original depth to provide a growth medium. On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):

- Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- Photographs of the office sites and workshop, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.
- On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified and graded to an even surface condition. Where applicable / possible topsoil needs to be returned to its original depth over the area.
- Prior to replacing the topsoil, the material that was removed from these areas will be replaced in the same order as it originally occurred. The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

- Final Rehabilitation:

  Final rehabilitation of the surface area shall entail landscaping, levelling, maintenance, and clearing of invasive plant species. All equipment, plant and other items used during the mining period will be removed from site (section 44 of the MPRDA, 2002). Waste material of any description will be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site. The management of invasive plant species will be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations

applicable thereto) will be eradicated from the site. Final rehabilitation shall be completed within a period specified by the Regional Manager.

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

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

Mine type and saleable mineral by-product

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

Mine type	Aggregate
Saleable mineral by-product	None

Risk ranking

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

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

Environmental sensitivity of the mine area

According to Table B.4

Environmental sensitivity of the mine area	Low

Level of information

According to Step 4.2:

Level of information available	Limited

Identify closure components.

According to Table B.5 and site-specific conditions

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

Unit rates for closure components

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

Component No.	Main description	Master rate	Multiplication factor
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	-
2(A)	Demolition of steel buildings and structures	-	-
2(B)	Demolition of reinforced concrete buildings and structures	-	-
3	Rehabilitation of access roads	-	-
4(A)	Demolition and rehabilitation of electrified railway lines	-	-
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	-
5	Demolition of housing and facilities	-	-
6	Opencast rehabilitation including final voids and ramps	319 431	0.04
7	Sealing of shafts, adits and inclines	-	-
8(A)	Rehabilitation of overburden and spoils	-	-
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	-
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	-
9	Rehabilitation of subsided areas	-	-
10	General surface rehabilitation, including grassing of all denuded areas	168 695	1.00
11	River diversions	-	-

Component No.	Main description	Master rate	Multiplication factor
12	Fencing	-	-
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	-
14	2 to 3 years of maintenance and aftercare	22 450	1.00

Determine weighting factors

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1.0 (Flat)
Weighting factor 2: Proximity to urban area where goods and services are to be supplied	1.05

Calculation of closure costs

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

Table 31: Calculation of closure cost

CALCULATION OF THE QUANTUM							
Mine:	Inzalo Crushing and Aggregates (Pty) Ltd			**Location:**	Thabazimbi		
Evaluators:	Z Norval			**Date:**	25 September 2024		
No	**Description**	**Unit**	**A Quantity**	**B Master rate**	**C Multiplication factor**	**D Weighting factor 1**	**E=A *B*C*D Amount (Rand)**
			Step 4.5	**Step 4.3**	**Step 4.3**	**Step 4.4**	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	m^2	0	22	1.00	1.0	R 0,00
2(A)	Demolition of steel buildings and structures	m^2	0	305	1.00	1.0	R 0,00
2(B)	Demolition of reinforced concrete buildings and structures	m^2	0	449	1.00	1.0	R 0,00
3	Rehabilitation of access roads	m^2	0	55	1.00	1.0	R 0,00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	529	1.00	1.0	R 0,00
4(B)	Demolition and rehabilitations of non-electrified railway lines	m	0	289	1.00	1.0	R 0,00
5	Demolition of housing and/or administration facilities	m^2	0	609	1.00	1.0	R 0,00
6	Opencast rehabilitation including final voids and ramps	ha	4	319431	0.04	1.0	R 51,108.96
7	Sealing of shaft, audits and inclines	m^3	0	164	1.00	1.0	R 0,00
8(A)	Rehabilitation of overburden and spoils	ha	0	212954	1.00	1.0	R 0,00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	ha	0	265230	1.00	1.0	R 0,00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	770354	0.51	1.0	R 0,00
9	Rehabilitation of subsided areas	ha	0	178317	1.00	1.0	R 0,00
10	General surface rehabilitation	ha	0.9	168695	1.00	1.0	R 151,825.50
11	River diversions	ha	0	168695	1.00	1.0	R 0,00

