mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT: Mr. P.G. van der Sandt

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FILE REFERENCE NUMBER SAMRAD: 157869

FILE REFERENCE NUMBER SAMRAD: FS 30/5/1/3/2/10170 MP

1. IMPORTANT NOTICE

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

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

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

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

It is furthermore an instruction that the 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.

2. Objective of the basic assessment process

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

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

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

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

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

  (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
  (ii) the degree to which these impacts—
    (aa) can be reversed;
    (bb) may cause irreplaceable loss of resources; and
    (cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
  (i) identify and motivate a preferred site, activity and technology alternative;
  (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
  (iii) identify residual risks that need to be managed and monitored.

PART A

SCOPE OF ASSSSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

i) Details of the EAP

Name of The Practitioner: Hanri van Jaarsveld

Tel No.: 051 451 1721

Fax No. : 051 451 1857

e-mail address: hanri@propercon.co.za

ii) Expertise of the EAP.

(1) **The qualifications of the EAP**
(with evidence). Refer to Appedix 1

B.Sc. Microbiology and Zoology
B.Sc. Honours in Zoology
Magister in Environmental Management

(2) **Summary of the EAP's past experience**.
(In carrying out the Environmental Impact Assessment Procedure) Refer to Appendix 1

H van Jaarsveld has 7 years' experience in environmental management. She has good knowledge of environmental legislation and its implementation. Projects for which H van Jaarsveld were responsible for and/or were involved with in obtaining the necessary Environmental Authorisations/licenses/permits included amongst other the rehabilitation of National and Provincial roads, landfill site, incinerator, asphalt plants, abattoirs, chicken broilers, mining, water uses, Environmental Management Framework (EMF) for Matjhabeng Municipality, municipal developments, etc. She also acted as Environmental Control Officer (ECO) on a number of SANRAL road projects.

b) Location of the overall Activity.

Farm Name:	Portion 9 (of 6) of the farm Mimosa Glen 855
Application area (Ha)	4.9 Ha
Magisterial district:	Mangaung Metropolitan
Distance and direction from nearest town	10 Km northeast from Bloemfontein

21 digit Surveyor General Code for each farm portion	F00300000000088500009

c) Locality map

(show nearest town, scale not smaller than 1:250000). Refer to Figure 2 in Appendix 2

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 the aforesaid main and listed activities, and infrastructure to be placed on site

Refer to Figures 1 & 3 in Appendix 2

(i) Listed and specified activities

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, 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 m²**	**LISTED ACTIVITY Mark with an X where applicable or affected.**	**APPLICABLE LISTING NOTICE (*GNR 544, GNR 545 or GNR 546)***
Surface mining of dolerite (stone aggregate) for commercial use in construction and road building. Activities that will be associated with the operation includes: excavation; stockpiling of topsoil, product and overburden; loading, hauling and transport; occasional blasting; rehabilitation activities.	4.9 Ha	x	Listing Notice 1, No. 21 of GNR 983 (EIA Regulations, 2014)
Clearance of vegetation prior to commencement of mining activities.	4.9 Ha	x	Listing Notice 1, No. 27 of GNR 983 (EIA Regulations, 2014)

(ii) Description of the activities to be undertaken

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

Summary of the proposed operation and associated activities:

Surface mining of dolorite (stone aggregate) for commercial construction will be undertaken through excavation by earthmoving equipment and occasional blasting.

It is foreseen that blasting will be undertaken once per annum. Dependant on the local geology and fracturing during a blast event, it might be required to blast twice per annum to loosen material. Blasting will be undertaken by a certified blast operator and will be done to a maximum depth of 12m, but preferrably to a depth of 9m and an area of 40m x 40m at a time. Material will be crushed and screened on site and product will be stockpiled for sale to commercial buyers. Product will be loaded onto tipper trucks with front-end-loaders for transport offsite by buyers.

The size of the area exposed at any given time will be limited as far as possible. A strip of 50m at a time will be mined along the width of the western side of the site. Any topsoil and overburden will be removed from the area to be disturbed. Topsoil and overburden from the first strip will be stockpiled along the western boundary of the mining permit area. These stockpiles will be shaped and revegetated to limit the visual impact from the road. When the strip is mined out, excavation of another strip of 50m will be undertaken next to the mined out strip towards the east of the site. Topsoil and overburden from the active excavation area will be used to rehabilitate the mined out strips concurrently. Excavation will be undertaken in such manner to create 4m horizontal by 3m vertical terraces as far as possible.

The removal of topsoil and vegetation will be limited to the strips actively being mined, stockpile- and loading areas and access roads. This method will be used to progress through the proposed mining area. Existing access roads will be used and maintained.

Dust suppression will be undertaken through water spraying, enforcing speed limits on transport trucks, implementation of operational procedures and limiting activities during high wind conditions. Water for dust suppression will be abstracted from a borehole.

e) 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 COMPLIY WITH 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 Environmental Management Act (Act 107 of 1998) and related regulations	Chapters 5 & 9	In terms of the NEMA EIA Regulations, 2014, an Environmental authorisation (EA) is required for an activity that requires a mining permit in terms of Section 27 of the MPRDA, 2002 and for the clearance of vegetation of an area larger than 1 Ha but smaller than 20 Ha. A Basic Assessment process in terms of regulations 19 and 20 of the NEMA EIA regulations, 2014 for EA is herewith undertaken. The financial provisioning will be determined and subsequent reporting thereof and environmental perforance assessments will be in accordance with the NEMA Financial Provision Regulations, 2015.
National Environmental Management: Biodiversity Act (Act 10 of 2004)	Sections 52 and 56	An ecological and wetland survey was done by an ecologist for the proposed and alternative study area. Specimens of two protected plant species, i.e. Wild Olive and Carrion flower was observed on site. A permit for the relocation of these specimens in terms of the NEM:BA, 2004 was submitted to DESTEA FS.

National Water Act (Act 36 of 1998)	Section 21	The abstraction of water from a borehole for dust suppression requires authorisation. An application for the necessary authorisation in terms of the NWA, 1998 (Act 36 of 1998) will be submitted to the Department of Water and Sanitation.
National Heritage Resources Act (Act 25 of 1999)	Sections 34, 35, 36 and 38	A Phase 1 Palaeontological and Archaeological Impact Assessment was done by a specialist. No potential sensitive artifacts and/or sensitive areas were identified during the study.
Conservation of Agricultural Resources Act (Act 43 of 1983)	Section 15E	Invader and weed plant species that establishes on the site due to the disturbance by mining and associated activities will be managed in terms of Section 15E of the Act.
National Veld and Forest Fire Act (Act 101 of 1998)	Sections 12, 13, 17 and 18	The applicant should adhere to the management of fires and/or development of firebreaks in accordance with this Act.
Mineral and Petroleum Resources Development Act (Act 28 of 2002)	Section 27	An application for a mining permit is applied for under the MPRDA as part of the Environmental Authorisation in terms of the NEMA, 1998.
Mine Health and Safety Act (Act 29 of 1996)	Chapter 2	All operations at the borrow pit will comply with this Act to ensure the Health and Safety of persons working on site.
Occupational Health and Safety Act (Act 85 of 1993)	Sections 8, 9, 12, 13 and 14	The applicant will adhere to this Act in terms of the health and safety of the persons working on site and working with construction equipment.

Explosives Act, 2003 (Act 15 of 2003)	Chapters 1 & 3	A professional blast operator with the required blast permit will be contracted to undertake the blasting. The operator and application will adhere to the Explosives Act, 2003 (Act 15 of 2003) at all times.
National Environmental Management: Air Quality Act (Act 39 of 2004)	Sections 21, 32, 33, 34 and 37	An Atmospheric Emission License is not required. However, management on the quarry will be undertaken in terms of Section 32 – 34 in order to limit nuisance dust and noise. Monthly dus monitoring will be undertaken.
National Environmental Management: Waste Management Act (Act 59 of 2008)	Sections 7, 16, 19, 21, 23 and 27	No activities expected to be undertaken at the quarry will require a Waste Management License in terms of Section 19 of the Act. However, measures will be implemented throughout the operation to manage any waste in accordance with Section 16 of the Act. Waste to be disposed at a landfill site will be done in accordance with the Norms and Standards for Disposal of Waste to Landfill set in terms of section 7(1) of the Act.

f) Need and desirability of the proposed activities.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

With the influx of people from rural areas to Bloemfontein due to it being the economic hub of Mangaung Metropolitan and the Free State as well as the educational facilities situated in Bloemfontein, the city has shown immense growth from 2001 - 2011 (Stats SA, 2011; Mangaung Metropolitan IDP, 2013-2014). As a result there is a great need for amongst other the extionsion of bulk infrastructure, rehabilitation/upgrading of deteriorated infrastructure and construction of accommodation (Mangaung Metropolitan IDP, 2013-2014).

Stone aggregate is required for construction purposes and the proposed development will assist in the delivery of stone for this need. The site is also located in close proximity to Bloemfontein, thus material can be transported to the city and/or surrounding areas without too high transport costs.

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

Preferred site:

The development of a quarry is proposed for Portion 9 (of 6) of the farm Mimosa Glen 885, Mangaung Metropolitan. A geologist assessed the said property and after a desktop study was conducted, indicated that the study area has dolorite intrusions of a depth of up to 80m.

The most economic resource of dolorite for construction purposes is expected to occur on the proposed mining area (Refer to Figure 1 in Appendix 2). However, considering the presence of protected plant species mostly on the eastern boundary of the proposed site and the higher elevation of the proposed site against the ridge possibly resulting in a more significant visual impact, the alternative site is recommended as preferred site for the proposed development (Refer to Figure 1 in Appendix 2 for an indication of the alternative site).

According to the geologist a good dolorite resource on the alternative site is also present, but the layer of overburden is expected to be approximately 5m deeper before the dolorite is reached than at the proposed site. Although this will increase costs for the extraction of the material for the applicant, it is expected that the potential impacts on the overall aesthetics of the area will be smaller and the impact on the protected plants will be limited and/or avoided.

Preferred activities and technology:

Due to the type of mineral (i.e. dolerite) and the shallow topsoil layer, surface mining through excavation is proposed. Occasional blasting will be required to loosen material for excavation. Blasting of only 1m deep and over small areas was initially proposed but this will result in extremely high costs. In addition, this will limit the volume of material loosened during a blast event, thus more regular blasting will be required. Shallow blasting of that depth might also increase the risk and volume of fly rock expected during a blast event. Considering the costs per blast and the increase in blast events that will be required for an economically feasible amount of material for mining, it is not feasible to blast at a maximum depth of only 1m. The minimum and also the preferred blasting depth will be 9m benches with a maximum of 12m and will be kept to an area 40m x 40m. Considering the volume of material that is expected to be loosened during a blast, it is foreseen that blasting will be undertaken one to two times per annum.

