PROPOSED STONE AGGREGATE AND GRAVEL QUARRY ON PORTION OF PORTION 0 OF FARM 94, ABERDEEN, EASTERN CAPE.

DRAFT BASIC ASSESSMENT REPORT

MAY 2026

REFERENCE NUMBER: EC30/5/1/3/2/10980 MP

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EXECUTIVE SUMMARY

The proposed development entails a small-scale open-cast quarry for the extraction of dolerite aggregate to supply regional infrastructure and construction projects. Mining activities will include drilling, controlled blasting, excavation, crushing, screening, and stockpiling.

The operation will be undertaken over an approximate 5 ha footprint and will follow a phased approach to limit disturbance and enable progressive rehabilitation. The anticipated lifespan of the quarry is short-term, linked to project-specific demand, with potential extension subject to permitting.

Access will be obtained from the R61 via a new access road, with internal haul roads connecting operational areas. Power will be supplied via generators and/or solar installations, and water for dust suppression will be sourced from authorised supplies.

Site Context and Environmental Setting

Terrestrial Biodiversity

The site falls within the Nama-Karoo Biome and is characterised by Eastern Lower Karoo vegetation, which is classified as Least Concern. The vegetation within the footprint is largely natural and in good condition, with localised disturbance associated with grazing, historical quarrying activities, and existing tracks.

The terrestrial ecological assessment confirmed:

- Moderate species diversity;
- Presence of several protected plant species, including locally uncommon succulents;
- Absence of threatened plant species; and
- A small portion (approximately 0.6 ha) of the site overlapping with a Critical Biodiversity Area (CBA 2), with the remainder located within an Ecological Support Area (ESA 1).

An alternative layout excluding the CBA 2 portion was considered but was not feasible due to the spatial distribution of economically viable material. Although approximately 0.6 ha of the proposed footprint overlaps with a CBA 2 area, the specialist concluded that the limited extent of the impact is unlikely to significantly compromise the broader CBA, provided that mitigation measures are implemented and that impacts can be reduced to acceptable levels through mitigation.

The overall ecological sensitivity of the site is therefore considered moderate, with impacts expected to be localised and manageable.

Aquatic Environment

No perennial rivers, wetlands, or delineated watercourses occur within the proposed mining footprint. A prominent ephemeral drainage feature is located approximately 500–550 m east of the site, outside of the development area.

Minor ephemeral drainage lines may occur within the broader landscape and along the access route. These features are only active during rainfall events and do not constitute wetlands but are recognised as watercourses in terms of the National Water Act.

Potential impacts on the aquatic environment are expected to be limited and can be effectively managed through appropriate stormwater management and erosion control measures.

Avifauna

The site was identified as having elevated sensitivity for avifauna in the Screening Report due to the potential presence of species of conservation concern. However, specialist field verification confirmed that no such species were recorded within the study area.

Based on site-specific conditions, including disturbance, small footprint, and proximity to existing infrastructure, the sensitivity is considered low to moderate, with impacts expected to be localised and manageable.

Heritage and Palaeontology

A Phase I Archaeological and Cultural Heritage Impact Assessment identified the presence of Stone Age archaeological material within the broader study area, including Early and Middle Stone Age lithic artefacts. These resources are of scientific and cultural significance and require appropriate management.

No graves or built heritage structures were identified within the development footprint.

The Palaeontological Impact Assessment confirmed that, although the broader region has moderate to high palaeontological sensitivity, no fossil material was identified on site, and the underlying dolerite geology is associated with low fossil potential at surface level. Impacts are therefore expected to be low, provided that a Chance Find Procedure is implemented.

Consideration of Alternatives

The Basic Assessment process considered the following alternatives:

- Layout alternatives to minimise environmental sensitivity where feasible;
- Technology alternatives, with conventional quarrying identified as the most practical and appropriate method;
- Operational alternatives, including phased mining and progressive rehabilitation; and
- The No-Go Alternative, which would avoid environmental impacts but result in the loss of socio-economic benefits and sterilisation of the mineral resource.

The preferred layout represents the Best Practicable Environmental Option (BPEO), balancing environmental constraints, technical feasibility, and socio-economic considerations.

Public Participation Process

The public participation process is being undertaken in accordance with Regulations 39–44 of the EIA Regulations and includes:

- Identification and notification of Interested and Affected Parties (I&APs);
- Placement of site notices;
- Newspaper advertisement; and
- A 30-day public review period for the DBAR.

All comments received will be captured in a Comments and Responses Report (CRR) and included in the Final Basic Assessment Report (FBAR).

Socio-Economic Context

The project is located within a rural agricultural landscape characterised by livestock farming and limited economic diversification. The proposed quarry will contribute to the local and regional economy through:

- Temporary employment opportunities;
- Support for local contractors and suppliers;
- Provision of aggregate for infrastructure development; and
- Contribution to economic activity within the Dr Beyers Naudé Local Municipality.

Potential Impacts and Mitigation

Key potential impacts include:

- Loss of natural vegetation and disturbance of protected plant species;
- Disturbance to fauna;
- Dust, noise, and visual impacts;
- Soil disturbance and erosion;
- Impacts on archaeological resources; and
- Localised impacts on ephemeral drainage features.

These impacts are expected to be localised and of moderate significance and can be mitigated through implementation of the EMPr.

Key mitigation measures include:

- Search-and-rescue and relocation of protected plant species;
- Restricting disturbance to the approved footprint;
- Dust suppression and noise management;
- Stormwater and erosion control;
- Implementation of a Chance Find Procedure for heritage and palaeontological resources;
- Progressive rehabilitation; and
- Monitoring and control of invasive alien species.

Conclusion

The Basic Assessment indicates that the proposed quarry is environmentally acceptable, technically feasible, and socio-economically beneficial, subject to the implementation of recommended mitigation measures.

The primary environmental sensitivities relate to the presence of protected plant species and the limited extent of CBA 2 within the footprint. These do not constitute fatal flaws, and impacts can be reduced to acceptable levels.

The proposed development is therefore considered to be aligned with the principles of sustainable development as set out in Section 2 of the National Environmental Management Act.

This Draft Basic Assessment Report is submitted for public review and comment as part of the Environmental Authorisation process.

LIST OF ABBREVIATIONS

BGIS	Biodiversity GIS
ABSA	Aquatic Biodiversity Specialist Assessment
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
DBAR	Draft Basic Assessment Report
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DMPR	Department of Mineral and Petroleum Resources
DoT	Department of Transport
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment Regulations, 2014 (as amended 2017)
EISC	Ecological Importance and Sensitivity Category
EMPR	Environmental Management Programme
FBAR	Final Basic Assessment Report
FEL	Front-end-loader
GDP	Gross Domestic Product
GNR	Government Notice
I&AP's	Interested and Affected Parties
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
MP	Mining Permit
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM: AQA	National Environmental Management: Air Quality Control Act, 2004 (Act No. 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 1999 (Act No 25 of 1999)
NRTA	National Road Traffic Act, 1996 (Act No. 93 of 1996)
NWA	National Water Act, 1998 (Act No. 36 of 1998)

PCB’s	Polychlorinated Biphenyl
PCO	Pest Control Officer
PPE	Personal Protective Equipment
PSM	Palaeontological Sensitivity Map
RA	Risk Assessment
REC	Recommended Ecological Category
S1	Site Alternative 1
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMBF	South African Mining and Biodiversity Forum
USBM	US Bureau of Mines
WMA	Water Management Area
WUA	Water Use Authorisation
WULA	Water Use Licence Application

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BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT:	Power Construction (Pty) Ltd
TEL NO:	Tel: 021 907 1374
FAX NO:	N/A
POSTAL ADDRESS:	PO Box 129, Blackheath 7580
PHYSICAL ADDRESS:	Corner of Strand (R102) and Wimbledon Roads, Blackheath
FILE REFERENCE NUMBER SAMRAD:	EC30/5/1/3/2/10980 MP

IMPORTANT NOTICE

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

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

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

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

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

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

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

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

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

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

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

  (ii) the degree to which these impacts –

    (aa) can be reversed.

    (bb) may cause irreplaceable loss of resources; and

    (cc) can be managed, avoided or mitigated.

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

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

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

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

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of: Greenmined Environmental

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the proponent must appoint an independent Environmental Assessment Practitioner (EAP) to undertake the Environmental Impact Assessment (EIA) of any activities regulated in terms of the Act. Power Construction (Pty) Ltd appointed Greenmined Environmental to undertake the study needed. Greenmined Environmental has no vested interest in Power Construction (Pty) Ltd or the proposed project and declares its independence as required by the Environmental Impact Assessment Regulations, 2014 (as amended April 2017) (EIA Regulations).

i) Details of the EAP

Name of the Practitioner:	Mrs Sonette Smit (Senior Environmental Consultant)
Tel No.:	021 851 2673
Fax No.:	086 546 0579
E-mail address:	sonette.s@greenmined.co.za
EAP Registration No:	2020/2467

ii) Expertise of the EAP.

(1) The qualifications of the EAP
(with evidence).

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

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

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

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

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

b) Location of the overall Activity.

Table 1: Location of the proposed project.

Farm Name:	Portion 0 of farm 94, Aberdeen, Eastern Cape Province.
Application area (Ha)	5 ha
Magisterial district:	Aberdeen
Distance and direction from the nearest town	The site is located approximately 20–23 km west of the town of Aberdeen in the Eastern Cape Province and is accessed via the R61 provincial road. The project area falls under the jurisdiction of the Dr Beyers Naudé Local Municipality, within the Sarah Baartman District Municipality.
21-digit Surveyor General Code for each farm portion	C00100000000009400000

c) Locality map

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

The requested map is attached as Appendix B.

Figure 1: Satellite view of the proposed mining area (red polygon), laydown area (yellow polygon) and connecting access road (blue line) of Power Construction (Pty) Ltd (image obtained from Google Earth).

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

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

Power Construction (Pty) Ltd has applied for a Mining Permit to mine aggregate from an area located on Portion 0 of Farm 94 near Aberdeen in the Eastern Cape Province. The site is located approximately ±20–23 km west of Aberdeen and falls within the jurisdiction of the Dr Beyers Naudé Local Municipality, within the Sarah Baartman District Municipality.

The proposed mining footprint, as defined in the Regulation 2.2 mine plan, covers an area of approximately 5 ha. The site has previously been utilised for similar activities and is characterised by typical Karoo terrain, including shallow soils and rocky outcrops. All mining-related activities will be confined within the approved mining permit boundaries.

Mining Method and Phasing:

The proposed operation will apply open-cast quarrying methods to extract hard rock aggregate. Mining will follow a phased approach, whereby smaller sections are mined progressively to limit disturbance. Concurrent rehabilitation will be undertaken as mining advances, ensuring that disturbed areas are stabilised and rehabilitated as far as practicable before new areas are opened.

The mining process will commence with the stripping and stockpiling of topsoil for later use during rehabilitation. This will be followed by drilling and controlled blasting to fragment the rock. The material will then be excavated, loaded, and hauled to the crushing

plant where it will be processed and screened into various aggregate sizes. The processed material will be stockpiled within the designated area before being transported off-site.

The operation is expected to run for approximately two years, with a possible extension of a further three years subject to permit renewal. The quarry will primarily support local construction and planned wind farm developments in the area.

Key Mining Activities

The primary activities associated with the mining operation include:

- Stripping and stockpiling of topsoil;
- Drilling and blasting of rock;
- Excavation, crushing, screening, and stockpiling of aggregate;
- Hauling and transportation of material;
- Progressive rehabilitation including sloping, landscaping, and re-vegetation of disturbed areas.