12	Fencing	m	0	192	1.00	1.0	R 0,00
13	Water Management	ha	0	64143	0.17	1.0	R 0,00
14	2 to 3 years of maintenance and aftercare	ha	4.9	22450	1.00	1.0	R 110,005.00
15(A)	Specialists study	Sum	0				R 0,00
15(B)	Specialists study	Sum	0				R 0,00
Sum of items 1 to 15 above							R 312,939.46
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)		R15,646.97				**Sub Total 1**	R 328,586.43

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 <R100 000 000.00	R 19,715.19
		12% of Subtotal 1 if Subtotal 1 >R100 000 000.00	-
2	Contingency	10.0% of Subtotal 1	R 32,858.64
		Sub Total 2 (Subtotal 1 plus management and contingency)	R 381,160.26
		Vat (15%)	R 57,174.04
		GRAND TOTAL (Subtotal 3 plus VAT)	**R 438,334.30**

The amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum total of **R 438,334.30**

(f) Confirm that the financial provision will be provided as determined.

Herewith I, the person, whose name is stated below confirm that I am the person authorised to act as representative of the Applicant in terms of the resolution submitted with the application. I herewith confirm that the company will provide the amount that will be determined by the Regional Manager in accordance with the prescribed guidelines.

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

g) Monitoring of Impact Management Actions

h) Monitoring and reporting frequency

i) Responsible persons

j) Time period for implementing impact management actions

k) Mechanisms for monitoring compliance

Table 32: Mechanisms for monitoring compliance with and performance assessment against the EMPR and reporting thereon.

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
• Demarcation of site with visible beacons	Maintenance of beacons	• Visible beacons need to be placed at the corners of the mining area.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: • Ensure beacons are in place throughout the life of the mine.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.
• Site establishment	**Visual Characteristics:** • Visual intrusion as a result of site establishment.	• Minimize the visual impact of the activity on the surrounding environment through proper site management	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management.