The excavation of material will commence at the western side of the site and will be limited to strips of 50m in width at a time to limit possible aesthetic impacts on the hill and to limit exposed areas subjected to erosion. Excavation will be undertaken in such manner to create 4m horizontal by 3m vertical terraces as far possible.

The preferred option will be to process (i.e. crush and screen) material on site from where it will be sold to commercial buyers. This will allow the applicant to provide the required processed material directly to the construction industry that will limit additional handling and costs. The mining permit for the existing operation on the adjacent property is lapsing in the near future, thus it is not feasible or sustainable to sell unprocessed material to this operation for processing.

Also refer to Part A, Section 3(d)(ii) of this document for information on the activities to be related with the operation and to Part A, Section 3(h) and (i) for a description of the alternatives that were considered for this project.

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.

(a) Proposed property/locality:

Property - The development of a quarry of 4.9 Ha is proposed on Portion 9 (of 6) of the farm Mimosa Glen 885 situated in the Mangaung Metropolitan (refer to Figure 2 in Appendix 2 for the locality of the site). The applicant is a director of the company that owns the affected property. Results from a site assessment and desktop study by a geologist indicated that considering the general geology and topography of the property, a good resource of dolorite is present on the property. The property is in close proximity of Bloemfontein and product can be transported to the city and surroundings without too high transport costs.

Locality - The most economic resource of dolorite for construction purposes is expected to occur on the proposed mining area (refer to Figure 1 in Appendix 2). This site is to a higher elevation and includes the ridge into the mining permit area. The topsoil and overburden layer on the proposed site is relatively shallow which will lower operational costs. The locality was also determined by the general distance allowed for mining from the property boundary and access to the site.

Alternative property/locality:

Property - The development of a quarry of 4.9 Ha is proposed on Portion 9 (of 6) of the farm Mimosa Glen 885 situated in the Mangaung Metropolitan (refer to Figure 2 in Appendix 2). No alternative property was considered.

Locality - A good dolorite resource is also present on the alternative site, but the layer of overburden is estimated to be approximately 5m deeper before the dolorite is reached than at the proposed site. This will result in higher operational costs. The general distance from the property boundary allowed for mining and access to the site were considered. In addition, the locality of the alternative site was determined by the site's elevation (especially the height and distance from the gravel road to the west of the site), to avoid mining into the ridge and limit damage to protected plant species mainly occurring to the east of the property along the ridge. Refer to Figure 1 in Appendix 2 for an indication of the alternative site.

(b) Proposed activity type:

The activity type applied for is surface mining of dolerite aggregate.
There is no alternative type of activity considered for this application.

(c) Proposed layout:

Refer to Figure 3 in Appendix 2 for an indication of the proposed layout of the site. As the alternative site is recommended for the proposed operation, the layout is indicated on the alternative site. The layout was determined by the boundaries of the property, the general topography of the site and the planned method of operation. Excavation will commence on the western side of the site and systematically progress to the east in strips of approximately 50m at a time. Once the first strip of the mining area has been lowered and stabilised, the crusher and screen will be placed on this lower level to limit the visual impact from the road and surrounding area. It is expected that the potential impact from nuisance dust generation will be lower as dust distribution will be screened by the surrounding elevated areas. Care will be taken that the crusher and stockpile areas are not at a lower level than the rest of excavations to avoid damming of water at these operational areas.

Alternative layout:

The alternative layout is to place the crusher and related structures on the current groundlevel. This is expected to have a significant visual impact.

(d) Proposed technology:

Surface mining through excavation with earthmoving equipment/machinery, i.e. Front end loader and an excavator. Blasting with explosives will be undertaken to loosen material once a year. Dependant on the local geology and fracturing during a blast event, it might be necessary to blast twice a year.

Alternative technology:

Due to the nature of the activity, there is no alternative technology considered for the proposed development.

(e) Proposed operation method:

Surface mining will be undertaken through excavation and will commence at the western side of the site. Excavation will be limited to strips of 50m in width at a time to limit possible aesthetic impacts on the hill and to limit exposed areas subjected to erosion. Concurrent rehabilitation will be undertaken as strips are mined out. Excavation will be undertaken in such manner to create 4m horizontal by 3m vertical terraces as far as possile.

Occasional blasting of only 1m deep was initially proposed to loosen material for excavation. Limiting blasting to such shallow depth will result in extremely high costs and will limit the volume of material loosened during a blast event, thus more regular blasting will be required. The risk of fly rock is higher in this case. The minimum blasting depth to which blast operators undertake blasting is a minimum 9m - 20m. To blast enough material for economical mining while still limiting potential impacts it is preferred that mining be undertaken between 1 and 2 times per annum to a blasting depth of maximum 12m, but preferably 9m over an area of 40m x 40m.

It was initially proposed that excavated material will not be processed (i.e. crushed and screened) on site. However, it is preferred that crushing and screening will be undertaken on site in order to provide commercial buyers with the required processed material ready for construction to limit additional costs and handling incurred by the buyer.

Alternative operation method:

The alternative to sell unprocessed material to the existing operation on the adjacent property is not feasible since the mining permit for the operation lapses in the near future.

(f) The 'no-go' alternative was considered throughout the project application. Should the proposed development not be implemented, there will be no potential impacts on the aesthetics of the area, impact on vegetation and generation of dust expected to be associated with the proposed operation and related activities. However, the opportunity for commercial development and income as a result together with the providing of stone for the increased need for infrastructure in Bloemfontein and surroundings will be lost. 10 job opportunities will be lost.

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.

Refer to Appendix 3 for copies of notifications, minutes of meetings, comments and response, etc.

A public participation process in terms of regulations 41 – 44 of the NEMA EIA Regulations, 2014 was undertaken as part of the Environmental Authorisation process. The process included the following:

- A Background Information Document (BID) was developed and provided to stakeholders and potential Interested and/or Affected Parties (I&APs) identified at the onset of the application process together with written notice of the proposed project.
- Written notice to the landowner, i.e. Karibu Quarries B (Pty) Ltd.
- Written notice and direct consultation with the identified neighbours of the affected property.
- Written notice to identified stakeholders, including government departments, i.e. DESTEA FS, DWS FS, DARD FS and the Municipal Manager and Ward Councillor of Ward 44 of Mangaung Metropolitan.
- Written notice and enquiry on any possible land claims to the Department of Rural Development and Land Reform, Free State Province.
- Written notice and specialist Heritage assessment reports to the South African Heritage Resources Agency (SAHRA) through SAHRIS.
- Placement of an advertisement in the Volksblad.
- Placement of an on-site notice.
- Public meetings and consultation

All parties were provided with 30 days to register as I&AP and/or submit any comments to Proper Consulting Engineers after notification of the proposed application for Environmental Authorisation. Any comments received throughout the process were noted and included in the "Report on the results of consultation" submitted to DMR as well as in the draft Basic Assessment Report (BAR) and Environmental Management Programme (EMPr). The draft reports were made available to registered I&APs and stakeholders for comment.

Comments received on the draft reports have been included in this final BAR and EMPr. A copy of the final BAR and EMPr was submitted to DWS as supporting documents to the Water Use License Application for the abstraction of water for dust suppression.

iii) Summary of issues raised by I&Aps

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

Interested and Affected Parties List the names 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					
Landowner/s	**X**				
Karibu Quaries B Pty Ltd	X	Telephonic 06/11/2015	Supports the proposed development.	No response required.	Appendix 3
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties	**X**				Appendix 3; Part B: EMPr Report
Mr C. Kleynhans	X		No comments received up to date.	The draft BAR and EMPr was sent to Mr Kleynhans for comment.	Appendix 3
Raymond Diedericks Trust	X	Public meeting 27 January 2016	Main concerns include visual impact and potential impact of blasting on infrastructure. Mr Diedricks indicated during the meeting that his questions and main concerns were dealt with in terms of	The public meeting held 27 January 2016 was held with neighbours to provide feedback on the environmental assessment, to explain the management measures developed for implementation to prevent and/or limit the impacts expected to be	Appendix 3; Part B: EMPr Report

			management measures to be implemented to limit the potential impacts during the operation. No comments were received on the draft BAR and EMPr.	associated with the proposed operation, as well as to provide the neighbours with more information regarding the operational procedures to be undertaken. This included amongst other the management/mitigation of the visual impacts, dust generation, blasting and water use. The draft BAR and EMPr was provided to Mr Didericks for comment.	
Karibu Quaries B Pty Ltd	X	Telephonic 06/11/2015	Supports the proposed development.	No response required.	Appendix 3
Municipal councillor	**X**		No comments received up to date.	The draft BAR and EMPr was sent to the Municipal Councillor for comment.	Appendix 3
Municipality	**X**		No comments received up to date.	The draft BAR and EMPr was sent to the Municipal Manager for comment.	Appendix 3
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Department of Water and Sanitation	X	Telephonic & written 09/11/2015 14/03/2016	Requested a copy of the draft BAR and EMPr. Comments on the draft reports were as follow: - DWS notes that an application for a Water Use License will be submitted for the abstraction of water for the use of dust suppression. - The operation may not take place within 100m of the banks of a river without the required authorisation.	The draft BAR and EMPr was provided to DWS for comment. The measures specified by DWS were included in the EMPr as minimum management measures that needs to be adhered to throughout all the phases of the operation. The WULA for the abstraction of groundwater was submitted to DWS for processing.	Appendix 3; Part B: EMPr Report

			- Storm water management must be in place throughout all the phases of the operation. - No activity and/or reservoir for any substance that causes or is likely to cause pollution to a water resource may be located within the 1:50 year flood-line or within 100m from any watercourse, estuary, borehole or well. - Hydraulic fluids must be stored in a designated area with a concrete lined surface with bund walls to contain spillages and reclain withou any impacts on the surrounding land. - The NEM: Waste Act (Act 59 of 2008) pertaining to the disposal of waste must be adhered to. - Any pollution incidents must be reported to the Provincial Head: Department of Water and Sanitation within 24 hours.		
Communities					
Dept. Land Affairs	X				
Department of Rural Development and Land Reform	X	Written 27/01/2016	There is no restitution claim in respect of the affected property on the database of the Office of the Regional Land Claims Commissioner.	No response required.	Appendix 3