Infrastructure and On-site Facilities

The mining site will include the following infrastructure and facilities:

- Drilling, excavating, and earth-moving equipment;
- Crushing and screening plant;
- Access and internal haul roads;
- Site office and workshop containers;
- Parking and laydown areas;
- Chemical ablution facilities;
- Bunded diesel and oil storage facilities;
- Generator (and/or solar power supply);
- Weighbridge;
- Designated general and hazardous waste storage areas.

Access and Transport

Access to the site will be obtained via the existing gravel road branching from the R61 provincial road. As part of the mining development, a new access road will be constructed within the approved mining permit footprint to provide access to the quarry and associated laydown area.

Although the construction of an access road may trigger Listed Activity 19 of Listing Notice 1 (GN R.983) in terms of the National Environmental Management Act, 1998 (Act 107 of

1998), relating to the construction of a road wider than 4 metres with a reserve less than 13.5 metres, the proposed access road forms an integral component of the mining activity and is therefore included within the mining application and assessed as part of this Basic Assessment process.

Internal haul roads will be established within the mining area to connect active mining phases with the processing and stockpiling areas. These roads will be extended as mining progresses and will be rehabilitated upon closure, unless otherwise agreed with the landowner.

All processed aggregate will be transported from the site via tipper trucks using the existing provincial road network.

Water and Power Supply

No formal electricity supply will be required, as power will be generated on-site using generators and/or solar power. Water required for operational activities such as dust suppression will be sourced as required, and a water use application will be submitted to the Department of Water and Sanitation as advised by the competent authority.

Overall Objective and Socio-Economic Contribution

The project aims to supply locally sourced aggregate for infrastructure and construction projects in the Aberdeen area, including renewable energy developments. The operation will contribute to local economic development through job creation, reduced material transport distances, and support for regional infrastructure initiatives.

Figure 2: Operation Plan of the proposed site.

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

i) Listed and specified activities

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

NAME OF ACTIVITY (E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	**Aerial extent of the activity** Ha or m^2	**LISTED ACTIVITY** Mark with an X where applicable or affected	**APPLICABLE LISTING NOTICE** (GNR 324, GNR 325, GNR 326 OR GNR 327)
Demarcation of site with visible beacons.	5 ha	N/A	Not listed
Construction of site access road	±280 m	N/A	GNR 983 Listing Notice 1 Activity 21: Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the mining permit.
Stripping and stockpiling of topsoil.	5 ha	N/A	
Drilling and blasting.	±2 ha	N/A	
Excavation, loading and hauling to the processing area.	±2 ha	N/A	
Stockpiling and transportation of material from site	±2.5 ha	N/A	
Sloping and landscaping upon closure of the mining area.	±5 ha	N/A	
Replacing the topsoil and vegetating the disturbed area.	±5 ha	N/A	

ii) Description of the activities to be undertaken

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

The proposed activity entails the establishment and operation of a small-scale aggregate quarry within a mining permit area of approximately 5 hectares on Portion 0 of Farm 94

(Perseverance), located approximately 20–23 km west of Aberdeen in the Eastern Cape Province, within the Dr Beyers Naudé Local Municipality.

The purpose of the development is to extract dolerite aggregate for use in local construction and infrastructure projects.

Mining will be undertaken using conventional open-cast quarrying methods, including drilling, controlled blasting, excavation, crushing, screening, and stockpiling of material. Processing will be undertaken on site using mobile or semi-mobile equipment.

The operation will follow a phased approach, limiting disturbance to active working areas at any given time. This will allow for progressive rehabilitation of disturbed areas and reduce the overall environmental footprint.

Access to the site will be obtained via an existing road connecting to the R61, with a short access road constructed within the mining footprint. Internal haul roads will be established to facilitate the movement of material between the quarry, processing area, and stockpiles.

Power will be supplied by generators and/or solar installations. Water use will be limited to dust suppression and domestic purposes and will be sourced from authorised supplies.

Project Phases
Site Establishment Phase

The site establishment phase will include:

Demarcation of the approved mining footprint in accordance with the mine plan;
Establishment of access roads and internal haul routes;
Clearing of vegetation within the approved footprint; and
Establishment of temporary infrastructure, including site offices, laydown areas, and ablution facilities.

All activities will be confined to the approved footprint.

Operational Phase

The operational phase will involve:

- Drilling and controlled blasting to fragment rock;
- Excavation and loading of material;
- Hauling of material to the processing area;
- Crushing and screening into various aggregate sizes; and
- Stockpiling and transport of material off-site.

Mining will be undertaken progressively to minimise disturbance and allow for concurrent rehabilitation where feasible.

Mobile equipment such as excavators, front-end loaders, articulated dump trucks, and crushing and screening units will be utilised.

Rehabilitation and Closure Phase

Rehabilitation will be implemented progressively throughout the life of the operation and will include:

- Shaping and stabilisation of disturbed areas;
- Replacement of available topsoil or suitable growth medium; and
- Promotion of natural vegetation recovery.

Following cessation of mining, all infrastructure and equipment will be removed, and the site will be rehabilitated to a stable, non-polluting condition compatible with the surrounding land use.

Rehabilitation will focus on achieving a safe and stable landform, recognising that the quarry void will remain as part of the final landform.

A closure application will be submitted in accordance with Section 43 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) and applicable regulations.

Table 3: GPS Coordinates of the proposed mining footprint.

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	32°28'12.24"S	23°49'1.30"E	-32.470068	23.817027
B	32°28'11.16"S	23°49'6.91"E	-32.469767	23.818586
C	32°28'15.69"S	32°28'15.69"E	-32.469472	23.818519
D	32°28'8.96"S	23°49'13.13"E	-32.469155	23.820315
E	32°28'12.67"S	23°49'14.06"E	-32.470186	23.820572
F	32°28'11.52"S	23°49'23.38"E	-32.469867	23.823161
G	32°28'13.77"S	23°49'24.87"E	-32.470491	23.823576
H	32°28'13.93"S	23°49'24.35"E	-32.470537	23.823431
I	32°28'12.18"S	23°49'23.02"E	-32.470049	23.823062
J	32°28'13.42"S	23°49'14.24"E	-32.470395	23.820621
K	32°28'14.71"S	23°49'7.71"E	-32.470753	23.818808
L	32°28'15.69"S	23°49'7.94"E	-32.471025	23.818872
M	32°28'16.68"S	23°49'2.89"E	-32.471300	23.817469
A	32°28'12.24"S	23°49'1.30"E	-32.470068	23.817027

Figure 3: Satellite view showing the access road (blue line) to the proposed mining area (red polygon) and laydown area (yellow polygon).

Figure 4: Google Image showing the existing entrance into the mining area.

e) Policy and Legislative Context

Table 4: Policy and Legislative Context.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity: *Physical Environment – Geology and Soil.* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of invader plant species*.	The mitigation measures proposed for the site includes specifications of the CARA, 1983.
Mine Health and Safety Act, 1996 (Act No 29 of 1996) read together with applicable amendments and regulations thereto including relevant OHSA regulations.	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of Health and Safety Risks.*	The mitigation measures proposed for the site includes specifications of the MHSA, 1996
Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002) read together with applicable amendments and regulations thereto. • Section 27	Part A(1)(d) Description of the scope of the proposed overall activity	Application for a mining permit submitted to DMPR-EC. Ref No: EC30/5/1/3/2/10980 MP
National Environmental Management Act,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended) • GNR 983 Listing Notice 1 Activity 21: Environmental Impact Assessment Regulations Listing Notice 1 Activity 21: • Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required to exercise the mining permit.	Part A(1)(d)(i) Listed and specified activities.	Application for environmental authorisation submitted to DMPR-EC. Ref No: EC30/5/1/3/2/10980 MP
National Environmental Management: Air Quality Control Act, 2004 (Act No 39 of 2004) read together with applicable amendments and regulations thereto specifically the National Dust Control Regulations, GN No R827.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – *Air and Noise Quality.*	The mitigation measures proposed for the site take into account the NEM: AQA, 2004 and the National Dust Control Regulations.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Dust Handling*.	
National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) read together with applicable amendments and regulations thereto.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity - *Biological Environment* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of invader plant species*.	The mitigation measures proposed for the site includes specifications of the NEM:BA, 2004.
National Environmental Management: Waste Act, 2008 (Act No 59 of 2008) read together with applicable amendments and regulations thereto. NEM: WA, 2008: National norms and standards for the storage of waste (GN 926)	Part A(1)(d)(ii) Description of the activities to be undertaken	The mitigation measures proposed for the site take into account the NEM: WA.
National Heritage Resources Act. 1999 (Act No 25 of 1999).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – *Human Environment*	The mitigation measures proposed for the site includes specifications of the NHRA, 1999.
National Water Act, 1998 (Act No 36 of 1998) read together with applicable amendments and regulations thereto.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – *Hydrology*. Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk.	The mitigation measures proposed for the site includes specifications of the NWA, 1998. A WUA will be applied for to the competent Authority, DWS.
Public Participation Guideline in terms of the NEMA EIA Regulations	Part A(1)(h)(ii) Details of the Public Participation Process Followed	Public participation was conducted in accordance with the guidelines published in terms of the NEMA EIA Regulations

f) Need and desirability of the proposed activities.

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

The proposed quarry is intended to supply aggregate material for use in construction, infrastructure development, and renewable energy projects in the Aberdeen area and broader Dr Beyers Naudé Local Municipality. The demand for suitable aggregate in the region is driven by ongoing road maintenance, infrastructure upgrades, and energy developments, including wind energy facilities located within the surrounding area.

At present, aggregate is often sourced from more distant operations, resulting in increased transportation costs, logistical inefficiencies, and associated environmental impacts such as higher fuel consumption and emissions. The establishment of a localised source of aggregate will improve material availability, reduce haul distances, and enhance the efficiency of infrastructure delivery within the region.

Desirability within the Local and Regional Context

The project area falls within the Dr Beyers Naudé Local Municipality, which is characterised by a largely rural economy with limited industrial development and ongoing infrastructure needs. The latest municipal planning framework emphasises the importance of infrastructure provision, maintenance, and local economic development as key priorities for the area.

The proposed quarry is considered desirable in this context for the following reasons:

Socio-Economic Benefits

- The project will create temporary and semi-skilled employment opportunities during the operational phase.
- It will support local economic activity through the procurement of services such as transport, maintenance, and operational support.
- The availability of locally sourced aggregate will contribute to reducing construction costs and improving the feasibility of infrastructure projects within the municipality.

Support for Infrastructure and Energy Development

- The project will provide a reliable source of construction material required for road maintenance and upgrades within the municipal and provincial road network.

- It will support renewable energy developments in the region, which have been identified within close proximity to the site.

Environmental Considerations

The proposed mining footprint is located within a naturally rocky area that has been subject to limited disturbance and is characterised by low agricultural potential. While the broader area is associated with elevated environmental sensitivities identified through the Screening Tool, these have been verified and refined through specialist assessments.

Key sensitivities include the presence of a limited portion of Critical Biodiversity Area 2 (CBA 2), the broader Ecological Support Area (ESA 1), as well as paleontological and heritage considerations. These sensitivities do not represent fatal flaws and can be effectively managed through the implementation of appropriate mitigation measures and specialist recommendations.

The proposed phased mining approach will limit the extent of disturbance at any given time, while progressive rehabilitation will be undertaken to stabilise disturbed areas and support natural vegetation recovery.