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
		and implementing good housekeeping practices.	• Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Contain mining to the boundaries of the permitted area. • Ensure that the site have a neat appearance and is always kept in good condition. • Limit vegetation removal, and only strip topsoil immediately prior to the use of a specific area. • Rehabilitate and level the site upon closure to ensure that the visual impact on the aesthetic value of the area is kept to a minimum.	• Annual compliance monitoring of site by an Environmental Control Officer.
• Site establishment • Crushing, screening, stockpiling and transporting material from site. • Sloping and landscaping upon closure of the mining area.	**<u>Geology and Soil:</u>** • Loss of topsoil and fertility during mining and stockpiling • Loss of stockpiled material due to ineffective storm water control. • Erosion of returned topsoil after rehabilitation .	• Earthmoving equipment to reinstate mined-out areas. • Cover crop to be established on reinstated areas. • Erosion control infrastructure (if necessary)	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Strip and stockpile the upper 300 mm of the soil. • Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process. • Ensure topsoil stripping, stockpiling and re-spreading is done in a systematic way. Plan mining in such a way that topsoil is stockpiled for the minimum possible time.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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
			• Place topsoil heaps on a levelled area within the mining footprint area. Do not stockpile topsoil in undisturbed and inactive areas. • Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind and water. Establishment of plants on the stockpiles will help prevent erosion. • Ensure that topsoil heaps do not exceed 1.5 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. • Keep temporary stockpiles free of invasive plant species. • Divert storm- and runoff water around the mining area to prevent erosion. • Spread the topsoil evenly over the rehabilitated area, to a depth of 300 mm, upon closure of the site. • Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. • Plant and irrigate a cover crop immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the cover crop for optimum biomass production. Rehabilitation extends until the first cover crop is well established. • Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement.	
• Site establishment	**Groundcover:**	• Designated team to cut or pull-out invasive plant	Role:	Applicable throughout site establishment-, operational-, and decommissioning phases.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
• Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area.	• Infestation of the topsoil heaps and mining area with invader plant species. • Infestateion of denuded areas with invader plant species. • Infestation of the reinstated area with invader plant species.	species that germinated on site. • Herbicide application equipment.	• Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Implement an invasive plant species management plan to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. • Keep all stockpiles (topsoil) free of invasive plant species. • Control declared invader or exotic species on the rehabilitated areas.	• Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.
• Site establishment. • Mining of aggregate .	**<u>Fauna:</u>** • Potential impact on fauna within the footprint area. • Disturbance to fauna within the footprint area.	• Toolbox talks to educate employees how to handle fauna that enter the work areas.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Ensure no fauna is caught, killed, harmed, sold or played with. • Instruct workers to report any animals that may be trapped in the working area. • Ensure no snares are set or nests raided for eggs or young.	Applicable throughout site establishment-, and operational phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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
• Site establishment • Screening, stockpile, and transporting material from site.	**Air Quality:** • Dust nuisance as a result of the mining activities.	• Dust suppression equipment such as a water car. • Signage that clearly reduce the speed on the access roads.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: • Control the liberation of dust into the surrounding environment by the use of; inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • Ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Limit speed on the haul roads to 40 km/h to prevent the generation of excess dust. • Minimise areas devoid of vegetation. • Flatten and cover loads to prevent spillage and windblown dust during transportation. • Take weather conditions into consideration upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts. • Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012). • Implement best practice measures during the stripping of topsoil, loading, and transporting of material from site to minimize potential dust impacts.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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
• Site establishment • Mining of aggregate • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area.	**Noise Ambiance:** • Noise nuisance as a result of the mining activities. • Noise nuisance as a result of the decomissiononig activities.	• Silencers fitted to all project related vehicles, and the use of vehicles that are in road worthy condition in terms of the National Road Traffic Act, 1996.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: • Ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the mining area. • Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. • Implement best practice measures to minimise potential noise impacts. • Contract a qualified occupational hygienist to quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring must be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA 2004, SANS 10103:2008.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.
• Mining of aggregate • Screening, stockpile, and transporting material from site.	**Waste Management:** • Soil contamination from hydrocarbon spills.	• Oil spill kit. • Sealed drip trays.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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
• Sloping and landscaping upon closure of the mining area.	• Potential impact assocaited with littering and hydrocarbon spills. • Potential impact associated with litter left at the mining area.	• Formal waste disposal system with waste registers.	• Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Ensure regular vehicle maintenance, repairs and services take place in a demarcated service area of the permit holder. If emergency repairs are needed on equipment not able to move to the workshop / service area, drip trays must be present. All waste products must be disposed of in a 200-litre closed container/bin to be removed from the emergency service area to the workshop in order to ensure proper disposal. • Provide ablution facilities in the form of a chemical toilet that is placed outside the 1:100-year floodline of any open water resource. Ensure the toilet is serviced at least once every two weeks for the duration of the mining activities. • Ensure that the use of any temporary, chemical toilet facilities does not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately. • Equip the diesel bowser with a drip tray if used on site. The nozzle of the bowser must rest in a sleeve to prevent dripping after refuelling. • Clean drip trays after use. Do not use dirty drip trays. • Keep a spill kit on 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
			• Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Collect the contaminated soil from spillage that occurred, such as oil or diesel leaking from a burst pipe, within the first hour of occurrence, in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. File proof. • Compile a waste management plan and implement it on site. The plan must focus on the waste hierarchy of the NEM:WA. • Contain general waste in marked, sealable, refuse bins placed at a designated area and remove waste from the mining area to a recognised general waste landfill site. • Prevent the burning or burying of waste on site. • Report any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities to the Department of Water and Sanitation and other relevant authorities. • Park the machinery at the mining area with drip trays placed underneath stationary vehicles.	
• Mining of aggregate	• Potential impact on areas/infrastructure of heritage or cultural concern.	• Contact number of an archaeologist that can be contacted when a discovery is made on site.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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
			Responsibility: • Confine all mining to the development footprint area. • Implement the following change find procedure when discoveries are made on site: ▪ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. ▪ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area. ▪ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify SAHRA. ▪ Work may only continue once the go-ahead was issued by SAHRA.	
• Crushing, screening, stockpiling and transporting material from site. • Mining of aggregate .	**Hydrology:** • Storm water management • Loss of the unnamed tributary due to extension/construction of access road.	• Storm water management structures such as berms to direct storm- and runoff water around the stockpiled topsoil area (when needed).	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