			No comments were received on the draft BAR and EMPr.	An electronic copy of the draft BAR and EMPr was provided to the Department of Rural Development and Land Reform.	
Traditional Leaders					
Dept. Environmental Affairs	X				
Department of Economic, Small business development, Tourism and Environmental Affairs	X	Written 9/11/2015 Written 18/03/2016	A permit for the removal of specimens of Wild olive and the Carrion flower within the affected area was approved. DESTEA is satisfied with the Specialist Studies that were conducted and the proposed management measures included in the EMPr. The Department has not objections to the proposed project provided that further comments raised during the Public Participation process are addressed to the satisfaction of the issuing authority.	A letter requesting extension of the validity of the permit was submitted to DESTEA FS. The draft BAR and EMPr was submitted to DESTEA EIA Division for comment. All comments received throughout the process were noted and included in the final BAR and EMPr. Management measures for the issues raised were included in the final EMPr where required.	Appendix 4 Appendix 3
Other Competent Authorities affected	X				
Free State Department of Agriculture and Rural Development	X	Telephonic 16/11/2015 Dated 18/11/2015 received 16/03/2016	Request for site inspection to investigate the agricultural value of the site. The Directorate Land Use and Soil Management indicated that: - There is no objections against the proposed EIA. - The farm consisting of 33.6ha of natural veldt with soil depths ranging from 100mm to 500mm and undergound rocks to a depth of 85m is not an economical	A site inspection with the department was undertaken on 17/11/2015 The draft BAR and EMPr was provided to the Department of Agriculture and Rural Development for comment.	Appendix 3; Part B: EMPr Report

			farming unit at present with unpalatable grass species. The proposed change in scope of the operation is recommeded. There is no objection against the proposed mining activity. A permit for change in land use and also the mining permit for the related activity should be applied for through the relevant authorities (DMR and Mangaung Metro).	The activities and management measures related with the scope of works have been incorporated within the BAR and EMPr. A mining permit in terms of the MPRDA, 2002 (Act 28 of 2002) has been applied for as part of the Environmental Authorisation process in terms of NEMA, 1998 (Act 107 of 1998). The need for an application for a change in land use will be investigated and dependant on the comments from Mangaung Metro and DMR.	
		Dated 22/02/2016 received 16/03/2016			
South African Heritage Resources Agency	X		No comments received up to date.	The proposed project was registered on SAHRIS and the required heritage assessment reports were uploaded for SAHRA's comment.	
OTHER AFFECTED PARTIES					
Mr Frikkie Albertse		Public meeting 23/11/2015	Main concerns regarding the proposed development are the potential impact of blasting on infrastructure in the area. Dust generation from the existing operation on the adjacent property is problematic.	Minutes of the meeting held 23/11/2015 was provided to Mr Albertse also indicating the opportunity to submit further comments. A meeting was held with Karibu Quaries B Pty Ltd to discuss the management of the existing borrow pit to limit dust generation and plans for the future rehabilitation of this operation on closure. The public meeting held 27 January 2016 was held with neighbours to provide feedback on the environmental assessment, to explain the management measures developed for implementation to prevent and/or limit the impacts expected to be	Appendix 3; Part B: EMPr Report

		No comments were received on the draft BAR and EMPr.	associated with the proposed operation, as well as to provide the neighbours with more information regarding the operational procedures to be undertaken. This included amongst other the management/mitigation of the visual impacts, dust generation, blasting and water use. Mr Albertse made apology for not attending the meeting. The draft BAR and EMPr was provided to Mr Albertse for comment.	
Jaco Albertse	Public meeting 23/11/2015 Public meeting 27 January 2016	Dust generation from the existing operation on the adjacent property is problematic. Main concerns regarding the proposed development are the potential impact of blasting on infrastructure, especially boreholes as water is limited in the area. No comments were received on the draft BAR and EMPr.	Minutes of the meeting held 23/11/2015 was provided to Mr Albertse also indicating the opportunity to submit further comments. A meeting was held with Karibu Quaries B Pty Ltd to discuss the management of the existing borrow pit to limit dust generation and plans for the future rehabilitation of this operation on closure. The public meeting held 27 January 2016 was held with neighbours to provide feedback on the environmental assessment, to explain the management measures developed for implementation to prevent and/or limit the impacts expected to be associated with the proposed operation, as well as to provide the neighbours with more information regarding the operational procedures to be undertaken. This included amongst other the management/mitigation of the visual impacts, dust generation, blasting and water use. The draft BAR and EMPr was provided to Mr Albertse for comment.	Appendix 3; Part B: EMPr Report

Arie Beukes	Public meeting 23/11/2015 Public meeting 27 January 2016	The main concern regarding the new proposed quarry is the generation of dust and the possible effect this might have on the management and expansion of the overnight facilities of the Methodist Church of SA. There was also a concern regarding the possible effect of blasting on the infrastructure and boreholes. No comments were received on the draft BAR and EMPr.	Minutes of the meeting held 23/11/2015 was provided to Mr Beukes also indicating the opportunity to submit further comments. A meeting was held with Karibu Quaries B Pty Ltd to discuss the management of the existing borrow pit to limit dust generation and plans for the future rehabilitation of this operation on closure. The public meeting held 27 January 2016 was held with neighbours to provide feedback on the environmental assessment, to explain the management measures developed for implementation to prevent and/or limit the impacts expected to be associated with the proposed operation, as well as to provide the neighbours with more information regarding the operational procedures to be undertaken. This included amongst other the management/mitigation of the visual impacts, dust generation, blasting and water use. The draft BAR and EMPr was provided to Mr Beukes for comment.	Appendix 3; Part B: EMPr Report
CJ Lups	Public meeting 27 January 2016	The main concerns include safety, visual impact and potential affect of blasting on infrastructure and especially boreholes. Mr Lups indicated during the meeting that his questions and main concerns were dealt with in terms of management measures to be implemented to limit the potential impacts during the operation.	The public meeting held 27 January 2016 was held with neighbours to provide feedback on the environmental assessment, to explain the management measures developed for implementation to prevent and/or limit the impacts expected to be associated with the proposed operation, as well as to provide the neighbours with more information regarding the operational procedures to be undertaken. This included amongst other the management/mitigation	Appendix 3; Part B: EMPr Report

		No comments were received on the draft BAR and EMPr.	of the visual impacts, dust generation, blasting and water use. The draft BAR and EMPr was provided to Mr Lups for comment.	
INTERESTED PARTIES				

iv) The Environmental attributes associated with the alternatives. (The environmental attributed 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).

Also refer to the specialists reports attached in Appendix 5.

Geographical character:

- The proposed property is situated approximately 10km north-east of Bloemfontein following the N1 road towards Johannesburg in the quarter degree square 2826CD. The proposed and alternative sites has an altitude ranging between approximately 1382 and 1402m.
- The study area is located in the Upper Orange Water Management Area and is situated in quaternary catchment C52G.

Physical character:

- The geology of the area consists of intrusions of igneous rock (i.e. dolorite) sills and dykes in sedimentary rock (i.e. layers of mud stone and sandstone) of the Beaufort Group (Adelaide Subgroup). The soils of dolerite outcrops are of the Mispah and Glenrosa soil forms.
- According to Mucina and Rutherford (2006) the site is situated in a summer rainfall area of approximately 495mm/annum and a mean annual temperature of 15.3 degrees celsius.
- According to the ecological and wetland survey, there are no wetlands or well-developed drainage lines on site with the nearest drainage line approximately 300m to the north-west of the study area draining in a south-westerly direction.
- According to wind data for the period 2010 - 2015 received from Weather SA for the nearest weather station to the site, i.e. Glen College AWS (0293597A6), the main wind direction in the area ranges from south-east to east, mainly being from a east-south-easterly direction (refer to Appendix 6). However, stronger winds tend to be from a west to north-north-westerly direction.

Biological character:

- According to the ecological and wetland survey, the study area for the preferred and alternative sites affected by the proposed development are situated in the Winburg Grassy Shrubland (Gh 7) (classified to be Least Threatened). The study area has vegetation of natural dry low shrubland with some disturbance especially along fences. None of the sites are situated in sensitive ecosystems of plant communities with a LOW sensitivity and LOW conservation value.
- No Red or Orange List species were found on either site. Two protected plant species, i.e. Wild Olive (Olea eoropaea subsp. africana) and a Carrion flower (Stapelia grandiflora) occur in the study area, especially along the ridge along the eastern boundary of the proposed site. Important species in the study area also include Shrubs: Buddleja saligna, Searsia erosa, S. ciliata; Grasses: Aristida congesta, Eragrostis lehmanniana, E. superba, Themeda triandra, Heteropogon contortus, Enneapogon scoparius; and Dwarf shrubs including: Felicia muricata, Sutera halimifolia and others.
- Alien plant species in the study area include Prosopis (Prosopis glandulosa), Pepper trees (Schinus molle), Pine trees (Pinus spp.), Argemone mexicana, Datura stramonium, Tagetes minuta, Bidens bipinnata and Conyza bonariensis.

Socio-economic character (Data obtained from the 2011 census):

- According to the 2011 census, 747 431 people resides in Mangaung with a population group of 83.3% black african persons, 5% coloured persons, 0.4% indian/asian persons, 11% white persons and 0.3% classified as other. Mangaung has a population growth rate of 1.47% (2001-2011).

- Of the total population in Mangaung, 52% is female and 48% is male and 5.3% is elderly (i.e. persons 65 years and older), 26.9% are children (i.e. persons younger than 15 years) and 67.8% between the ages of 15 and 64 (working age). Of the 292 971 economically active people, 27.7% are unemployed.
- Mangaung is the largest contributor to the GDP of the Free State Province with the following main industries: Agriculture, forestry and fishing; mining and quarrying; manufacturing; electricity, gas and water; construction; wholesale and retail trade; transport, storage and communication; finance, real estate and business services; and general government services. According to the 2011 census, mining and quarrying has increased in the Mangaung Metropolitan from 0.0% in 1996 to 0.1% in 2011.
- It is estimated that 63.4% of households earned less than R3 200.00/month in 2010 with the largest income group (25%) earning between R1 600.00 and R3 200.00/month while the weighted average income in Mangaung was R5 183.00.
- Although 84.4% of the population in Mangaung resides in formal housing, Bloemfontein has a huge housing backlog which stood at approximately 53 820 houses in Mangaung in 2010. More than half of the metro's population resides in Bloemfontein (Mangaung Metropolitan IDP 2013-2014). Thus there is a great need for the development of infrastructure in Bloemfontein and the bigger Mangaung Metropolitan.
- There is no economic activity currently undertaken on the affected property. Current known economic activities within a 1km radius from the centre of the proposed and alternative sites on neigbouring properties include farming, overnight facilities, existing borrow pit and crusher and a business repairing water pumps and borehole equipment.

Cultural character:

- There are no tribes and/or communities on or in close proximity of the affected property. According to the Office of the Regional Land Claims Commission: Free State, there is no restitution claim on their database in respect of the affected property.
- According to the Phase 1 Archaeological Impact Assessment the study area is located between archaeologically significant alluvial sediments of the Modder River 5km to the north and rich cultural remains previously recorded around the northern outskirts of Bloemfontein. This includes remains of Anglo Boer War remnants, graveyards and historical structures. However, there is no evidence of in situ Stone Age arcaeological material, capped or distributed as surface scatters on the landscape. There is also no indication of prehistoric structures, rock engravings, graves or historical buildings older than 60 years within the study area. The study area is not considered archaeologically vulnerable and are rated Generally Protected C (GP.C).
- According to the Phase 1 Palaeontological Impact Assessment, the local palaeontological footprint is primarily represented by Late Permian Karoo vertebrate fauna and Late Cenozoic mammalian fossils. However, the study area is located on dolerite bedrock capped by palaeontologically sterile soils. The study area is not palaeontologically significant and is rated Generally Protected C (GP.C).