Policy and Planning Alignment

The proposed activity consists of key national, provincial, and local planning frameworks, including:

- National Development Plan (NDP 2030): Supports infrastructure development, economic growth, and rural development;
- Eastern Cape Provincial Spatial Development Framework (PSDF): Promotes the sustainable use of natural resources and improved infrastructure capacity; and
- Dr Beyers Naudé Local Municipality Integrated Development Plan (IDP): Identifies infrastructure development, service delivery, and local economic development as priority areas.

Sustainable Development Considerations

The proposed development is aligned with the principles of sustainable development as set out in Section 2 of the National Environmental Management Act (Act 107 of 1998), through:

- Responsible utilisation of a site-specific mineral resource;

- Reduction in environmental impacts associated with long-distance transport of materials;
- Limiting disturbance through phased mining and progressive rehabilitation; and
- Contribution to local economic activity and infrastructure development.

Need and Desirability

The proposed quarry is considered both needed and desirable within the local and regional context. The development will provide a locally available source of aggregate material required for infrastructure and construction projects, while supporting economic activity within a rural municipality.

The scale and temporary nature of the operation, together with the implementation of mitigation and management measures, ensure that environmental impacts can be effectively managed in accordance with applicable legislation.

The need and desirability of the proposed development has been assessed in accordance with the Department of Forestry, Fisheries and the Environment (DFFE) Guideline on Need and Desirability (2014, updated 2017). The following section addresses the relevant guideline questions.

Table 5: Need and desirability determination.

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
How were ecological integrity considerations taken into account?	Ecological integrity considerations were incorporated into the planning and design of the proposed quarry through site-specific specialist assessment, avoidance of sensitive features where practicable, and the implementation of targeted mitigation and rehabilitation measures. The application area is located within largely natural Eastern Lower Karoo vegetation in good ecological condition, supporting a moderate diversity of plant species, including numerous protected species. A small portion of approximately 0.6 ha of the proposed footprint overlaps with a Critical Biodiversity Area 2 (CBA 2), while the broader area functions as an Ecological Support Area (ESA 1). These factors were taken into account during the planning process and informed both the layout and the proposed mitigation measures. Although the National Screening Tool identified elevated environmental sensitivities, these were verified through site-specific specialist assessments, which concluded that the site is of moderate ecological sensitivity overall. No fatal flaws were identified, provided that appropriate mitigation measures are implemented. The terrestrial specialist further confirmed that the proposed layout may be retained, as the limited extent of the CBA 2 within the footprint does not represent a critical or irreplaceable biodiversity feature and the associated risks can be effectively managed. Ecological considerations have been incorporated into the project as follows: • The site layout has been refined to limit disturbance to the most suitable portion of the site, while minimising impacts on relatively higher sensitivity areas where feasible;	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	• A pre-construction search-and-rescue operation will be undertaken by a suitably qualified specialist to identify, rescue, and relocate protected plant species in accordance with permitting requirements; • Vegetation clearing will be restricted to the approved footprint, with no unnecessary disturbance outside operational areas; • Mining will be undertaken in a phased manner to limit the extent of disturbance at any given time and enable progressive rehabilitation; • Available topsoil and suitable growth medium will be conserved and reused to support vegetation recovery; • The EMPr includes measures for erosion control, dust suppression, stormwater management, and prevention of hydrocarbon contamination, thereby protecting soil and ecological processes; • Monitoring and control of invasive alien plant species will be implemented throughout the life of the project; and • Disturbed areas will be rehabilitated to reintegrate with the surrounding landscape, with emphasis on promoting natural vegetation recovery characteristic of the Nama-Karoo environment. Through the implementation of these measures, impacts on ecological integrity are expected to be localised and of moderate significance, and can be effectively managed over time. The proposed development is therefore considered consistent with the principles of sustainable development as set out in Section 2 of the National Environmental Management Act (Act 107 of 1998). Also refer to: • Part A(1)(d)(ii) Description of the activities to be undertaken – Clearing of Vegetation; • Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Mining and Biodiversity; • Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Biodiversity Conservation Areas; • Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Groundcover; • Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity, Conservation Areas and Groundcover, • Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	As discussed under Part A(1)(g)(iv)(1)(a), Access to the proposed mining area will be obtained from the R61 provincial road via a new access road constructed as part of the mining footprint. This access route will be designed to accommodate vehicles associated with the operation. Internal haul roads will be developed within the site to facilitate movement between the quarry, processing, and stockpile areas. These haul routes will be adapted as mining progresses and rehabilitated once no longer required and if not needed by the landowner, as part of the overall site rehabilitation. Transport of aggregate to end-users will take place via the R61. The development of the access road and internal haul routes will result in the localised disturbance of natural vegetation and groundcover, including areas supporting protected plant species. These impacts will be mitigated through restricting disturbance to the defined footprint, implementing a pre-construction search-and-rescue of protected plant species, and undertaking progressive rehabilitation. Provided that the mitigation measures outlined in the EMPr are implemented, the impact of the proposed activity on vegetation and groundcover is expected to be localised and of moderate significance, and can be effectively managed over time.	
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?	The proposed quarry is located within the Nama-Karoo Biome, specifically within Eastern Lower Karoo vegetation, which is classified as Least Concern. The site occurs within a largely natural rural landscape utilised for extensive livestock grazing and is in good ecological condition, despite some localised disturbance associated with historical activities. The Terrestrial Ecological Assessment confirmed that the site supports a moderate diversity of plant species, including numerous protected species, particularly succulent taxa of conservation importance. A small portion of approximately 0.6 ha of	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	the proposed footprint overlaps with a Critical Biodiversity Area 2 (CBA 2), while the broader area is classified as an Ecological Support Area (ESA 1). These factors contribute to the overall moderate ecological sensitivity of the site. Potential impacts on ecosystems will primarily arise from vegetation clearing, soil stripping, excavation, and vehicle movement during the construction and operational phases. These activities will result in the localised loss of natural vegetation and associated habitat, including areas supporting protected plant species. Without mitigation, impacts could be of moderate to potentially higher significance at a local scale. Disturbance to fauna is expected to be temporary and localised, as similar habitat types are widespread in the surrounding landscape, allowing for movement and displacement of species into adjacent areas. Minor ephemeral drainage features occur within the broader landscape and may be intersected by the proposed access road alignment. Although these features are not classified as wetlands or perennial systems, they function as watercourses during rainfall events and contribute to local ecological processes. Appropriate stormwater and erosion control measures will therefore be implemented to prevent degradation of these features. Disturbance of soil and vegetation may also create conditions conducive to the establishment and spread of invasive alien plant species. Species such as *Opuntia ficus*-indica have been recorded in the area and will require ongoing monitoring and control to prevent further spread. Mitigation measures to reduce biodiversity impacts include: • Pre-construction search-and-rescue of protected plant species by a suitably qualified specialist, including relocation to appropriate adjacent habitat; • Obtaining all required permits for the removal or relocation of protected species;	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	• Restricting disturbance to the approved footprint and preventing unnecessary clearing; • Implementation of phased mining and progressive rehabilitation to reduce cumulative impacts; • Stripping and conservation of available topsoil or suitable growth medium for rehabilitation; • Implementation of stormwater and erosion control measures; • Ongoing monitoring and control of invasive alien plant species; and • Protection of fauna through controlled clearing practices, minimisation of disturbance, and safe management of excavations. With the implementation of these mitigation measures, impacts on biodiversity are expected to be localised and of moderate significance, and can be effectively managed over time. The limited extent of the CBA 2 within the footprint does not represent a fatal flaw, and the terrestrial specialist has confirmed that the proposed layout may be retained. Rehabilitation will play a critical role in restoring ecological function and ensuring that the site is re-integrated into the surrounding Karoo landscape.	
How will this development pollute and/or degrade the biophysical environment?	The proposed quarry is a small-scale, open-cast mining operation with a limited footprint. While the activity will result in temporary disturbance of the land surface and removal of vegetation, the potential to pollute or degrade the biophysical environment has been assessed and will be managed through the implementation of the Environmental Management Programme (EMPr). Potential sources of pollution or degradation include dust generation, noise, hydrocarbon spills, soil disturbance, erosion, and waste generation. These impacts are expected to be localised, of low to moderate intensity, and largely reversible, provided that appropriate mitigation measures are implemented. Key impact pathways and associated mitigation measures include:	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	• Air Quality (Dust): Dust may be generated during site clearing, excavation, crushing, and vehicle movement. Mitigation measures include limiting disturbance to active areas, restricting vehicle speeds, covering loads where required, and applying water for dust suppression where necessary and feasible. • Noise: Noise will be generated by mining equipment and processing activities. Given the rural setting and limited presence of nearby receptors, impacts are expected to be localised. Noise will be managed through standard operational controls, including maintenance of equipment and appropriate scheduling of activities where required. • Soil and Water Contamination: There is a potential risk of hydrocarbon spills during refuelling and maintenance activities. This will be mitigated through the use of designated refuelling areas, drip trays, spill kits, and the immediate clean-up and removal of contaminated material. No process water or effluent will be discharged on-site. • Erosion and Sedimentation: Disturbance of soil may result in localised erosion if not properly managed. Stormwater management measures, slope stabilisation, and phased rehabilitation will be implemented to minimise erosion and prevent sediment transport, particularly in relation to nearby drainage features.	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	• Waste Management: General and hazardous waste will be stored in designated areas and removed to licensed disposal facilities. Chemical toilets will be provided and serviced by registered contractors to prevent contamination of soil or groundwater. No waste will be buried or burned on-site. • Biodiversity Impacts: Vegetation clearing will result in the localised loss of natural habitat, including areas supporting protected plant species. Disturbance will be restricted to the approved footprint and managed through mitigation measures such as pre-construction search-and-rescue of protected species, phased mining, and progressive rehabilitation to support the recovery of ecological function. Overall, the anticipated impacts on the biophysical environment are localised and of moderate significance, primarily due to the presence of natural vegetation and protected plant species. With the effective implementation of the EMPr, including rehabilitation and invasive species control, the proposed activity is not expected to result in significant pollution or long-term environmental degradation. Ecological function is expected to recover over time, and impacts can be maintained within acceptable levels. Also refer to: • Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.	
What waste will be generated by this development?	The quarry is a small-scale, mobile mining operation that will generate minimal waste due to its limited footprint and the absence of permanent infrastructure. The following types of waste are anticipated during the construction, operational, and decommissioning phases:	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	General Waste • Domestic waste such as food packaging, paper, and plastics produced by on-site personnel. • Small quantities of construction waste, including offcuts of piping, fencing materials, and packaging from equipment or consumables. • These materials will be collected in covered, clearly labelled bins and removed weekly by a licensed waste contractor for disposal at an approved municipal landfill site (Aberdeen). Hazardous Waste • Hydrocarbon-contaminated materials (e.g., oil-soaked rags, used filters, and small fuel residues) generated during equipment servicing or refuelling. • These will be placed in designated hazardous waste containers and transported off-site for disposal by an accredited hazardous waste handler. • No bulk fuel storage (>80 000 litres) will occur on-site, thereby significantly reducing the risk of large-scale contamination. Human Waste • Chemical toilets will be installed for all site personnel.	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	• These units will be serviced regularly by a registered sanitation contractor, with waste removed to a licensed disposal facility to prevent pollution of soil or groundwater. Mineral Waste • The quarry will not produce any processing tailings or slimes, as all excavated dolerite will be crushed, screened, and marketed. • Overburden and topsoil will be temporarily stockpiled and reused during rehabilitation, meaning no long-term mineral waste will remain. Waste Minimisation and Management • A waste management plan forms part of the EMPr, focusing on: o Waste separation at source; o Proper containment of all refuse; o Regular collection and off-site disposal; and o Prohibition of any burning or burial of waste on-site.	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	The waste management approach ensures that all waste generated is contained, controlled, and disposed of responsibly, in compliance with the National Environmental Management: Waste Act (Act No. 59 of 2008).	
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	The proposed quarry is located within a rural Karoo landscape characterised by natural dolerite outcrops and low-intensity pastoral land use. The broader area reflects a history of human interaction with the landscape; however, no site-specific conclusions regarding cultural or heritage significance are presented at this stage. The National Web-Based Environmental Screening Tool identified elevated heritage sensitivity within the broader study area, necessitating a Heritage Impact Assessment (HIA). The HIA is currently underway and will assess the presence, extent, and significance of any archaeological, paleontological, or cultural heritage resources within the proposed mining footprint. Potential impacts on heritage resources may arise from vegetation clearing, excavation, blasting, and associated operational activities, which could result in disturbance or loss of such resources if present. In addition, the proposed development may result in temporary changes to the visual character of the landscape. In the absence of final specialist findings, a precautionary approach will be applied. All conclusions and recommendations from the HIA will be incorporated into the Final Basic Assessment Report (FBAR). Mitigation and management measures, informed by the specialist assessment, are expected to include: • Compliance with permitting requirements in terms of the National Heritage Resources Act (Act 25 of 1999); • Implementation of a Heritage Chance Find Procedure; and • Monitoring by the Environmental Control Officer (ECO) during site clearance and excavation activities. The proposed development will be submitted to the South African Heritage Resources Agency (SAHRA) for review in terms of Section 38(8) of the National Heritage Resources Act.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	With the implementation of these measures, potential impacts on heritage resources are expected to be appropriately managed. Final impact significance will be confirmed upon completion of the specialist assessment.	
How will this development use and/or impact on non-renewable natural resources?	The proposed Perseverance Quarry will involve the extraction of dolerite, a non-renewable mineral resource, from a ±5 ha footprint on Portion 0 of Farm 94, located near Aberdeen within the Dr Beyers Naudé Local Municipality, Sarah Baartman District Municipality. The utilisation of this resource is justified by the ongoing demand for durable aggregate material required for road construction, maintenance, and infrastructure development within the region. The extraction will be undertaken using small-scale, open-cast quarrying methods designed to ensure efficient resource utilisation while minimising environmental disturbance. The operation will be of limited duration and will follow a phased mining approach, whereby only a portion of the site is disturbed at any given time, allowing for concurrent rehabilitation. Key considerations in the responsible use of non-renewable resources include: • Efficient resource utilisation: Only the required volume of dolerite will be extracted to meet local demand, thereby avoiding unnecessary over-exploitation. All suitable material will be processed and utilised, with no generation of waste rock or discard material. • Energy use: The operation will rely on diesel-powered equipment and mobile plant. Energy use will remain low relative to larger mining operations, and fuel handling will be managed in designated areas to prevent contamination.	Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	• Land use optimisation: The selected footprint is located on shallow, rocky ground with low agricultural potential, ensuring minimal conflict with existing land uses. Progressive rehabilitation will restore the land to a stable condition suitable for grazing or natural vegetation recovery. • Water use: Water requirements will be limited to dust suppression and domestic use. Water will be sourced from authorised supplies, and consumption will be managed to prevent unnecessary abstraction. Although the project involves the extraction of a non-renewable resource, it represents a necessary and responsible use of locally available material to support infrastructure development and economic activity within the municipality. The short-term nature of the operation, combined with efficient extraction and progressive rehabilitation, ensures alignment with the principles of sustainable development as set out in the National Environmental Management Act (Act 107 of 1998).	
How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part?	The proposed quarry will make limited use of renewable natural resources, primarily water, air, and soil, and these resources will be managed sustainably throughout the project's short operational lifespan. Water will be used in small quantities for dust suppression and domestic purposes only, sourced from permitted on site boreholes. There will be no abstraction from local surface or groundwater sources, ensuring that renewable water resources are not depleted or contaminated. Soil will be temporarily disturbed during site preparation but carefully stripped, stockpiled, and replaced during progressive rehabilitation. This ensures that the soil resource is conserved for future agricultural or ecological use.	Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	Air quality will be preserved through strict dust control measures, including speed limits, regular road maintenance, and covering of truck loads to prevent dust dispersion. The quarry's limited footprint (5 ha) and phased mining approach will minimise ecosystem disturbance and allow natural regeneration in rehabilitated sections. Post-closure, the reinstated land will support grazing and indigenous vegetation recovery, ensuring the long-term sustainability of renewable natural resources in the area.	
How were a risk-averse and cautious approach applied in terms of ecological impacts?	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that ecological impacts should be fully mitigated. Refer to the following sections: • Part A(1)(d)(ii) Description of the activities to be undertaken; • Part A(1)(h)(i) Details of the development footprint alternatives considered; • Part A(1)(h)(iv) The environmental attributes associated with the alternatives; • Part A(1)(i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity; • Part A(1)(l) Environmental impact statement.	Desirable
How will the ecological impacts resulting from this development impact on people's environmental right?	The proposed quarry will be undertaken in a controlled, small-scale manner; however, it will result in localised ecological impacts, including the loss of natural vegetation and habitat, as well as disturbance to protected plant species. These impacts have been assessed as moderate prior to mitigation, given the presence of natural vegetation and species of conservation importance.	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	In terms of Section 24 of the Constitution of the Republic of South Africa, 1996, which provides for the right to an environment that is not harmful to health or well-being, the proposed development has been planned and assessed to ensure that potential environmental impacts are avoided, minimised, and rehabilitated in accordance with the principles of sustainable development as outlined in the National Environmental Management Act (Act 107 of 1998). Key mitigation measures include: • Pre-construction search-and-rescue of protected plant species by a suitably qualified specialist; • Restricting disturbance to the approved development footprint; • Implementation of dust suppression and erosion control measures; • Monitoring and control of invasive alien plant species; and • Progressive and comprehensive rehabilitation to restore ecological function. A small portion of the proposed footprint (approximately 0.6 ha) overlaps with a Critical Biodiversity Area 2 (CBA 2). This is not considered a fatal flaw due to its limited extent and the absence of confirmed threatened species, and the terrestrial specialist has confirmed that impacts can be effectively managed through mitigation. The development may result in short-term impacts such as dust, noise, and visual disturbance; however, these are expected to be localised and are unlikely to significantly affect surrounding land uses or communities, given the rural context and distance to sensitive receptors. With the effective implementation of the EMPr, the proposed development is not expected to result in significant or long-term infringement of environmental rights. Ecological function is expected to recover over time through rehabilitation, ensuring that the environment remains suitable for its current land use and does not pose a risk to human health or well-being.	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts. Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area? Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified, resulted in the selection of the "best practicable environmental option" in terms of ecological considerations	Livelihoods in the Aberdeen area are primarily dependent on extensive livestock grazing, which relies on the functioning of the semi-arid Nama-Karoo ecosystem. Key ecosystem services include forage production, soil stability, and the maintenance of natural vegetation cover, all of which support agricultural productivity and rural livelihoods. The proposed development will result in the temporary disturbance of a limited portion of grazing land within the mining footprint. This may affect ecosystem services at a local scale, particularly through the removal of vegetation and disturbance of soil. However, these impacts are confined to a defined and relatively small area and are not expected to significantly affect the broader grazing capacity of the surrounding farm or region. Ecological impacts associated with the development, including vegetation loss, soil disturbance, and potential erosion, are expected to be localised and manageable. While a small portion of the footprint (approximately 0.6 ha) overlaps with a Critical Biodiversity Area 2 (CBA 2), this is limited in extent and does not represent a constraint to development, provided that appropriate mitigation measures are implemented. No wetlands or significant watercourses occur within the mining footprint, and the surrounding landscape remains largely intact, supporting ecological connectivity and the continued functioning of ecosystem processes. Through the implementation of a phased mining approach and progressive rehabilitation, disturbed areas will be stabilised and reinstated to a condition that supports natural vegetation recovery and, where feasible, future grazing. This approach will facilitate the gradual restoration of ecosystem services over time and support the long-term productivity and ecological integrity of the land.	Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	In terms of ecological integrity objectives, the development is not expected to compromise regional conservation targets, as it affects a limited area within a broader landscape that remains largely natural and functional, and does not involve the loss of critical or irreplaceable biodiversity features. The assessment of layout and operational alternatives informed the selection of the preferred option as the Best Practicable Environmental Option (BPEO). The selected layout: • Minimises disturbance to environmentally sensitive areas where practicable; • Confines activities to a compact and manageable footprint; • Reduces the extent of disturbance and associated ecological impacts; and • Facilitates effective rehabilitation and environmental management. The No-Go alternative would avoid all ecological disturbance but would also forgo the socio-economic benefits associated with the project, including employment opportunities and the supply of locally sourced construction material. With the implementation of the proposed mitigation measures and monitoring programmes, the development is not expected to negatively affect the physical, social, or economic well-being of the surrounding community. The project therefore represents a balanced outcome that supports both environmental sustainability and local socio-economic development.	
2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		
What is the socio-economic context of the area?		
Question	**Response**	**Level of Desirability**