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
		• Water use licence issued by the DWS.	• Adhere to the specifications of the water use licence for the duration of the mining operation. <u>Responsibility:</u> • Divert storm water around the topsoil heaps to prevent erosion. • Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWS.	
• Screening, stockpile, and transporting material from site.	**<u>Existing Infrastructure:</u>** • Deterioration of the access road to the mining area. • Overloading of trucks having an impact on the public roads.	• Grader to restore the road surface when needed.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Divert storm water around the access road to prevent erosion. • Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed and inactive areas. • Repair rutting and erosion of the access road caused as a direct result of the mining activities. • Prevent the overloading of the truck, and file proof of load weights for auditing purposes.	Applicable throughout operational phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.
• Site establishment. • Mining of aggregate .	• Potential health and safety risks to employees.	• Stocked first aid box. • Level 1 certified first aider.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.	Applicable throughout operational-, and decommissioning phases. • Daily compliance monitoring by site management.

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
• Crushing, screening, stockpiling and transporting material from site. • Sloping and landscaping upon closure of the mining area.		• All appointments in terms of the Mine Health and Safety Act, 1996.	• Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Ensure adequate ablution facilities and water for human consumption is daily available on site. • Ensure that workers have access to the correct PPE as required by law. • Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).	• Annual compliance monitoring of site by an Environmental Control Officer.

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

The Environmental Audit Report in accordance with Appendix 7 as prescribed in Regulation 34 of the EIA Regulations, 2014 (as amended) will annually be submitted to DMRE for compliance monitoring purposes or in accordance with the time period stipulated by the Environmental Authorisation.

m) Environmental Awareness Plan

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

Once the Applicant received the mining permit and may commence with the proposed activity, a copy of the Environmental Management Programme will be handed to the site manager for his perusal. Issues such as the mining boundaries, fire principals and waste handling will be discussed.

An induction meeting will be held with all the site workers to inform them of the Basic Rules of Conduct regarding the environment.

ii) Manner in which risk will be dealt with in order to avoid pollution or the degradation of the environment.

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

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

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

- **Water Management and Erosion:**
    - Check that rainwater flows around work areas and are not contaminated.
    - Report any erosion.
    - Check that dirty water is kept from clean water.

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

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

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

- **Air Quality:**
    - Wear protection when working in very dusty areas.
    - Implement dust control measures:
        - ✓ Water all roads and work areas.

- ✓ Minimize handling of material.
- ✓ Obey speed limit and cover trucks.

- **Driving and Noise:**

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

- **Vegetation and Animal life:**

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

- **Fire Management:**

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

n) Specific information required by the Competent Authority

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

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

2. UNDERTAKING

I, Zoë Norval (Candidate EAP), herewith confirms

a) the correctness of the information provided in the reports [X]
b) the inclusion of comments and inputs from stakeholders and I&AP's [X]
c) the inclusion of inputs and recommendations from the specialist reports where relevant, and [X]
d) that the information provided by the EAP to interested and affected parties and any response by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein [X]

Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

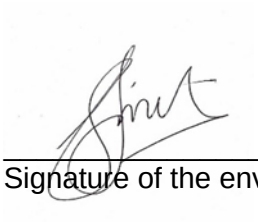
Name of Company:

14 October 2024

Date:

I, Sonette Smit (Reviewer), herewith confirms

e) the correctness of the information provided in the reports [X]
f) the inclusion of comments and inputs from stakeholders and I&AP's [X]
g) the inclusion of inputs and recommendations from the specialist reports where relevant, and [X]
h) that the information provided by the EAP to interested and affected parties and any response by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein [X]



Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

Name of Company:

14 October 2024

Date:

-END-

APPENDIX A

REGULATION 2(2) MINE MAP

APPENDIX B
LOCALITY MAP

APPENDIX C
SITE ACTIVITIES PLAN

APPENDIX D

LAND USE MAP

APPENDIX E
REHABILITATION MAP

APPENDIX F

PROOF OF PUBLIC PARTICIPATION

APPENDIX G

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