(b) Description of the current land uses.

In general, the plains in the surrounding area are mostly used for crop farming and grazing. The current land use within a 1km radius from the centre of the study area on neigbouring properties include farming, dwelling, overnight facilities, existing borrow pit and crusher and a business repairing water pumps and borehole equipment.

Although the affected property was previously used for farming, no active farming activities e.g. grazing/crops are currently undertaken on the property. There is an existing vehicle track and an unused cement reservoir on the property. As a result of the relative small size of the property (i.g. 33.6189 ha) and the large area with rocky outcrops that has no potential for crops and limited potential for grazing, the property cannot be regarded as an economic viable farming unit on its own.

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

Also refer to the specialist reports in Appendix 5.

The proposed site for the development is located on the northern slope of a dolerite hill. There are no drainage lines or wetlands on either the preferred or alternative site.

There is an existing vehicle track on the property extending to the proposed development site. An unused cement reservoir is situated within the study area falling within both the preferred and alternative site.

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

Refer to Figure 4 in Appendix 2.

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).

Refer to the Environmental Impact/Risk and Management Report in Appendix 7 for the nature, significance, extent, duration and probability of the expected potential impacts.

The potential impacts expected to be associated with the proposed quarry include the following:
- Clearance of vegetation
- Collection of protected plant species
- Habitat loss and effect on the general biodiversity
- Establishment of alien vegetation
- Erosion and loss of topsoil
- Change of topography and drainage lines and potential back disturbance of seasonal streams as a result
- Slope instability
- Dust generation
- Elevated noise levels
- Health and safety risk to employees as a result of machinery, blasting, excavation areas, etc.
- Safety risk for road users and degradation of the road due to an increase in heavy vehicles on the gravel access road
- Spillage of potential hazardous substances (e.g. fuel and oil) to the surrounding environment and ultimate seepage into the groundwater
- Potential damage to infrastructure of neighbours due to blasting
- Impact on the general aesthetics of the area and immediate visual impact
- Risk of veld fires
- Positive impact on employment opportunities and skills development

The main concerns raised by I&APs and stakeholders during consultation included the following:
- The potential impact of blasting on infrastructure, especially their boreholes.
- Dust generation
- Visual impact
- Safety risk

- Soil erosion
- Distance of the mining operation and associated activities from any water resource, borehole, well and banks of a river
- Implementation of storm water management measures
- Spillage and subsequent pollution of potential hazardous substances
- Waste management
- Reporting of pollution incidents
- Change in land use

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).

The criteria for determining the impact significance using systematic generic and judgemental citaria specified in the "DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5, Department of Environmental Affairs and Tourism (DEAT)" was used to rate the above concerns raised by I&APs during the consultation process as well as all identified impacts expected to be associated with the proposed development. Refer to Appendix 7 for an indication of the critaria.

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)

Proposed property (There was no alternative property investigated as part of this application.)

Advantages:
- The applicant is a director of Karibu Quaries B Pty Ltd who ownes the property, i.e. Portion 9 (of 6) of the farm Mimosa Glen 885, Mangaung Metropolitan.
- The property is in close proximity to Bloemfontein and clientele for the delivery of dolerite for construction purposes.

Disadvantages:
- There is an existing borrow pit towards the south-east of the affected property. A cumulative impact on the general aesthetics of the area as well as nuisance dust is likely. However, the mining permit for the existing borrow pit lapses in the near future. After decommissioning, the mining area will be rehabilitated and an application for closure will be required. It is expected that the cumulative impacts from dust and on the aesthetics of the area will be low once the existing disturbed area has been rehabilitated.

Proposed locality

Advantages:
- Positive impacts include a very good dolerite resource extending to a depth of approximately 80m. The layer of topsoil and overburden to be removed ranges between 0.5m - 2m. This will result in a great economic benefit and minimum operational costs due to the shallow layer of topsoil and overburden.

- Due to the type and scale of the activities that will be associated with the proposed operation, as well as the distance from surrounding dwellings, the potential noise impact is expected to be low.
- Considering that the main wind direction in the area ranges from an easterly to a south-easterly direction, nuisance dust towards the nearest neighbours situated towards the south-east will be low and is only expected to occur during high wind conditions blowing from a north-westerly direction.
- Ten permanent job opportunities will be created with the proposed quarry.
- The existing access road will be used.

Disadvantages:
- Protected plant species (i.e. Wild Olive and a Carrion flower) occur on the proposed site. Should mining extent over the entire footprint of 4.9ha all the specimens within the boundary of the site will be affected and will require relocation or will be damaged.
- The elevation of the proposed site is considerable higher than the gravel road to the east of the site used by neighbouring farmers to gain access to their farms. It is expected that the eastern face of the quarry will be visible from the road. In addition, the eastern boundary of the proposed site will cut into the ridge of the hill which may have a significant impact on the general aesthetics of the area.
- Due to the relative steep gradient of the site, erosion is likely if proper management measures are not implemented.

Alternative locality

Advantages:
- The alternative site for the proposed development is situated more towards the south-west of the same property. It is expected that the potential impact on the protected species will be limited and/or avoided as most of these specimens were recorded against the ridge, part of which falls within the proposed site. Only a few isolated specimens will require relocation from the alternative site.
- The alternative site is situated further to the west and thus further away from the ridge of the hill and the elevation of the eastern boundary of the alternative site will be up to 5m lower than that of the initial proposed site. It is expected that the potential impact on the overall aesthetics of the area will be less significant on the alternative site, especially considering that excavation will not extent into the ridge.
- The potential impact from erosion is expected to be lower than at the proposed site due to the lower gradient of the upper reaches of the site.
- Due to the type and scale of the activities that will be associated with the proposed operation, as well as the distance from surrounding dwellings, the potential noise impact is expected to be low.
- Considering that the main wind direction in the area ranges from an easterly to a south-easterly direction, nuisance dust towards the nearest neighbours situated towards the south-east will be low and is only expected to occur during high wind conditions blowing from a north-westerly direction.
- Ten permanent job opportunities will be created.
- The existing access road will be used.

Disadvantages:
- It is expected that the layer of overburden on the alternative site ranges from 1m - 6m. This will result in a thicker layer of topsoil and overburden to be excavated before mining of dolerite can commence, thus resulting in higher operational costs.
- Although the potential impact is expected to be lower than at the proposed site, erosion is likely to occur if proper management measures are not implemented.

Proposed site layout

Advantages:
- It is expected that the environmental impacts will be limited and managed and/or mitigated more effectively if the operation is undertaken in 50m strips from west to east. This will allow for concurrent rehabilitation and will limit the exposed areas.
- The lowering of the crusher and screens into the quarry once it has been lowered to a level below the current groundlevel will limit the visual impact from the road. It is also expected that the distribution of dust generated during the operation will be screened by the surrounding elevated areas.

- If the crusher is situated at a lower level within the quarry, the handling of material will be limited as excavated material will be processed immediately. There will be no need to transport unprocessed material via truck or conveyor to the surface for processing.
- It is not foreseen that the crusher will have to be moved in future if it is situated on a stable lowered platform created for this purpose and if proper planning has been made in terms of the locality thereof.

Disadvantages:
- Damming of water at the crusher is likely if the level where the crusher is situated is lower than the surrounding stockpile and excavation areas.
- A large area will have to be mined out first in order to create a stable lowered platform before the crusher and screens can be place in the quarry.

Alternative site layout

Advantages:
- The placement of the crusher and screens on the current groundlevel will not necessitate the mining of an area to lower the crusher in the quarry before crushing can commence.

Disadvantages:
- The operational costs will be very high due to an increase in the handling of material as transportation of unprocessed material to the crusher situated outside the quarry will be required and possibly again to the stockpile area after processing.
- As excavation is planned to progress towards the east of the mining permit area, it is anticipated that the need to move the crusher and screens in order to mine material in the specific area might arise in future. This will result in additional costs and standing time. Or alternatively this area will not be mined and a loss of possible income might be incurred.
- The visual impact resulting from the crusher and screens on the current groundlevel is expected to be significant, especially from the gravel road situated towards the west of the study area.

The no-go alternative

Advantages:
- Positive impacts include no potential impacts on the vegetation, the aesthetics of the area, or the generation of dust and elevated noise levels. No potential impact on infrastructure will occur as a result of blasting.

Disadvantages:
- Negative impacts include the loss of the opportunity for commercial development and income as a result together with the providing of dolerite for the increased need for infrastructure in Bloemfontein and surroundings.
- Ten job opportunities will be lost.

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 mitigations 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 main concerns raised by I&APs and stakeholders during consultation included the following:
- The potential impact of blasting on infrastructure, especially on their boreholes
- Dust generation
- Visual impact
- Safety risk
- Soil erosion
- Distance of the mining operation and associated activities from any water resource, borehole, well and banks of a river

- Spillage of potential hazardous substances and subsequent pollution to water resources
- Waste management
- Change in land use

The possible mitigation measures include the following:

- Overburden and topsoil from the first mining strip will be stockpiled to the west of the mining area. The stockpiles will be shaped and revegetated to limit the visual impact from the gravel road.
- If the alternative site is considered for approval, the visual impact is expected to be lower than at the proposed site.
- The affected property are fenced and access control to the mining area will be implemented to prohibit ilegal entrance to the mining area.
- On closure, the slopes of the mining area will be stabilised and the opencast area will be fenced in accordance with the specifications of DMR to limit the safety risk.
- Blasting will be undertaken by a certified blast operator. The expected zone of influence will be identified and monitoring meters will be placed at infrastructure of the neighbours situated within the specified zone in order to measure the vibration levels and detect any potential damage as a result of a blast event at the proposed operation.
- The boreholes in close proximity of the proposed operation can be tested before and after blasting to identify any potential damage on the borehole as a result of blasting at the proposed operation. If damage can be proven, the applicant will drill a new borehole for waster supply on his/her costs.
- Adjacent neighbours will be informed in advance of any blasting to be undertaken.
- The gravel access road from the offramp to the entrance of the affected property will be maintained by the applicant.
- It is proposed that the crusher and related structures be placed within the quarry once the first strip has been lowered and a stable platform has been created. This is expected to limit the visual impact as well as impact from dust generation.
- Dust generating activities will be limited and/or stopped during high wind conditions.
- Concurrent rehabilitation will be undertaken to limit the area exposed to the natural elements and thereby possibly increasing environmental impacts and residual impacts.
- Monthly dust monitoring will be undertaken during the operation.
- Dust suppression through water spraying will be undertaken at the crusher.
- Storm water management measures such as berms will be implemented to divert clean storm water around the operational area. The storm water management measures will also assist to mitigate erosion on site.
- The existing gravel access road to the preferred site will be graded and appropriate storm water management measures through berms and channels will be implemented to manage storm water on the road and to prevent and.or limit erosion along the access road.
- Daily visual checks for signs of erosion will be undertaken by the site manager and any erosion will be repaired and measures implemented (e.g. gabions) to to prevent reoccurence of erosion.
- No mining or associated activities will be undertaken within the 1:50 year flood line or within 100m (whichever is closest) to a watercourse, borehole or identified well.
- Toilet facilities will be implemented for use by employees on site.
- No mining activity will be undertaken within 100m of the banks of a river.
- Any potential hazardous substance (e.g. hydraulic fluids, fuel, oils, etc.) will be stored in a designated bunded area with an impermeable layer to prevent spillage to the surrounding environment and/or water resources. The volume of substance stored shall fall within the specified volumes allowed for storage.
- No waste generated during the proposed operation will be disposed of on site. General waste will be collected in appropriate recepticles and disposed of at the Northern Landfill site in Bloemfontein on a weekly basis or more regularly if necessary. Hazardous waste (if any) will be collected in appropriate receptacles and collected by a certified hazardous waste collection company or disposed of at a facility specially for that purpose.
- The applicant will report incidents of major spillages to the Provincial Head: Department of Water and Sanitation within 24 hours as specified by DWS.