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
What is the socio-economic context of the area?	The project is located within the Dr Beyers Naudé Local Municipality, which forms part of the Sarah Baartman District Municipality in the Eastern Cape Province. The area includes towns such as Aberdeen, Graaff-Reinet, Nieu-Bethesda, and surrounding rural settlements. It is predominantly rural in character, with an economy largely based on extensive livestock farming, supported by small-scale services, tourism, and government-related activities. Unemployment levels remain relatively high, particularly among the youth, and economic opportunities are limited due to the lack of industrial development and economic diversification. The Dr Beyers Naudé Local Municipality Integrated Development Plan (IDP) identifies key challenges including infrastructure backlogs, limited employment opportunities, and the need to stimulate local economic development. Aberdeen functions as a local service centre, providing basic retail, education, and healthcare services to surrounding farming communities. Infrastructure maintenance, particularly road upgrades and access routes, remains a key priority within the municipality. The proposed quarry aligns with these development needs by contributing to local economic activity through the creation of employment opportunities, support for local service providers, and the supply of aggregate material for infrastructure development and maintenance. The project will therefore support economic diversification and contribute to strengthening the local economic base within the municipality. Please refer to Heading 2(h)(iv)(1)(a) Socio-economic Environment.	Highly Desirable
Considering the socio-economic context, what will the socio-economic impacts be of the	Considering the socio-economic context of the Dr Beyers Naudé Local Municipality, the proposed quarry development is expected to result in a range of positive socio-economic impacts, with limited and manageable negative impacts.	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
development, and specifically also on the socio-economic objectives of the area?	Positive socio-economic impacts The development will contribute to local employment creation, particularly during the construction and operational phases. This is significant in an area characterised by high unemployment levels, especially among youth. Although the number of jobs may be limited, the opportunities provided will support household income and improve livelihoods. The project will also stimulate local economic activity through the procurement of goods and services from local suppliers, including transport, maintenance, and general services. This aligns with the municipality's objective of promoting local economic development (LED) and supporting small businesses. In addition, the quarry will provide a reliable source of aggregate material for infrastructure development and maintenance in the region. This supports broader socio-economic objectives by enabling road upgrades, service delivery improvements, and construction projects, which are identified as priorities in the municipal IDP. The development further has the potential to contribute to skills development and capacity building, particularly for semi-skilled and unskilled workers, thereby enhancing long-term employability within the local labour force. Contribution to socio-economic objectives The project supports key municipal objectives, including: - Economic diversification through the introduction of mining-related activities in a predominantly agriculture-based economy - Job creation and poverty alleviation, particularly in rural communities - Infrastructure development, through the supply of construction materials	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	• Support for local enterprises, through procurement and service opportunities Potential negative impacts Potential negative socio-economic impacts may include: • Temporary nuisance impacts (e.g. dust, noise, and increased traffic), which could affect nearby landowners and farming activities • Increased heavy vehicle movement, potentially impacting road safety and road conditions • Perceptions of land use conflict, particularly in a rural/agricultural setting • However, these impacts are expected to be localised and can be effectively mitigated through appropriate environmental management measures, traffic management, and stakeholder engagement. Overall impact significance Overall, the socio-economic impacts of the proposed development are expected to be positive, as the project directly addresses key challenges identified in the municipal context, including unemployment, limited economic opportunities, and infrastructure needs. The development is therefore considered to be aligned with and supportive of the socio-economic objectives of the area.	