Refer to Appendix 7 for an assessment of the impacts/risks after mitigation as well as for the recommended management measures to be implemented throughout all the phases of the proposed project to limit impacts.

ix) Motivation where no alternative sites were considered.

Refer to Part A, Section 3(h) for a description of the alternatives that were considered during this application for the proposed project.

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

Motivation for the final site layout proposed for this project:

The development of a quarry is proposed for the farm Mimosa Glen 885/9 (of 6), Mangaung Metropolitan. A geologist assessed the said property and after a desktop study was conducted, indicated that the study area has dolorite intrusions of a depth of up to 80m. Although the most economic resource of dolorite for construction purposes occurs on the proposed mining area, it is expected that mining on the alternative site will have lower impacts on the vegetation (especially protected species) of the area and will also limit the visual impact expected to be associated with the proposed quarry.

Surface mining of material through excavation with earthmoving equipment will commence at the western side of the site and will be limited to strips of 50m in width at a time to limit possible aesthetic impacts on the hill and to limit exposed areas subjected to erosion. Mined out strips will be rehabilitated concurrently by backfilling it with the overburden and topsoil from the new operational strip as mining progresses. The topsoil and overburden from the first strip will be placed to the west of the mining permit boundary and revegetated to limit the visual impact from the road.

Blasting to a maximum depth of 12m, but preferably to 9m benches will be undertaken on an area 40m x 40m in size. Once a section of the first strip has been lowered and mined and a stable platform has been created, it is proposed that the crusher and screens be situated within the quarry. This will limit the visual impact and it is also expected that dust generated from the operation will be screened by the surrounding elevated sides of the quarry. The product stockpiles will be adjacent to the crusher.

Also refer to Part A, Section 3(d)(ii) of this document for information on the activities to be related with the operation and to Part A, Section 3(h) for a description of the alternatives that were considered for this project.

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 erer 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.)**

A desktop study of the local area and its known environmental features was done. A site assessment was done by the Environmental Assessment Practitioner (EAP) to identify any potential sensitive features on site, identify potential I&APs and to identify potential environmental impacts on the study area as a result of the activities that will be associated with the proposed development. An ecological- and wetland assessment, as well as first phase Palaentological- and Archaelogical assessments were undertaken on the study area by specialists. Identified I&APs and stakeholders were involved through a public participation process. The

comments and concerns raised by these parties were also considered during the assessment of the potential impacts.

Information gathered from the desktop study, specialist studies and the site assessment informed the recommendation for the final site layout as well as the recommended environmental management and mitigation measures to be implemented throughout all the phases of the operation.

Refer to Appendix 7 for the Environmental Impact/Risk and Management Report for an indication of the process undertaken to assess and rank the impacts/risks expected to be associated with the proposed development at the preferred site and with the preferred site layout. Also refer to this report for an indication of the: i) identified impacts/risks; and ii) assessment of the significance and extent to which it can be mitigated.

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).

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, 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.)	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (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)	**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
This table only includes impacts/risks identified by I&APs. Refer to Tables 8 - 10 in the Environmental Impact/Risk Assessment and Management Report in Appendix 7 for the assessment of all the identified impacts. Refer to Tables 1 - 7 for the criteria used to assess the potential impacts and to Table 11						

for recommended management measures.						
General operational activities	Risk of injury to people and animals entering the mining area	Health & Safety; I&APs	Operational; Decommissioning	Medium	Avoid through access control; Avoid by fencing the mining area; Avoid through rehabilitation	Medium
	Impact on the general aesthetics of the area	Aesthetics; I&APs	Commissioning; Operational	Medium	Remedy through rehabilitation; Limit through site layout; Control through operational procedures	Medium
	Erosion	Aesthetics; Land use	Commissioning; Operational	Low	Remedy through concurrent rehabilitation; Limit footprint; Control through storm water control; Control through slope management; Stop through appropriate topsoil stockpiling; Control through management & monitoring	Low
Material storage (e.g. fuel, oil, gas) and waste disposal	Pollution to water resources	Water	Operational	Medium	Avoid through operational procedures; Stop through management; Remedy through rehabilitation	Low
	Littering	Aesthetics; Land use	Operational	Medium	Avoid through management	Low

Crushing & screening	Dust; Visual	Air quality; Aesthetics	Operational	Medium	Control through operational procedures; Control through dust control; Control through monitoring Remedy through rehabilitation; Limit through site layout	Low
Drilling & blasting	Potential impact on infrastructure and boreholes	Infrastructure; I&APs	Operational	Medium	Control through blast control measures; Limit blast area & depth; Control through monitoring	Medium
Cumulative impacts from the proposed quarry and existing borrow pit	Dust; Visual; Noise	Air quality; Aesthetics; Noise	Commissioning; Operational	Medium	Limit and stop once existing mining permit expires; Control through operational procedures; Control through management and monitoring; Control through dust control; Control through noise control; Remedy through rehabilitation;	Low

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

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):-

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Ecological and wetland survey	1) Application for a water use license as the proposed development will be taking place within 500m from drainage lines and back disturbance of seasonal stream will occur.	A water use license in this regard has not been applied for as the proposed development will not be situated directly in a watercourse/drainage line that will require a Water use 21(c) or (i) in terms of the NWA, 1998 (Act 36 of 1998). Berms will be implemented to divert clean storm water around the quarry to follow original drainage patterns as far as possible.	Part A Section 3(m) Part B Section 1(d) Appendix 5
Ecological and wetland survey	2) Application for permits to remove protected species (i.e. Wild olive and Carrion flower) from DESTEA FS.	X	Part A Section 3(m) Part B Appendix 5

Ecological and wetland survey	3) Erosion control measures must be applied during the operation.	X	Part A Section 3(m) Part B Appendix 5
Ecological and wetland survey	4) Alien weeds must always be eradicated.	X	Part A Section 3(m) Part B Appendix 5
Phase 1 Archaeological Impact Assessment	According to the specialist, the preferred and alternative sites are both rated Generally Protected C (GP.C) and there are no major archaeological grounds to suspend the proposed development.	X	Part A Section 3(h)(iv)(1)(a) Appendix 5
Phase 1 Palaeontological Impact Assessment	According to the specialist, the preferred and alternative sites are both rated Generally Protected C (GP.C). Potential palaeontological impact resulting from excavations within the proposed area is considered very low.	X	Part A Section 3(h)(iv)(1)(a) Appendix 5

Attach copies of Specialist Reports as appendices

l) Environmental impact statement

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

The key findings of the EIA are as follow:

- There are two protected plant species within the study area, namely Wild olive (Olea Europaea subsp. africana) and a Carrion flower (Stapelia grandiflora). No Red or Orange list species were found to occur within the study area.
- The study area is classified to have a LOW sensitivity and LOW conservation value in terms of ecological importance and conservation value.
- There is no wetland or natural stream within the study area.
- There are no objects or artefacts of heritage importance within the study area.
- The development will have both positive and negative social impacts. The main concerns from I&APs in respect with the proposed development of the rock quarry are dust generation, potential impact on infrastructure and boreholes, visual impact and safety risks to persons and animals entering the mining area. The operation will create ten job opportunities.
- The main comments from stakeholders included the implementation of storm water control measures, best practice in terms of the storage of potential hazardous substances to contain any spillage, compliance with the NEM: Waste Act, 2008 (Act 59 of 2008), locality of the operation and associated activities outside the 1:50 year flood-line and 100m away from any water resource and banks of a river and implementation of erosion control measures. No objections against the continuation of the operation were received from stakeholders.
- There are no environmental fatal flaws that prevent the continuation of the proposed quarry.
- It is expected that the identified potential impacts can be managed and mitigated provided that it is undertaken on the alternative site and preferred site layout and that all recommended management and mitigation measures are implemented throughout all the phases of the operation.
- The cumulative visual and dust impact as a result of the proposed quarry and the existing borrow pit will be limited as the mining permit for the existing borrow pit lapses in the near future. The required rehabilitation of the disturbed areas will enhance the overall aesthetics of the area and reduce dust generation.
- The cumulitive significance of the negative potential environmental impacts is considered to be low due to the type and scale of the development and is manageable.

(ii) Final Site Map

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

Refer to Figure 3 attached in Appendix 2.

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

Proposed quarry on preferred site/layout (This option refers to the development of a quarry on the alternative site and the preferred site layout with the crusher situated within the quarry at a level below the current groundlevel.)

Positive impacts:
- Ten permanent job opportunities will be created.
- Limited distribution of dust to the surrounding area
- Limited visual impact
- The relocation of the crusher will not be required in future
- Lower operational costs in terms of the handling of material
- Prevent and/or limit impact on protected species significantly
- Practical management measures in terms of erosion are possible

Negative impacts:
- Higher operational costs in terms of the removal of overburden
- Possible loss of topsoil
- Possible erosion
- Dust generation
- Noise
- Fly rock and dust from blasting
- Potential damage to infrastructure
- Local impact on the topography
- Change in natural drainage of storm water
- Abstraction of groundwater
- Risk in pollution due to spillages
- Health and safety risks

Alternatives that were considered in terms of the locality and site layout (This entails the development of the quarry on the proposed site and placement of the crusher on the current groundlevel.)