How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	The proposed quarry development is expected to contribute to meeting several key community needs within the local socio-economic context, particularly in a rural area characterised by limited economic opportunities and high unemployment. Physical needs The development will support basic livelihood requirements through employment and income generation. Job opportunities created during construction and operation will enable households to better meet essential needs such as food security, housing, healthcare, and education. In addition, the supply of aggregate materials will contribute to infrastructure development (e.g. roads and services), which improves physical access to markets, schools, and healthcare facilities. Psychological needs Employment and economic participation can significantly enhance individual dignity, self-esteem, and sense of purpose. By providing job opportunities and skills development, the project may reduce stress associated with unemployment and financial insecurity. However, potential concerns such as noise, dust, and increased traffic may create perceived or actual stress for nearby residents. These impacts can be mitigated through effective environmental management and ongoing stakeholder engagement. Developmental needs The project contributes to local economic and human capital development by: - Creating employment opportunities, particularly for semi-skilled and unskilled labour - Providing opportunities for skills transfer and on-the-job training - Supporting local enterprise development through procurement of goods and services These aspects align with broader developmental objectives of improving livelihoods and building long-term economic resilience within the community.	Highly Desirable

	Cultural needs The development footprint is not expected to directly impact cultural heritage resources, provided that heritage assessments and chance-find procedures are implemented where required. The project can support cultural considerations by: - Respecting local land use patterns and rural character - Engaging with affected landowners and communities to address concerns - Ensuring that any culturally sensitive areas are identified and avoided or managed appropriately - Social needs and interests The development may strengthen social stability by improving income levels and reducing unemployment-related pressures within households. It can also foster community cohesion through: - Local employment opportunities - Engagement with community stakeholders - Potential support for local initiatives (where feasible) Conversely, if not well managed, the development could introduce social disruptions, such as increased traffic or perceived inequities in job allocation. These risks can be addressed through transparent recruitment processes and inclusive stakeholder communication. Overall conclusion Overall, the development is expected to positively contribute to the physical, psychological, developmental, and social well-being of the local community, while cultural impacts are likely to be minimal and manageable. With appropriate mitigation and stakeholder engagement, the project aligns with the broader needs and interests of the community, particularly in terms of economic upliftment and improved quality of life.	

Will the development result in equitable impact distribution, in the short- and long-term?	Yes. The proposed quarry is designed to ensure that both the benefits and potential impacts are distributed equitably among affected stakeholders. In the short term, positive impacts such as employment opportunities, income generation, and local procurement will primarily benefit residents of Aberdeen and surrounding rural areas, where unemployment levels are high. These benefits are expected to contribute directly to household livelihoods and local economic activity. Potential negative impacts, including dust, noise, and temporary land disturbance, will be localised, short-term, and manageable. These impacts will be mitigated through the implementation of the Environmental Management Programme (EMPr), ensuring that no specific individuals or vulnerable groups are disproportionately affected. In the long term, the project will continue to provide broader regional benefits through the supply of aggregate material for infrastructure development, supporting improved service delivery and accessibility. Following closure, progressive rehabilitation will restore the site to a stable condition suitable for grazing, thereby maintaining land productivity and ecological function. Overall, the development achieves a balanced distribution of impacts, where socio-economic benefits extend beyond the immediate site, while environmental impacts remain contained, temporary, and effectively managed.	Highly Desirable
In terms of location, describe how the placement of the proposed development will contribute to the area.	The proposed quarry is strategically located on Portion 0 of Farm 94, near Aberdeen within the Dr Beyers Naudé Local Municipality, Sarah Baartman District Municipality. The site is situated adjacent to the R61 provincial road, allowing for efficient access to the existing transport network and facilitating the cost-effective distribution of aggregate to surrounding areas. This proximity reduces haul distances, fuel consumption, and associated emissions. The quarry is positioned on land with low agricultural potential, characterised by shallow, rocky soils and limited grazing capacity. This ensures minimal conflict with existing land uses and maintains compatibility with the surrounding rural farming landscape. The development footprint has been selected to avoid environmentally sensitive features where practicable and to limit disturbance to a defined area. The use of existing road infrastructure reduces the need for extensive new infrastructure, while the site's relatively low visual exposure further limits impacts on surrounding receptors. The location therefore supports an operationally efficient and environmentally manageable development.	Highly Desirable

	By providing locally sourced aggregate, the quarry will contribute to infrastructure development, road maintenance, and construction activities within Aberdeen and the broader municipal area. This supports local economic activity, improves project cost efficiency, and aligns with municipal development priorities. Overall, the placement of the development is considered appropriate, as it complements the existing land-use character while promoting sustainable and efficient utilisation of locally available mineral resources.	
How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	A risk-averse and precautionary approach was applied to ensure that potential socio-economic impacts are identified early, minimised, and effectively managed throughout the project lifecycle. The scale, duration, and location of the proposed quarry have been carefully selected to avoid displacement of existing land uses, particularly agricultural activities, and to limit disturbance to the surrounding rural community. Measures have been incorporated to promote equitable distribution of benefits, including prioritising local employment and procurement opportunities. Potential negative impacts such as noise, dust, and increased traffic have been proactively addressed through the Environmental Management Programme (EMPr), which includes operational controls, monitoring requirements, and communication and grievance mechanisms. The phased nature of the operation, together with progressive rehabilitation, ensures that impacts remain temporary and do not result in long-term socio-economic burdens. Ongoing stakeholder engagement further supports adaptive management and responsiveness to community concerns. Overall, this approach aligns with the principles of sustainable development under NEMA, ensuring that socio-economic risks are avoided or minimised while maximising local benefits.	Highly Desirable
How will the socio-economic impacts resulting from this development impact on people's environmental right?	The socio-economic impacts of the proposed quarry are expected to be positive and supportive of the environmental rights enshrined in Section 24 of the Constitution, which guarantees the right to an environment that is not harmful to health or well-being. The development will contribute to local economic upliftment through employment creation, support for local businesses, and the supply of materials for infrastructure development, thereby improving overall community well-being. At the same time,	Highly Desirable

	environmental management measures have been incorporated to ensure that these benefits are not achieved at the expense of environmental quality. Potential negative impacts, such as dust, noise, and visual disturbance, will be localised, temporary, and effectively managed through the implementation of the Environmental Management Programme (EMPr) and compliance with environmental authorisation conditions. These controls are designed to protect air quality, soil integrity, and surrounding land uses, thereby safeguarding the health and well-being of nearby communities. Overall, the development reflects a balanced approach that integrates socio-economic benefits with environmental protection. It is therefore consistent with the principles of sustainable development as outlined in the National Environmental Management Act (Act 107 of 1998) and does not infringe on people's environmental rights.	
Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts?	Livelihoods in the Aberdeen area are primarily dependent on extensive livestock grazing, which relies on the functioning of the semi-arid Nama-Karoo ecosystem. Key ecosystem services include forage availability, soil stability, and the maintenance of natural vegetation cover, all of which support agricultural productivity and rural livelihoods. The proposed development will result in the disturbance of a limited portion of natural grazing land within the mining footprint, including the removal of vegetation and soil associated with areas supporting protected plant species. This may affect ecosystem services at a local scale; however, the impacts are confined to a defined area and are not expected to significantly affect the broader grazing capacity of the surrounding farm or region. Ecological impacts associated with the development, including vegetation loss, soil disturbance, and potential erosion, are expected to be localised and of moderate significance prior to mitigation. A small portion of the site (approximately 0.6 ha) overlaps with a Critical Biodiversity Area 2 (CBA 2); however, due to its limited extent, this is not considered to compromise broader ecological functioning or regional conservation objectives, provided that appropriate mitigation is implemented. The broader landscape remains largely intact, supporting ecological connectivity and enabling the continued functioning of ecosystem processes. No wetlands or significant watercourses occur within the mining footprint, and impacts on hydrological processes are expected to be limited and manageable. Through the implementation of a phased mining approach and progressive rehabilitation, disturbed areas will be stabilised and reinstated to a condition suitable for grazing or natural vegetation recovery, taking into account the natural limitations of the	Highly Desirable

	environment. In addition, a pre-construction search-and-rescue of protected plant species will be undertaken to reduce impacts on conservation-relevant flora. In terms of ecological integrity objectives, the development is not expected to compromise regional conservation targets, as the affected vegetation type is classified as Least Concern and the disturbance footprint is limited. The impact is therefore considered localised and manageable, rather than significant at a regional scale. The assessment of layout and operational alternatives informed the selection of the preferred option as the Best Practicable Environmental Option (BPEO). The selected layout: - Minimises disturbance to areas of relatively higher ecological sensitivity, including the portion of CBA 2 where feasible; - Confines activities to a compact and manageable footprint; - Reduces the extent of disturbance and associated ecological impacts; and - Facilitates effective rehabilitation and environmental management. The No-Go alternative would avoid ecological disturbance but would also forgo the socio-economic benefits associated with the project, including employment opportunities and the supply of locally sourced construction material. With the implementation of the proposed mitigation measures and monitoring programmes, including rehabilitation and invasive species control, the development is not expected to result in long-term negative impacts on ecosystem services or the socio-economic wellbeing of the surrounding community. The project therefore represents a balanced outcome that supports both environmental sustainability and local socio-economic development.	
What measures were taken to pursue the selection of the “best practicable environmental option” in terms of socio-economic considerations?	The selection of the Best Practicable Environmental Option (BPEO) was informed by a balanced assessment of socio-economic benefits, environmental considerations, and land-use compatibility. The preferred site and layout were selected to maximise local socio-economic benefits while minimising potential negative impacts. Key measures included: - Localisation of benefits: Employment, skills development, and procurement opportunities will be prioritised for residents of Aberdeen and surrounding rural areas, in alignment with the development objectives of the Dr Beyers Naudé Local Municipality.	Highly Desirable