Positive impacts:
- Lower operational costs in terms of the removal of overburden and placement of the crusher
- Ten permanent job opportunities

Negative impacts:
- Higher operational costs in terms of the handling of material
- Significant visual impact
- Destruction of vegetation and impact on protected plant species
- Possible loss of topsoil
- High likelihood of erosion due to steep gradient
- Dust generation
- Local impact on the topography
- Change in natural drainage of storm water
- Noise
- Fly rock and dust from blasting
- Risk in pollution due to spillages
- Abstraction of water required for dust suppression
- Health and safety risks
- High possibility that the crusher will need to be relocated in future

The no-go alternative:

Positive impacts:
- No potential impacts on the environment, aesthetics of the area, vegetation and generation of dust.

Negative impacts:
- Loss of the opportunity for commercial development and income
- Loss of the opportunity to provide dolerite aggregate for Bloemfontein and surrounding areas.
- Ten job opportunities will be lost.

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 conditions of authorisation.

The main impact management objectives and outcomes are as follow:

- To ensure that environmental Best Practice is implemented in terms of the management and mitigation of environmental impacts throughout the operation.
- To implement management measures and develop sustainable mining methods to limit and/or prevent the potential environmental impacts expected to be associated with the proposed operation to a minimum.
- To ensure compliance with the relevant environmental legislation.
- To obtain the necessary Environmental Authorisations.
- To implement mining methods in such manner that the end land use and rehabilitation objectives are reached at closure of the operation.
- To undertake concurrent rehabilitation of mined out areas to limit further environmental impacts and also limit the final rehabilitation costs.
- To create environmental awareness to all personnel on site.

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

Management of the following:
- Dust generation
- Storm water drainage
- Erosion control measures
- Removal of vegetation and topsoil prior to disturbing an area
- Implement appropriate waste management and the seperation of waste streams
- Management of spills
- Appropriate stockpiling of topsoil for re-use during rehabilitation
- Revegetation of rehabilitated area with natural occurring vegetation if it is found that vegetation has not established satisfactory.

The applicant shall submit environmental performance assessments and a revised quantum in accordance with the NEMA Regulations on Financial Provision for mining, 2015.

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

(Which relate to the assessment and mitigation measures proposed)

During the assessment and development of the management measures, it was assumed that the information provided by the applicant, input from I&APs and stakeholders and assessment by specialists were true, correct to the best of their knowledge and unbiased.

Although a geologist has done a site survey on the property to determine if there is a dolerite resource on the property, the exact extent of the resource is uncertain. Apart from the depth of overburden that will differ, it is assumed that the entire study area has the same consistant dolerite resource that would be suitable for construction purposes. The amount of material to be blasted and extracted per annum are estimated on this assumption.

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

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

There are no environmental fatal flaws with regards to the continuation of the proposed quarry, provided that it is undertaken on the alternative site and that all recommended management and mitigation measures are implemented throughout all the phases of the operation.

ii) Conditions that must be included in the authorisation

- Erosion control measures must be applied during the operation.
- Alien weeds must be eradicated and removed prior to seeding.
- Excavation activities should stop and the provincial department of SAHRA be contacted immediately should any artefact or object of archaeological or palaeontological importance be discovered during the operation.
- The access road to the operation should be maintained and appropriate storm water control measures should be implemented on the road.
- Topsoil should be removed and stockpiled for use during rehabilation.
- Overburden and topsoil from each strip as mining progresses should be backfilled in mined out voids to rehabilitate concurrently.
- The sides of the quarry should have benches with a maximum vertical face of 3m with a horizontal step of 4m in width as far possible.
- An Environmental Control Officer should conduct environmental audits on at least a bi-annual basis to verify compliance with the management measures stipulated in the BAR, EMPr and conditions in the Environmental Authorisation (if considered for approval).
- An application for permits to relocate protected species (i.e. Wild olive and Carrion flower) should be submitted to DESTEA FS should any protected species be affected by the proposed development.
- Any blasting activities should be undertaken by a certified blast operator and the adjacent neighbours should be informed in advance of a blast event.
- Blasting to a maximum depth of 12m at a time.
- An application for a water use license should be submitted to Department of Water and Sanitation in terms of any water use.
- Monthly dust monitoring should be conducted to ensure compliance to the standards of allowed Particular Matter as well as to identify the areas of impact for implementation of appropriate management measures.

q) Period for which the Environmental Authorisation is required.

This application for Environmental Authorisation is for a listed activity requiring a mining permit in terms of Section 27 of the MPRDA, 2002 (Act 28 of 2002). Mining is a temporary activity and currently a mining permit is valid for two years after which the permit can be renewed annually for another 3 years. The Environmental Authorisation is thus required for at least 5 years, dependant on the regulations and

requirements in terms of NEMA, 1998 (Act 107 of 1998) and regulations at the time that the permit reaches its expiry date. After decommissioning, application for Environmental Authorisation for closure will be applied for.

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 by the applicant to comply with this BAR and EMPr is provided at the end of the EMPr and is aplicable to the BAR and the EMPr.

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 quantum for financial provision was calculated in accordance with DMR's guideline titled "Guideline document for evaluation of the quantum of closure-related financial provision provided by a mine", dated 2005 considering the latest master rates in Section B as well as current rehabilitation costs. Please note that the quantum was revised to include the crusher and associated structures subsequent to the change in the scope of the proposed project.

The calculated cost for final closure of the operation by the applicant (i.e. Sub-total 1 of the Quantum) is R165 845.29. As concurrent rehabilitation of mined out voids will be undertaken during the Operational Phase of the proposed quarry, it is anticipated that the final amount required for rehabilitation will be significantly lower. The calculated cost for current environmental liability by a Third Party (i.e. Grand Total of the Quantum plus VAT) is R242 190.51.

ii) Confirm that this amount can be provided for 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).

An ammount of R64 000.00/annum was estimated for environmental costs during the Operational Phase of the proposed project which includes amongst other the cost for concurrent rehabilitation. This will be incorporated in the annual operational cost and will not be included in the financial rehabilitation. Refer to Appendix 8 for a copy of the quantum calculation.

The amount required for financial provisioning in respect of rehabilitation by the applicant and concurrent rehabilitation costs during the operation are included in the operating expenditure. Refer to the Financial and Technical Competence Report as part of this application for Environmental Authorisation.

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** .

There are no tribes and/or communities on or in close proximity of the affected property. There is also no land claim on the affected party.

The landowner of the affected property is Karibu Quaries B (Pty) Ltd. There is a lease agreement between the applicant and the landowner. The landowner supports the proposed development.

Refer to the "Report on the results of consultation" submitted to DMR in respect of an application for Environmental Authorisation for the proposed quarry on the affected property for information on the potential impact on the socio-economic conditions of adjacent landowners.

(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 that 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).

A Phase 1 Archaeological Impact Assessment and Phase 1 Palaeontological Impact Assessment was undertaken as part of the heritage assessment for the proposed development. According to the specialist both the archaeological and palaeontological impact for the preferred and alternative sites are considered to be very low. The sites are rated Generally Protected C (GP.C). The minimum management measures will be implemented should any archaeological- or palaeontologial objects be unearthed during the operation. Refer to Appendix 5 for the specialist's reports.

u) Other matters required in terms of sections 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)**.

Refer to Part A, Section 3(h) for a description of the alternatives that were considered during this application for the proposed project.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Draft environmental management programme.

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

Details of the EAP is provided in Part A, Section 1(a). Also refer to Appendix 1 attached hereto.

b) **Description of the Aspects of the Activity** (Confirm that the requirement 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 proposed activity were described in Part A, Section (1)(h) of this report.

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)

Refer to Figure 3 in Appendix 2.

d) **Description of Impact management objectives including management statements**

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

The closure objectives took into account the current status quo of the environment, the potential impacts expected to be associated with the proposed development as well as the end land use potential after decommissioning of the operation.

The closure objectives are to:

- Rehabilitate the area disturbed by the operation and related activities to at least a self-sustaining ecosystem, expected to be an artificial water environment.
- To rehabilitate the quarry to a post mining environment that is safe and with stable surfaces.
- To limit and/or reduce any residual impacts after decommissioning of the operation.
- To reduce the need for long-term monitoring and maintenance.
- Obtain a closure certificate after decommissioning of the mining activities.

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

1000 litres per day for dust suppression.

Section 1(d)(iii) Has a water use license been applied for?

An application for a Water Use License (WULA) for the use of water during the operation for a volume of 1000 liters per day was submitted to the Department of Water and Sanitation (DWS) for processing. Refer to Appendix 4 for proof of submission of the WULA submitted to DWS for processing. Also refer to Appendix 5 for the report from the geohydrologist regarding the yield from the identified borehole proposed for abstraction of water.

Note that a water use license as recommended by the ecologist regarding the back disturbance of a seasonal stream has not been applied for as the proposed development will not be situated directly in a watercourse/drainage line that will require a Water use 21(c) or (i) in terms of the NWA, 1998 (Act 36 of 1998). Berms will be implemented around the quarry to divert clean storm water around the quarry to follow original drainage patterns as far as possible.

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

iv) Impacts to be mitigated in their respective phases

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

ACTIVITIES **(E.g. For prospecting -** drill site, site camp, ablution facility, 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.)	**PHASE** (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	**SIZE AND SCALE of disturbance** (volumes, tonnages and hectares or m²)	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** (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)	**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.
Site establishment (e.g. clearance of mining area; establishment of structures & equipment)	Commissioning	4.9 Ha (1Ha/phase)	Refer to Appendix 7	Clearance of the site and establishment of equipment will be kept within the perimeters of the permitted mine boundary area.	Management during commissioning phase; Rehabilitation upon cessation of excavation during Closure
Excavation	Operational	4.9 Ha (1Ha/phase)		Excavation will be undertaken within the permitted mine boundary area. Monitoring in terms of the receiving environment will be undertaken to ensure compliance with environmental standards (e.g. air quality) where applicable. The operational	Management during operational phase; Concurrent rehabilitation during operational phase and final rehabilitation during Closure

				procedures will aim to comply with the relevant environmental and Health and Safety legislation.	
Drilling & blasting	Operational	14000 ton/year	Refer to Appendix 7	Blasting will adhere to the conditions of the blast permit and the Explosives Act, 2003 (Act 15 of 2003).	Management during operational phase; Concurrent rehabilitation during operational phase and final rehabilitation during Closure
Loading & hauling	Operational	14000 ton/year		The operational procedures will ensure that minimum dust is generated and that trucks will not be loaded beyond its specified load capacity.	Management during operational phase; Maintenance of access road during operational phase; Rehabilitation of loading area during Closure
Crushing & screening	Operational	0.4Ha	Refer to Appendix 7	Equipment will be placed within the permitted mine boundary area. Dust monitoring will ensure compliance with the PM standards and identify possible areas of concern.	Management during operational phase; Final rehabilitation during Closure
Stockpiling	Operational	0.6Ha		Stockpiles will be placed within the permitted mine boundary area outside any storm water drainage lines.	Management during operational phase; Rehabilitation during Closure
Water use	Operational	1000 l / day (6 day week)	Refer to Appendix 7	The volume of water allocated by DWS for daily abstraction and use will be adhered to.	Management during operational phase; Monitoring during operational phase