	• Avoidance of displacement: The selected footprint is located on land with low agricultural potential, ensuring that no households, infrastructure, or productive farming activities are affected. • Efficient use of existing infrastructure: The proximity to the R61 and use of existing access routes reduces the need for new infrastructure, limiting costs, disturbance, and environmental impacts. • Appropriate project scale and duration: The small-scale, temporary nature of the operation allows for manageable impacts and supports concurrent rehabilitation, ensuring that land use can be restored over time. • Stakeholder engagement: Consultation with the landowner and relevant stakeholders informed the layout and operational approach, reducing the potential for conflict and ensuring alignment with local needs. Through these measures, the preferred option achieves an equitable balance between socio-economic upliftment and environmental protection. The development is therefore considered the most appropriate option, supporting local economic activity while remaining compatible with the surrounding rural environment. Please refer to: • Part A(1)(g)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.	
What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons?	Environmental justice principles were integrated into the planning and design of the proposed quarry to ensure that no individual or group, particularly vulnerable or disadvantaged persons, is unfairly impacted. The quarry is located on privately owned farmland at a sufficient distance from surrounding receptors, which limits direct exposure of communities to potential impacts such as noise, dust, and visual disturbance. Potential environmental impacts are expected to be localised, temporary, and manageable, and will be mitigated through the implementation of the Environmental Management Programme (EMPr). These measures ensure that environmental quality, including air, soil, and water, is maintained within acceptable limits. To prevent disproportionate impacts, the project includes ongoing environmental monitoring and management, as well as clearly defined operational controls. In addition, a transparent stakeholder engagement process has been followed, with	Highly Desirable

	accessible communication channels and grievance mechanisms to ensure that all interested and affected parties can raise concerns and be meaningfully included in decision-making. The socio-economic benefits of the project, including employment opportunities and support for local services, will be directed toward the surrounding communities, where levels of unemployment and economic vulnerability are relatively high. Overall, the development promotes a fair distribution of both benefits and impacts, ensuring that no group is disproportionately affected while contributing to equitable local economic development in line with the principles of environmental justice.	
What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	The proposed quarry has been designed to promote equitable access to socio-economic benefits and environmental resources, thereby supporting basic human needs and community wellbeing. The development will contribute to improved access to infrastructure through the supply of locally sourced aggregate for road upgrades and public works within the Dr Beyers Naudé Local Municipality. This supports improved mobility, service delivery, and access to economic opportunities in the broader area. Measures to promote equitable benefit sharing include: • Local participation opportunities: Where reasonably practicable, employment and training opportunities may be extended to individuals from Aberdeen and surrounding rural areas, including previously disadvantaged persons; • Support for local enterprises: Goods and services may, where feasible, be sourced from local suppliers and small businesses; • Inclusive stakeholder engagement: A transparent public participation process ensures that all interested and affected parties have the opportunity to provide input and raise concerns. • The development footprint is limited and located on land with low agricultural potential, ensuring that ecosystem services and existing land uses outside the footprint remain unaffected. No communities will be excluded from access to environmental resources as a result of the project. Overall, the approach promotes equitable access to opportunities and benefits without creating undue obligations, while aligning with principles of social equity and sustainable development.	Highly Desirable

What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	Environmental health and safety responsibilities have been incorporated into all phases of the proposed quarry, from planning and design through to operation, rehabilitation, and closure. The applicant will implement an Environmental Management Programme (EMPr) that outlines the required mitigation, monitoring, and reporting measures to ensure compliance with environmental and occupational health and safety requirements. Key measures include: • Legislative compliance: Adherence to applicable legislation, including the National Environmental Management Act (NEMA), the Mine Health and Safety Act (MHSA), and relevant DMRE requirements; • Environmental oversight: Appointment of a suitably qualified Environmental Control Officer (ECO) to monitor compliance and conduct regular site inspections; • Health and safety management: Implementation of site-specific safety procedures, including the use of personal protective equipment (PPE), demarcation of operational areas, and emergency response protocols; • Training and awareness: Induction and ongoing training of employees and contractors on environmental management, health and safety practices, and incident response; • Pollution prevention and control: Implementation of measures such as dust suppression, spill prevention, waste management, and erosion control throughout the operational phase; • Progressive rehabilitation: Rehabilitation of disturbed areas during the life of the project to minimise long-term impacts; and • Closure planning: Inclusion of closure and post-closure rehabilitation measures from the outset, including removal of infrastructure and monitoring of site stability and recovery. These measures ensure that environmental health and safety responsibilities are effectively managed throughout the project lifecycle, thereby protecting workers, surrounding land uses, and the receiving environment.	Highly Desirable
Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community that is consistent with the priority needs of the local area.	The proposed quarry development has taken into account the interests, needs and values of interested and affected parties, as identified through the public participation process and in alignment with the development priorities of the Dr Beyers Naudé Local Municipality.	Highly Desirable

	The Municipality's Integrated Development Plan (IDP) emphasises public participation, community empowerment and inclusive planning, ensuring that local communities are actively involved in development processes and benefit from projects within their area . The ward-based planning approach further supports the inclusion of local stakeholders in decision-making and skills development initiatives. In addition, the IDP identifies key priority areas that are directly relevant to the proposed development, including: • Infrastructure development, aimed at supporting economic activity and improving livelihoods ; • Local economic development (LED), with a focus on SMME support, skills development, and creating an enabling environment for business growth ; and • Institutional and community development, including capacity building, training, and improved service delivery . In this context, the proposed quarry allows for opportunities across different segments of the community in a manner consistent with these priorities. These opportunities may include: • Employment and skills development opportunities, contributing to local capacity building in line with institutional development objectives; • Support for local SMMEs, through the potential procurement of goods and services, aligned with LED priorities; • Contribution to infrastructure development, through the supply of construction materials required for municipal projects and maintenance of roads and services; and • Ongoing stakeholder engagement, ensuring that community concerns are incorporated and that development remains responsive to local needs. Overall, the development supports inclusive participation and socio-economic upliftment by aligning with the municipality's strategic focus on infrastructure provision, economic development, and community empowerment, while remaining responsive to stakeholder inputs and local conditions.	
What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers	The quarry will operate in full compliance with the Mine Health and Safety Act (Act No. 29 of 1996), ensuring that all workers are informed of potential health, safety and environmental risks. Measures include:	Highly Desirable

associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected.	• Site-specific induction and ongoing training on hazards, safe work procedures and emergency response; • Regular toolbox talks and daily briefings to address changing site conditions and risks; • Clear signage and hazard communication in accordance with OHSA requirements; • Provision and enforcement of appropriate PPE; • Implementation of a Health and Safety Plan aligned with the EMPr, including incident reporting and emergency procedures; and • A formalised Right to Refuse Dangerous Work policy (Section 23 of the MHSA), allowing workers to withdraw from unsafe conditions without fear of reprisal. These measures ensure a safe, informed and legally compliant working environment.	
Describe how the development will impact on job creation in terms of, amongst other aspects?	The proposed quarry is expected to contribute to job creation within the Dr Beyers Naudé Local Municipality, where employment opportunities are limited and the economy is largely agriculture-based. Key aspects include: • Direct employment opportunities: The project may create short- to medium-term employment during site establishment and operational phases for activities such as excavation, processing, and transport; • Indirect employment: Opportunities may arise for local service providers, including transport, equipment maintenance, and general support services; • Skills development: Workers may gain practical experience and training, enhancing their employability in the mining and construction sectors; and • Local economic support: Income generated through employment and services may contribute to household livelihoods and local economic activity. While the scale of employment will be limited due to the size of the operation, the project is expected to provide meaningful economic opportunities and contribute to broader local development objectives.	Highly Desirable
What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental	The proposed quarry has been planned in accordance with the principles of the National Environmental Management Act (Act 107 of 1998), ensuring that environmental resources are used responsibly and in the public interest.	Highly Desirable

resources will serve the public interest, and that the environment will be protected as the people's common heritage.	Key measures include: • Responsible resource use: Dolerite extraction will be undertaken on a limited scale to support local infrastructure needs, ensuring that the resource benefits the broader community; • Protection of environmental resources: The development footprint is confined to an area of low environmental sensitivity, and sensitive features have been avoided where practicable; • Environmental management and compliance: Implementation of an approved Environmental Management Programme (EMPr) will ensure ongoing monitoring, mitigation, and compliance throughout the project lifecycle; • Public participation: Interested and affected parties have been given the opportunity to participate in the assessment process, ensuring transparency and accountability; and • Rehabilitation and closure planning: Progressive rehabilitation and post-closure restoration will ensure that the land remains stable and usable, protecting its long-term value. Through these measures, the development ensures that environmental resources are utilised in a manner that serves the public interest while safeguarding the environment as a shared heritage for present and future generations.	
Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left.	Yes. The proposed mitigation measures are considered realistic, practical, and appropriate for the scale and nature of the quarry operation. These measures are outlined in the Environmental Management Programme (EMPr) and are based on established practices for small-scale open-cast mining. Key measures include phased mining and rehabilitation, dust suppression, erosion control, hydrocarbon spill prevention, and appropriate waste management. These actions are implementable using standard equipment and procedures, with clearly defined responsibilities and oversight by an Environmental Control Officer (ECO). The long-term environmental legacy of the project is expected to be low. Upon completion of mining, disturbed areas will be reshaped, stabilised, and rehabilitated to allow for a return to grazing or natural vegetation. No permanent infrastructure or ongoing pollution sources will remain. The managed burden post-closure is anticipated to be minimal and limited to monitoring of rehabilitation success, including vegetation establishment and erosion control.	Highly Desirable

	Overall, provided that the proposed mitigation measures are implemented and maintained, residual impacts are expected to be of low significance, and the site will remain stable and compatible with surrounding land uses. The long-term environmental legacy will be positive and low risk. Once mining concludes, the disturbed area will be stabilised, contoured, and returned to grazing use, with no permanent infrastructure or pollution sources remaining. The managed burden will therefore be minimal, limited to routine post-closure monitoring to ensure vegetation recovery and erosion control. Through this proactive, progressive rehabilitation approach, the site will not leave a lasting environmental burden but rather a safe, stable, and productive landscape, compatible with surrounding land uses. It is believed that the mitigation measures proposed in this document is realistic and can be implemented (when needed) by the proposed activities. If the proposed mitigation measures and monitoring programs, as proposed in this document, are implemented, the residual impact on the environment is of low significance.	
What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution environmental damage or adverse health effects will be paid for by those responsible for harming the environment.	The polluter-pays principle, as set out in Section 2(4)(p) of the National Environmental Management Act (Act 107 of 1998), has been incorporated into the planning, operation, and closure of the proposed quarry. The applicant will be responsible for all costs associated with preventing, managing, and remedying environmental impacts throughout the project lifecycle. Key measures include: - Implementation of an EMPr: A site-specific Environmental Management Programme outlines mitigation, monitoring, and corrective actions to prevent or manage environmental harm; - Financial provision: In accordance with Section 41 of the MPRDA and applicable regulations (GN R.1147 of 2015), financial provision will be made to cover rehabilitation and closure costs; - Incident management: Any pollution incidents (e.g. hydrocarbon spills) will be addressed and remediated at the cost of the permit holder; - Monitoring and compliance: Ongoing environmental monitoring and reporting by the Environmental Control Officer (ECO) will ensure compliance and early identification of risks; and - Closure and rehabilitation: Post-closure rehabilitation and monitoring will be undertaken and funded by the applicant to restore the site to a stable and sustainable condition.	Highly Desirable

	These measures ensure that environmental and health-related costs are not transferred to the public, and that responsibility remains with the applicant in line with national environmental legislation.	
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified, resulted in the selection of the best practicable environmental option in terms of socio-economic considerations	A range of layout and operational alternatives, including minor layout adjustments and the no-go option, were assessed to identify an option that balances socio-economic benefits with the protection of ecological integrity. The preferred site and layout were selected as the BPEO as they: • Are located on low agricultural potential land, thereby avoiding displacement of productive land uses or communities; • Utilise a known and viable mineral resource, which is site-specific in nature; • Are situated in proximity to existing infrastructure (R61), reducing the need for additional disturbance, costs, and emissions; • Provide socio-economic benefits such as employment opportunities, support for local services, and the supply of materials for infrastructure development in line with municipal priorities; and • Allow for a controlled, phased mining approach with concurrent rehabilitation, ensuring that ecological impacts remain localised, temporary, and reversible. The no-go alternative would avoid environmental disturbance but would also forgo these socio-economic benefits, which are important in a rural area with limited economic opportunities. Based on this assessment, the preferred alternative represents the Best Practicable Environmental Option, as it achieves a balanced outcome by supporting local socio-economic development while maintaining ecological integrity through appropriate management and rehabilitation. Please refer to: • Part A(1)(g)(i) Details of the development footprint alternatives considered; • Part A(1)(g)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Socio-Economic Environment; • Part A(1)(g)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.	Highly Desirable

Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area.	The proposed quarry is a small-scale operation (±5 ha) located near Aberdeen within the Dr Beyers Naudé Local Municipality, an area characterised by limited industrial activity and an economy largely dependent on agriculture and government services. Given the scale, nature, and relatively short operational lifespan of the project, cumulative socio-economic impacts are expected to be localised, with positive impacts outweighing potential negatives. Positive cumulative impacts: • Employment and skills development: The project may contribute to temporary employment and skills transfer, which can enhance local capacity within the construction and mining sectors; • Local economic stimulation: Demand for services such as transport, maintenance, and general support may benefit local businesses and service providers; • Infrastructure support: The supply of locally sourced aggregate will support infrastructure development and road maintenance in the area, improving accessibility and service delivery; and • Alignment with municipal objectives: The project supports local economic development and infrastructure priorities identified in the Dr Beyers Naudé Local Municipality. Negative cumulative impacts: • Temporary nuisance impacts: Dust, noise, and increased traffic may contribute to cumulative effects when considered alongside other activities in the area, although these impacts are expected to be limited and managed through the EMPr; • Temporary land-use change: A small portion of grazing land will be disturbed during operations, although this will be rehabilitated post-mining. Overall assessment: Overall, the cumulative socio-economic impacts are expected to be positive and localised, contributing to short-term economic upliftment without resulting in significant long-term adverse effects.	Highly Desirable

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

The preferred site, activity, and technology alternatives were identified through an integrated assessment of the mineral resource, environmental sensitivities, operational requirements, and socio-economic considerations. The selected option represents the most practicable approach, enabling the extraction of a site-specific resource while ensuring that environmental impacts are managed to acceptable levels through appropriate mitigation and rehabilitation measures.

The preferred site is located on Portion 0 of Farm 94 (Perseverance), approximately 20–23 km west of Aberdeen within the Dr Beyers Naudé Local Municipality. The location is determined by the presence of a viable dolerite resource, which can only be economically extracted at its point of occurrence. The site is accessible via the existing road network, thereby limiting the need for additional infrastructure. The land is currently utilised for low-intensity livestock grazing and is considered compatible with a temporary quarrying activity.

It is acknowledged that the site is associated with environmental sensitivities identified through the Screening Tool and refined through specialist assessments. These include moderate terrestrial ecological sensitivity, driven by the presence of natural vegetation, numerous protected plant species, and a limited portion (approximately 0.6 ha) of Critical Biodiversity Area 2 (CBA 2) within the footprint. Additional sensitivities relating to aquatic, palaeontological, and heritage aspects have been assessed and are considered manageable. The selection of the site is therefore not based on low sensitivity, but on the availability of the mineral resource and the ability to manage impacts within a defined footprint.

The preferred activity entails small-scale open-cast quarrying, including drilling, controlled blasting, excavation, crushing, screening, and transport. This method represents the most practical and feasible means of extracting the dolerite resource. Mining will be undertaken in a phased manner, limiting disturbance at any given time and enabling progressive rehabilitation. The relatively short operational lifespan further reduces the potential for long-term impacts.

The preferred technology consists of conventional quarrying methods utilising mobile or semi-mobile equipment. This approach reduces the need for permanent infrastructure, limits environmental disturbance, and allows for operational flexibility and effective rehabilitation.

The preferred layout has been refined to:

- Position the mining area within the zone offering the highest confidence in the availability and continuity of suitable hard rock material, thereby ensuring the operational viability of the quarry;
- Confine activities to a compact and manageable footprint;
- Limit vegetation loss and associated ecological impacts; and
- Facilitate the effective implementation of mitigation measures, including search-and-rescue of protected plant species and progressive rehabilitation.

Although a small portion of the footprint overlaps with CBA 2, this is limited in extent and does not represent a fatal flaw. The terrestrial specialist has confirmed that the proposed layout may be retained, as impacts can be effectively mitigated and managed.

No fatal flaws were identified during the environmental assessment process that would preclude the development, provided that the recommended mitigation measures, specialist requirements, and monitoring programmes are implemented. The primary ecological risk relates to the presence of protected plant species, which will be addressed through pre-construction search-and-rescue and relevant permitting processes.

The preferred combination of site, activity, and technology represents the Best Practicable Environmental Option (BPEO), balancing the need for resource utilisation with environmental protection. The development will contribute to local economic activity and provide aggregate for infrastructure and construction within the region, while environmental impacts are expected to remain localised, of moderate significance, and manageable through the implementation of the EMPr.

The proposed development is therefore considered environmentally acceptable, technically feasible, and aligned with the principles of sustainable development as set out in the National Environmental Management Act (Act 107 of 1998). The preferred development footprint has been refined accordingly and is illustrated in the Site Activities Plan (Appendix C).

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

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

i) Details of the development footprint alternatives considered.

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

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

The preferred site layout and configuration were determined through an iterative assessment process that considered the distribution and quality of the dolerite resource, environmental sensitivities identified through the Screening Tool and specialist assessments, as well as engineering and operational requirements.

Alternative layout configurations within the property were assessed to optimise the positioning of the quarry, processing area, stockpiles, and access infrastructure. The layout was refined to minimise disturbance, reduce haul distances, and avoid unnecessary expansion beyond the defined footprint.

An option making use of an existing disturbed area was also considered. However, this alternative was not feasible due to the limited remaining resource, poorer material quality, and the need for additional access infrastructure.

Environmental inputs, including specialist findings, were incorporated into the layout refinement process. These confirmed that while the site includes natural vegetation, protected plant species, and a small portion of Critical Biodiversity Area 2 (approximately 0.6 ha), the identified sensitivities can be managed through appropriate mitigation. The layout therefore avoids higher sensitivity areas where practicable while maintaining access to the economically viable resource.

The final layout confines all activities to a compact and clearly defined footprint, supports phased mining, and enables progressive rehabilitation throughout the life of the operation. The proposed mining area further offers the highest confidence in the availability of suitable, economically viable material.

The preferred layout is therefore considered both practical, economically and environmentally acceptable, and represents the Best Practicable Environmental Option (BPEO) for the proposed development. The preferred layout is therefore considered the most practical and environmentally acceptable option for the site and represents the Best Practicable Environmental Option (BPEO).

i) Details of the Development Footprint Alternatives Considered

i) Site Alternative 1 (S1) – Preferred and Only Site Alternative

(a) Property or Location

The proposed quarry is located on Portion 0 of Farm 94 (Perseverance), approximately 20–23 km west of Aberdeen in the Eastern Cape Province. The site was selected based on the confirmed presence of a viable dolerite resource, which is inherently site-specific and can only be economically extracted at its point of occurrence.

The site is accessible via the existing road network, including the nearby R61, and is situated within a rural farming area characterised by low-intensity livestock grazing. The proposed activity is considered compatible with the current land use, given its temporary nature and limited footprint.

No alternative properties were considered, as the occurrence of the mineral resource is fixed. The assessment therefore focused on refining the layout within the property to minimise environmental impacts and ensure that the development represents the Best Practicable Environmental Option (BPEO).

Site Alternative 1 entails the mining of an area over an inactive area of the farm used for agriculture within the GPS coordinates as listed in the table below:

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

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	32°28'12.24"S	23°49'1.30"E	-32.470068	23.817027
B	32°28'11.16"S	23°49'6.91"E	-32.469767	23.818586
C	32°28'15.69"S	32°28'15.69"E	-32.469472	23.818519
D	32°28'8.96"S	23°49'13.13"E	-32.469155	23.820315
E	32°28'12.67"S	23°49'14.06"E	-32.470186	23.820572
F	32°28'11.52"S	23°49'23.38"E	-32.469867	23.823161
G	32°28'13.77"S	23°49'24.87"E	-32.470491	23.823576
H	32°28'13.93"S	23°49'24.35"E	-32.470537	23.823431
I	32°28'12.18"S	23°49'23.02"E	-32.470049	23.823062
J	32°28'13.42"S	23°49'14.24"E	-32.470395	23.820621
K	32°28'14.71"S	23°49'7.71"E	-32.470753	23.818808
L	32°28'15.69"S	23°49'7.94"E	-32.471025	23.818872
M	32°28'16.68"S	23°49'2.89"E	-32.471300	23.817469
A	32°28'12.24"S	23°49'1.30"E	-32.470068	23.817027

(b) Type of Activity

The proposed activity comprises the open-cast quarrying of dolerite, including drilling, controlled blasting, excavation, crushing, screening, and transport of aggregate. Alternative extraction methods were not considered feasible due to the hardness of the material and the need for efficient recovery of usable aggregate.

(c) Design or Layout of the Activity

Two layout configurations within the site were considered:

- **Preferred Layout (Alternative 1):**
  The quarry, processing area, and stockpiles are positioned within an area of viable dolerite, with a short access road providing direct access from the existing road network. This layout minimises haul distances, limits disturbance to a compact footprint, and supports efficient operations.

Figure 5: Satellite view showing the position of Site Alternative 1 Quarry area (red polygon), laydown area (yellow polygon) with the viable access road (blue line) within the surrounding landscape.

- **Alternative Layout (Alternative 2):**
  An alternative layout excluding the approximately 0.6 ha portion of the footprint within the CBA 2 was considered, which would require shifting the development further north. However, this option was not feasible, as the dolerite resource diminishes towards the north, resulting in insufficient material of suitable quality and quantity for economic extraction.

The preferred layout was therefore retained, as it provides optimal access to the viable resource while limiting the overall footprint and ensuring that environmental impacts can be effectively managed through mitigation measures.

Figure 6: Alternative layout option (Alternative 2) Quarry area (yellow polygon), laydown area (red polygon) with the viable access road (blue line) within the surrounding landscape.

(d) Technology

The operation will utilise conventional open-cast quarrying methods, including controlled blasting, mobile crushing and screening units, and diesel-powered earthmoving equipment.

Alternative technologies, such as fixed processing plants or grid-powered systems, were not considered suitable due to higher infrastructure requirements and a larger environmental footprint.

(e) Operational Aspects

Mining will be undertaken in phases, limiting the extent of active disturbance at any given time and allowing for progressive rehabilitation.

Operational controls, including dust suppression, stormwater management, spill prevention, and waste management, will be implemented in accordance with the Environmental Management Programme (EMPr) to ensure compliance with environmental requirements.

(f) No-Go Alternative

The no-go alternative would result in no environmental disturbance; however, it would also prevent the utilisation of mineral resources and the associated socio-economic benefits. These include local employment opportunities, supply of construction materials, and support for infrastructure development in the surrounding area.

The no-go option would therefore maintain the current land use but would not contribute to local economic development or infrastructure needs.

j) Conclusion

The assessment of alternatives confirmed that Site Alternative 1, as reflected in the final site layout (Appendix A), represents the Best Practicable Environmental Option. The preferred alternative enables efficient extraction of a site-specific mineral resource while maintaining a compact footprint and supporting effective mitigation and rehabilitation measures.

ii) Details of the Public Participation Process Followed

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

During the public participation process, relevant stakeholders and Interested and Affected Parties (I&APs) will be notified of the proposed project through an advertisement placed in the South Cape Forum on 5 June 2026. In addition, on-site notices will be erected at visible and accessible locations in and around the project area, including at appropriate points along the farm boundary and other high-visibility areas.