Material storage (e.g. fuel, oil, gas) and waste disposal	Operational; Decommissioning	200m2	Refer to Appendix 7	Material will be stored according to best practice as specified for the material type and volume, e.g. fuel. This includes storage in a designated bunded area with an impermeable layer. No waste will be disposed on site. Waste seperation will be undertaken and each waste type (e.g. general waste, hazardous waste) will be managed and disposed of at registered facilities accordingly.	Management during operational phase; Rehabilitation during Closure
General operational activities in respect of I&APs & employees	Operational; Decommissioning	Adjacent landowners	Refer to Appendix 7	Management and monitoring will ensure compliance with environmental standards, e.g. PM standards and noise levels. Adherence to SHE legislation will prevent and limit injuries.	Management during operational phase; Concurrent rehabilitation during operational phase and final rehabilitation during Closure
Rehabilitation (e.g. removal of infrastructure & equipment, reshaping and revegetation of disturbed areas	Operational; Decommissioning & Closure	4.9 Ha	Refer to Appendix 7	The aim of rehabilitation will be to limit environmental impacts, residial impacts, the need for management and monitoring after cessation of mining and to obtain a Closure Certificate after rehabilitation to DMR's specifications.	Concurrent rehabilitation during operational phase and final rehabilitation during Closure

e) Impact Management Outcomes

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

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.**
Site establishment (clearance of mining area; establishment of structures & equipment)	Vegetation and habitat destruction; Establishment of alien vegetation; Erosion and loss of topsoil; Visual; Noise; Loss of agricultural potential	Aesthetics; Land use; Biodiversity; Vegetation; Soil; Noise	Commissioning	Avoid and limit through site locality & layout; Remedy through relocation; Remedy through rehabilitation; Limit footprint; Control through management and monitoring; Control through storm water control; Control through appropriate topsoil stockpiling; Control through operational procedures; Control through noise control	Impact avoided or limited and managed effectively where avoidance is not possible; Acceptable noise levels; Rehabilitate to a self-sustaining environment
Excavation	Local impression in topography; Slope instability;	Topography; Storm water; Soil; Aesthetics; Air	Operational; Closure	Control through operational procedures; Limit footprint; Remedy through concurrent rehabilitation;	Impact avoided or limited and managed effectively where avoidance is not possible; Acceptable noise levels;

	Change in surface water drainage; Erosion and loss of topsoil; Visual; Dust; Noise; Destruction of heritage objects/artefacts	quality; Noise; Heritage		Control through slope management; Control through storm water controls; Stop through appropriate topsoil stockpiling; Control through monitoring; Control through noise control; Avoidance	Compliance with Particulate Matter (PM) standards; Rehabilitate to a self-sustaining environment; No impact on objects/ artefacts of heritage importance
Drilling & blasting	Dust; Noise; Fly rock; Safety & fire risk; Infrastructure damage; Disruption in the local geology	Air quality; Noise; Health & Safety; Biodiversity; Infrastructure; Geology	Operational	Control through dust control measures; Control through blast control measures; Control through monitoring; Remedy through clearance of affected areas; Limit blast area & depth	Impact limited and managed effectively; Once off elevated noise and high dust generation;
Loading & hauling	Dust; noise; deterioration of the gravel road	Air quality; Noise; Infrastructure	Operational	Control through operational procedures; Control through dust control; Control through monitoring; Control through noise control; Remedy through maintenance of the road; Control through speed control	Impact managed effectively where avoidance is not possible; Acceptable noise levels; Compliance with Particulate Matter (PM) standards
Crushing & screening	Dust; Noise; Visual	Air quality; Noise; Aesthetics	Operational	Control through operational procedures; Control through dust control; Control through monitoring; Control through noise control; Remedy through rehabilitation; Limit through site layout	Impact limited and managed effectively; Acceptable noise levels; Compliance with Particulate Matter (PM) standards; Rehabilitate to a self-sustaining environment

Stockpiling	Dust; Visual; Change in surface water drainage; Loss of topsoil; Establishment of alien vegetation	Air quality; Aesthetics; Topography; Storm water; Soil; Vegetation; Biodiversity	Operational	Control through operational procedures; Control through dust control; Control through monitoring; Remedy through rehabilitation; Control and limit through site layout; Control through storm water controls; Control through appropriate topsoil stockpiling; Control through management and monitoring	Impact avoided or limited and managed effectively where avoidance is not possible; Compliance with Particulate Matter (PM) standards; Rehabilitate to a self-sustaining environment;
Water use	Impact on downstream users; Localised disturbance to the geology due to drilling	Water; Geology	Commissioning; Operational; Decommissioning	Control through operational procedures; Control through monitoring; Control by limiting abstraction volume; Limit through drilling method	Impact on downstream users avoided; Comply with volume licensed for abstraction
Material storage (e.g. fuel, oil, gas) and waste disposal	Soil contamination; water pollution; Littering; Fire risk	Soil; Land use; Water; Aesthetics; Health & Safety; Biodiversity	Operational	Avoid through operational procedures and management; Stop through management; Remedy through rehabilitation	Impact avoided or limited and managed effectively where avoidance is not possible; Rehabilitate to a self-sustaining environment; No long-term water quality impact
General operational activities in respect of I&APs & employees	Aesthetics; Risk of injury to persons/animals entering the mining area; Risk of injury	Aesthetics; I&APs; Health & Safety; Community/ Economy	Commissioning; Operational; Decommissioning & Closure	Remedy through rehabilitation; Limit through site layout; Control through operational procedures; Avoid through access control; Avoid by fencing the mining area;	Impact avoided or limited and managed effectively where avoidance is not possible; Rehabilitate to a self-sustaining environment; No fatalities;

	to employees working on site; Job creation & skills upliftment			Avoid through PPE; Avoid through awareness & training to personnel on site; Achieve positive upliftment through continuation with the proposed development, operational procedures and training	Positive impact on the economy and lifestyle of employees
Rehabilitation (e.g. removal of infrastructure & equipment, reshaping & revegetation of disturbed areas, etc.)	Soil contamination; Water pollution; Noise; Positive change in surface water drainage, Erosion & loss of topsoil; Establishment of alien vegetation; Establishment of a self-sustaining ecosystem	Soil; Land use; Water; Noise; Topography; Storm water; Vegetation; Biodiversity; Aesthetics	Decommissioning & Closure	Avoid and control through operational procedures; Stop through management; Remedy through rehabilitation; Control through noise control; Control through storm water control; Control through management and monitoring; Achieve selfsustaining environment through rehabilitation	Impact avoided or limited and managed effectively where avoidance is not possible; Rehabilitate to a self-sustaining environment; Comply with PM standars; Acceptable noise levels; No long-term water quality impact; Positive impact on the environment and end land use

f) Impact Management Actions

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

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)
Site establishment (clearance of mining area; establishment of structures & equipment)	Vegetation and habitat destruction; Establishment of alien vegetation; Erosion and loss of topsoil; Visual; Noise; Loss of agricultural potential	Avoid and limit through site locality & layout; Remedy through relocation; Remedy through rehabilitation; Limit footprint; Control through management and monitoring; Control through storm water control; Control through appropriate topsoil stockpiling;	Management during commissioning phase; Rehabilitation upon cessation of excavation during Closure	Clearance of the site and establishment of equipment will be kept within the perimeters of the permitted mine boundary area.

		Control through operational procedures; Control through noise control		
Excavation	Local impression in topography; Slope instability; Change in surface water drainage; Erosion and loss of topsoil; Visual; Dust; Noise; Destruction of heritage objects/artefacts	Control through operational procedures; Limit footprint; Remedy through concurrent rehabilitation; Control through slope management; Control through storm water controls; Stop through appropriate topsoil stockpiling; Control through monitoring; Control through noise control; Avoidance	Management during operational phase; Concurrent rehabilitation during operational phase and final rehabilitation during Closure	Excavation will be undertaken within the permitted mine boundary area. Monitoring in terms of the receiving environment will be undertaken to ensure compliance with environmental standards (e.g. air quality) where applicable. The operational procedures will aim to comply with the relevant environmental and Health and Safety legislation.
Drilling & blasting	Dust; Noise; Fly rock; Safety & fire risk; Infrastructure damage; Disruption in the local geology	Control through dust control measures; Control through blast control measures; Control through monitoring; Remedy through clearance of affected areas; Limit blast area & depth	Management during operational phase; Concurrent rehabilitation during operational phase and final rehabilitation during Closure	Blasting will adhere to the conditions of the blast permit and the Explosives Act, 2003 (Act 15 of 2003).
Loading & hauling	Dust; noise; deterioration of the gravel road	Control through operational procedures; Control through dust control; Control through monitoring;	Management during operational phase; Maintenance of access road during operational phase; Rehabilitation of	The operational procedures will ensure that minimum dust is generated and that trucks will not be loaded beyond its specified load capacity.

		Control through noise control; Remedy through maintenance of the road; Control through speed control	loading area during Closure	
Crushing & screening	Dust; Noise; Visual	Control through operational procedures; Control through dust control; Control through monitoring; Control through noise control; Remedy through rehabilitation; Limit through site layout	Management during operational phase; Final rehabilitation during Closure	Equipment will be placed within the permitted mine boundary area. Dust monitoring will ensure compliance with the PM standards and identify possible areas of concern.
Stockpiling	Dust; Visual; Change in surface water drainage; Loss of topsoil; Establishment of alien vegetation	Control through operational procedures; Control through dust control; Control through monitoring; Remedy through rehabilitation; Control and limit through site layout; Control through storm water controls; Control through appropriate topsoil stockpiling; Control through management and monitoring	Management during operational phase; Rehabilitation during Closure	Stockpiles will be placed within the permitted mine boundary area outside any storm water drainage lines.
Water use	Impact on downstream users; Localised disturbance	Control through operational procedures; Control through monitoring;	Management during operational phase;	The volume of water allocated by DWS for daily

	to the geology due to drilling	Control by limiting abstraction volume; Limit through drilling method	Monitoring during operational phase	abstraction and use will be adhered to.
Material storage (e.g. fuel, oil, gas) and waste disposal	Soil contamination; water pollution; Littering; Fire risk	Avoid through operational procedures and management; Stop through management; Remedy through rehabilitation;	Management during operational phase; Rehabilitation during Closure	Materials will be stored according to best practice and as specified for the specific material type and volume, e.g. fuel. No waste will be disposed on site. Waste seperation will be undertaken and each waste type (e.g. general waste, hazardous waste) will be managed and disposed of at registered facilities accordingly.
General operational activities in respect of I&APs & employees	Aesthetics; Risk of injury to persons/animals entering the mining area; Risk of injury to employees working on site; Job creation & skills upliftment	Remedy through rehabilitation; Limit through site layout; Control through operational procedures; Avoid through access control; Avoid by fencing the mining area; Avoid through PPE; Avoid through awareness & training to personnel on site; Achieve positive upliftment through continuation with the proposed development, operational procedures and training	Management during operational phase; Concurrent rehabilitation during operational phase and final rehabilitation during Closure	Management and monitoring will ensure compliance with environmental standards, e.g. PM standards and noise levels. Adherence to SHE legislation will prevent and/or limit injuries.

Rehabilitation (e.g. removal of infrastructure & equipment, reshaping & revegetation of disturbed areas, etc.)	Soil contamination; Water pollution; Noise; Positive change in surface water drainage, Erosion & loss of topsoil; Establishment of alien vegetation; Establishment of a self-sustaining ecosystem	Avoid and control through operational procedures; Stop through management; Remedy through rehabilitation; Control through noise control; Control through storm water control; Control through management and monitoring; Achieve selfsustaining environment through rehabilitation	Concurrent rehabilitation during operational phase and final rehabilitation during Closure	The aim of rehabilitation will be to limit environmental impacts, residial impacts and the need for management and monitoring after cessation of mining, as well as to obtain a Closure Certificate once the disturbed areas have been rehabilitated to DMR's specifications.

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 closure objectives took into account the current status quo of the environment, the potential impacts expected to be associated with the proposed development as well as the end land use potential after decommissioning of the operation.

The closure objectives are to:
- Rehabilitate the area disturbed by the operation and related activities to at least a self-sustaining ecosystem, expected to be an artificial water environment.
- To rehabilitate the quarry to a post mining environment that is safe and with stable surfaces.
- To limit and/or reduce any residual impacts after decommissioning of the operation.
- To reduce the need for long-term monitoring and maintenance.
- Obtain a closure certificate after decommissioning of the mining activities.

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

The environmental objectives as described in this report have been consulted with the landowner and adjacent neighbours during a public meeting.

The environmental objectives were included in the draft BAR and EMPr provided to stakeholders for comment.

(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.

Concurrent rehabilitation will be undertaken and the exposed/disturbed areas will be limited in size as far as possible. A strip of 50m at a time will be mined along the width of the site. Any topsoil and overburden will be removed from the area to be disturbed. When the strip is mined out, mining will progress with another strip of 50m towards the east of the site. Topsoil and overburden from the active excavation area will be used to backfill and rehabilitate the mined out strips concurrently. Excavation will

be undertaken in such manner to create 4m horizontal by 3m vertical terraces as far as possible.

Once mining activities have ceased, rehabilitation of the final void and disturbed areas (e.g. stockpile areas) will be undertaken. The unrehabilitated areas at the time of Closure of the operation are foreseen to be approximately 1.5 Ha and will be shaped, topsoiled and revegetated with natural occurring vegetation. The final void estimated to be approcimately 0.5 Ha in size will be made safe and an artificial self-sustaining water ecosystem is proposed for the end land use after rehabilitation. Refer to Figure 5 for an indication of the proposed rehabilitation plan.

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

The Rehabilitation plan was developed with the aim to achieve the closure objectives considering the nature of the impacts expected to be associated with the operation.

If the proposed rehabilitation measures are implemented, it is expected that a stable and self-sustainable ecosystem will be established at closure.

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

The quantum for financial provision was calculated in accordance with DMR's guideline titled "Guideline document for evaluation of the quantum of closure-related financial provision provided by a mine", dated 2005 considering the latest master rates in Section B as well as current rehabilitation costs. Please note that the quantum was revised to include the crusher and associated structures subsequent to the change in the scope of the proposed project.

The calculated cost for final closure of the operation by the applicant (i.e. Sub-total 1 of the Quantum) is R165 845.29. As concurrent rehabilitation of mined out voids will be undertaken during the Operational Phase of the proposed quarry, it is anticipated that the final amount required for rehabilitation will be significantly lower. The calculated cost for current environmental liability by a Third Party (i.e. Grand Total of the Quantum plus VAT) is R242 190.51.

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

The financial provision as calculated in terms of the quantum calculation and as required by the DMR will be provided in respect of this application.

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) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Site establishment (clearance of mining area; establishment of structures & equipment)	Vegetation loss; Collection of protected plant species; Establishment of alien vegetation; Habitat destruction; Erosion; Noise levels; Loss of topsoil; Visual; Loss in agricultural potential	Visual checks; Verify compliance with conditions of the EA and EMPr; Identify non-compliances; Monitor key parameters, e.g. noise levels	Site manager Environmental Control Officer (when required)	Weekly visual checks for erosion, vegetation clearance and collection of protected species. Report environmental incidents immediately. Record incidents and non-compliances monthly. Implement management measures throughout the commissioning phase.
Excavation	Slope instability; Change in surface water drainage; Erosion; Visual impact; Dust; Noise; Destruction of objects/artefacts of heritage importance	Visual checks; Verify compliance with conditions of the EA and EMPr; Identify non-compliances; Monitor key parameters, e.g. dust monitoring	Site manager Environmental Control Officer (when required)	Weekly visual checks for erosion and loss of topsoil. Report environmental incidents immediately. Record incidents and non-compliances monthly. Monitor dust fallout monthly and report results in annual

				environmental performance assessment. Implement the management measures throughout the operational phase.
Drilling & blasting	Dust; Noise; Fly rock; Fires; Damage to infrastructure; Local disruption of geology	Visual checks; Verify compliance with the Explosives Act, conditions of the EA and EMPr; Identify non-compliances; Monitor vibration levels and identify any damage	SHE representative Blast operator Environmental Control Officer (when required)	Report environmental incidents immediately. Report damage to infrastructure once proven. Implement blast control measures and management measures during blasting.
Loading & hauling	Dust; Noise; Deterioration of gravel road	Visual checks of the road; Verify compliance with conditions of the EA and EMPr; Identify non-compliances; Monitor key parameters, e.g. dust monitoring	Site manager Environmental Control Officer (when required)	Weekly visual checks for signs of deterioration of the road. Record incidents and non-compliances monthly. Monitor dust fallout monthly and report results in annual environmental performance assessment. Implement the management measures throughout the operational phase.
Crushing & screening	Dust; Noise; Visual impact	Visual checks; Verify compliance with conditions of the EA and EMPr; Identify non-compliances; Monitor key parameters, e.g. dust monitoring	Site manager Environmental Control Officer (when required)	Report environmental incidents immediately. Record incidents and non-compliances monthly. Monitor dust fallout monthly and report results in annual

				environmental performance assessment. Implement management measures throughout the operational phase.
Stockpiling	Dust; Visual impact; Change in surface water drainage; Loss of topsoil; Establishment of alien vegetation	Visual checks for loss of topsoil and alien vegetation; Verify compliance with conditions of the EA and EMPr; Identify non-compliances; Monitor key parameters, e.g. dust monitoring	Site manager Environmental Control Officer (when required)	Report environmental incidents immediately. Record incidents and non-compliances monthly. Monitor dust fallout monthly and report results in annual environmental performance assessment. Implement management measures throughout the operational phase.
Water use	Impact on downstream water users; Disturbance to local geology due to drilling	Verify compliance with the Water Use License and EMPr; Identify non-compliances; Monitor abstraction volumes	Site manager Environmental Control Officer (when required)	Record non-compliances monthly. Implement management measures throughout the operational phase.
Material storage (e.g. fuel, oil, gas) and waste disposal	Soil contamination; Water pollution; Littering; Fires	Visual checks for contamination, spillages, damaged storage containers and signs of littering; Verify compliance with conditions of the EA and EMPr; Identify non-compliances	SHE representative Site manager Environmental Control Officer (when required)	Report environmental incidents immediately. Report pollution incidents to the Provincial Head: Department of Water and Sanitation within 24 hours. Record incidents and non-compliances monthly.

				Implement management measures throughout the operational phase.
General operational activities in respect of I&APs and employees	Impact on aesthetics; Risk of injury to human and animals	Verify compliance with conditions of the EA and EMPr; Identify non-compliances; Compliants register with comments from I&APs; Visual checks on fences; Log sheets of legal entrances to the mining area; Record of employee awareness training	SHE representative Site manager Environmental Control Officer (when required)	Report environmental incidents immediately. Record incidents and non-compliances monthly. Implement management measures throughout the commissioning, operational and decommissioning phases.
Rehabilitation (e.g. removal of infrastructure, equipment, reshaping & revegetation of disturbed areas, etc.)	Soil contamination; Water pollution; Noise; Change in surface water drainage; Erosion & loss of topsoil; Establishment of alien vegetation; Establishment of a self-sustaining ecosystem.	Visual checks for contamination and spillages; Verify compliance with conditions of the EA and EMPr; Identify non-compliances	Site manager Environmental Control Officer (when required)	Report environmental incidents immediately. Record incidents and non-compliances monthly. Implement management measures throughout the decommissioning phase. Monitor rehabilitated areas for one year after Closure.

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

An environmental audit on at least a bi-annual basis will be undertaken by an Environmental Control Officer to measure compliance with the measures stipulated in the BAR, EMPr and Environmental Authorisation (if considered for approval). A summary of the environmental audit report will be included in the performance assessment report for submission to DMR. The environmental performance assessment and rivision of the quantum will be undertaken on a yearly basis in accordance with the NEMA Regulations on Financial Provision, 2015.

m) Environmental Awareness Plan

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

Induction on environmental awareness will be provided to all permanent and temporary employees as well as sub-contractors (if applicable) at the start of their employment on site.

The induction will contain as minimum:
- The environmental policy of the company;
- The role of each employee to conserve the environment in accordance with the policy;
- The impact that the employee's action or work could have on the environment;
- General measures to be implemented during the operation to prevent environmental impacts, e.g. waste management, dust control, water conservation, etc.;
- Emergency procedures and the individuals to contact in the event of an incident, e.g. major spillage of fuel.

Proof of environmental training/induction will be kept on site and availabe for inspection on request.

(2) Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

Refer to Table 11 in the Environmental Impacts/Risks and Management Report in Appendix 7 for environmental management and mitigation measures to be implemented to limit and/or prevent environmental impacts/risks expected to be associated with the proposed operation.

n) Specific information required by the Competent Authority
(Among others, confirm that the financial provision will be reviewed annually).

The financial provision will be reviewed annually in accordance with the NEMA Regulations on Financial Provision, 2015.

2) UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports ☒

b) the inclusion of comments and inputs from stakeholders and I&APs ; ☒

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

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

Signature of the environmental assessment practitioner:

Name of company:

Date:

-END-