A notification letter inviting comments on the Draft Basic Assessment Report (DBAR) will be distributed to the landowner, neighbouring landowners, stakeholders, and other registered I&APs, providing a 30-day commenting period (ending 6 July 2026). All comments received during this period will be considered and incorporated into the Final Basic Assessment Report (FBAR), which will be submitted to the DMPR for decision-making.

The following stakeholders and I&APs will be informed of the proposed project:

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

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
Surrounding landowners & lawful occupiers: • Pen Marx Familie Trust – Landowner – Farm 94 • Edrich Marx - Farm Lottrings Uitvlugt No 95 Portion 2 • Heinrich Johann Marx – Farm 94 Portion 2 • Hennie - Farm Lotterings Uitvlugt No 95 Remainder of Portion 1 • Eskom – Farm 94 Portion 4,5& 6	• Department of Economic Development Environmental Affairs and Tourism; • Department Of Transport • Department of Agriculture, Rural Development and Land Reform • Department of Agriculture, Rural Development and Agrarian Reform • Department of Water and Sanitation; • Department of Labour • Sarah Baartman District Municipality; • Dr Beyers Naude Local Municipality; • Dr Beyers Naude Local Municipality - Ward 1 • South African Heritage Resources Agency; • Eastern Cape Provincial Heritage Resources Authority; • Eastern Cape Parks And Tourism Agency (ECPTA) • Eskom
I&AP'S AND STAKEHOLDERS THAT REGISTERED/COMMENTED DURING THE INITIAL NOTIFICATION PERIOD	
• Any comments received on the draft BAR will be incorporated into the final BAR.	

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

Requirements in terms of NEMA regulation 41	public participation process followed
• Regulation 41(2)(a): *Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of-* *(i) The site where the activity to which the application or proposed application relates is or is to be undertaken; and*	Notice boards in English were fixed at the following conspicuous and public accessible areas: • Entrance to the farm/site. • At visible and accessible locations in and around the project area, including at appropriate points along other high-visibility areas.

Requirements in terms of NEMA regulation 41	public participation process followed
(ii) *Any alternative site.* • Regulation 41(3): *A notice, notice board or advertisement referred to in sub regulation (2) must—* *(a) give details of the application or proposed application which is subjected to public participation; and* *(b) state—* *(i) whether basic assessment or S&EIR procedures are being applied to the application.* *(ii) the nature and location of the activity to which the application relates.* *(iii) where further information on the application or proposed application can be obtained; and* (iv) *the manner in which and the person to whom representations in respect of the application or proposed application may be made.* • Regulation 41(4): *A notice board referred to in sub regulation (2) must—* *(a) be of a size of at least 60cm by 42cm; and* (b) *display the required information in lettering and in a format as may be determined by the competent authority.*	All the notice boards that were placed complied with the requirements of Regulation 41(3) as presented in Appendix F attached to this document. The notices were printed on boards of 60 x 42 cm in Arial font of sufficient size.
• Regulation 41(2)(b): *giving written notice, in any of the manners provided for in section 47D of the Act, to-* (i) *the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any*	(i) The Landowner (and Applicant) signed an agreement regarding this project and is kept apprised of the EIA (BA) process. To date, no additional comments were received. (ii) The surrounding landowner will be invited to comment on the project and the DBAR.

Requirements in terms of NEMA regulation 41	public participation process followed
alternative site where the activity is to be undertaken. (ii) *owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken.* (iii) *the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area.* *(iv) the municipality which has jurisdiction in the area.* *(v) any organ of state having jurisdiction in respect of any aspect of the activity.* *(vi) any other party as required by the competent authority;*	(iii) The Ward Councillor of Ward 1 will be invited to comment on the project and DBAR. (iv) Both the Beyers Naude Local Municipality and Sarah Baartman District Municipality will be invited to comment on the project and DBAR. (v) As listed in Table 7 the relevant state departments and entities will be invited to comment on the project and DBAR.
▪ Regulation 41(2)(c): *Placing an advertisement in-* *(i) One local newspaper; or* *(ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations.*	▪ The project and availability of the DBAR was advertised in South Cape Forum on 5 June 2026 in English.
▪ Regulation 41(2)(d): *Placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken…*	Not applicable, as the proposed activity will not extend beyond the boundaries of the metropolitan or district municipality in which it will be undertaken.
▪ Regulation 41(2)(e): *Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to—*	▪ Not applicable to this application

Requirements in terms of NEMA regulation 41	public participation process followed
(i) illiteracy. *(ii) disability; or* (iii) *any other disadvantage.*	
• Regulation 41(5): *Where public participation is conducted in terms of this regulation for an application or proposed application, sub regulation (2)(a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19(1)(b) or 23(1)(b) or the public participation process contemplated in regulation 21(2)(d) …*	• Not applicable to this application.
• Regulation 41(6): *When complying with this regulation, the person conducting the public participation process must ensure that—* *(a) information containing all relevant facts in respect of the application or proposed application is made available to potential interested and affected parties; and* (b) *participation by potential or registered interested and affected parties is facilitated in such a manner that all potential or registered interested and affected parties are provided with a reasonable opportunity to comment on the application or proposed application.*	• The DBAR containing all relevant facts in respect of the application will be available to potential I&APs for perusal and commenting over a 30-days commenting period. The DBAR will be available on the company (Greenmined) website. I&AP's will be invited to contact the EAP should additional information be required.
• Regulation 41(7): *Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all*	• Not applicable to this project.

Requirements in terms of NEMA regulation 41	public participation process followed
relevant authorities agree to such combination of processes.	

iii) Summary of issues raised by I&APs

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

Table 9: Summary of issues raised by IAPs

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES	**X**				
Landowner/s					
• Pen Marx Familie Trust – Landowner – Portion 0 of Farm 94	X	The landowner is aware of the mining permit application with formal consent in place.			
Lawful occupier/s of the land					
N/A					
Landowners or lawful occupiers on adjacent properties	**X**				
• Edrich Marx – Landowner – Farm Lottrings Uitvlugt Nr 95 Portion 2	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
• Heinrich Johann Marx – Farm 94 Portion 2	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
• Oom Hantie – Farm Lotterings Uitvlugt Nr 95 Remainder of Portion 1	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
• Eskom – Farm 94 Portion 4,5 & 6	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Municipal councillor					
Dr Beyers Naude Local Municipality - Ward 1	X	Any comments received on the draft BAR will be incorporated into the final BAR.			

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
Municipality					
Dr Beyers Naude Local Municipality	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Sarah Baartman District Municipality	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Department Of Transport	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Eskom	X	Any comments received on the draft BAR will be incorporated into the final BAR			
Communities	N/A	No community were identified within the study area.			
Dept. Land Affairs					
Department of Agriculture, Land Reform and Rural Development	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Department Of Rural Development and Agrarian Reform	X	Any comments received on the draft BAR will be incorporated into the final BAR.			

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
Traditional Leaders	N/A				
Dept. Environmental Affairs					
Department of Economic Development, Environmental Affairs and Tourism	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Other Competent Authorities affected					
Department of Labour	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Department of Water and Sanitation	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
South African Heritage Resources Agency	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Eastern Cape Provincial Heritage Resources Authority;	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
Eastern Cape Parks and Tourism Agency (ECPTA)	X	Any comments received on the draft BAR will be incorporated into the final BAR.			
OTHER AFFECTED PARTIES					
N/A		Any comments received on the draft BAR will be incorporated into the final BAR.			
INTERESTED PARTIES					
N/A		Any comments received on the draft BAR will be incorporated into the final BAR.			

iv) The Environmental attributes associated with the alternatives.

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

(1) Baseline Environment

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

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

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

PHYSICAL ENVIRONMENT

GEOGRAPHY AND SETTING

The proposed quarry is situated approximately ±20–23 km west of Aberdeen within the Dr Beyers Naudé Local Municipality, forming part of the Sarah Baartman District Municipality in the Eastern Cape Province. The mining footprint, covering approximately 5 ha, is located on Portion 0 of Farm 94 within a rural landscape historically utilised for low-intensity livestock grazing.

TOPOGRAPHY

The site is characterised by gently undulating terrain typical of the Karoo landscape, with relatively minor variation in elevation across the area. The topography is generally flat to slightly sloping, with no steep or rugged features present.

The proposed quarry footprint is located on a slightly elevated dolerite outcrop relative to the surrounding terrain, providing a stable and suitable foundation for surface mining activities. The local topography allows for natural drainage of surface runoff during rainfall events.

The broader landscape comprises low ridges and shallow drainage features associated with the semi-arid Karoo environment. No perennial watercourses or wetlands occur within the mining footprint. A prominent ephemeral drainage feature is located outside the proposed development footprint and surrounding infrastructure areas of the site, outside the development area, while minor drainage lines may occur within the surrounding landscape.

These features will be appropriately managed through the implementation of stormwater and erosion control measures to prevent localised erosion and sediment transport.

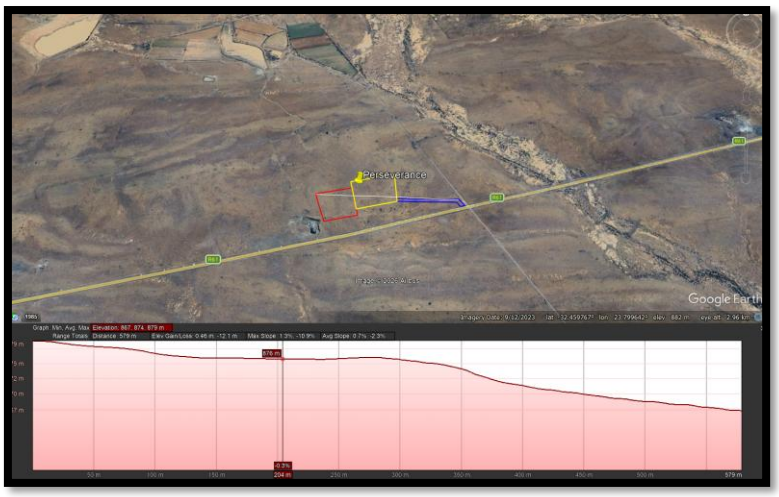


Figure 7: Elevation profile showing the topography between the proposed mining footprint (brown line) and the town of Aberdeen. (Image obtained from Google Earth).

GEOLOGY AND SOILS

CLIMATE AND WIND

The project area falls within a semi-arid climatic zone typical of the Karoo region. Rainfall is low and variable, with mean annual precipitation of approximately 200 mm, occurring mainly during late summer and early autumn.

Temperatures are characterised by hot summers and cold winters. Summer temperatures frequently exceed 30 °C, while winter temperatures can drop below freezing, particularly during early morning hours. The region also experiences large temperature fluctuations between day and night.

Evaporation rates are high throughout the year and exceed rainfall, resulting in generally dry conditions and limited soil moisture availability.

Wind conditions are variable and can be moderate to strong at times, particularly during seasonal weather changes. Periods of higher wind speeds may occur, which can influence site conditions.

These climatic factors, including low rainfall, high evaporation, and periodic strong winds, increase the potential for dust generation during mining activities. Dust impacts will be managed through appropriate mitigation measures, including controlled vehicle speeds, limiting disturbance to active areas, and dust suppression where necessary.

VISUAL CHARACTERISTICS

The proposed quarry is located within a rural Karoo landscape characterised by gently undulating terrain, low relief, and scattered dolerite outcrops. The visual character of the area is largely natural, shaped by extensive grazing and limited built infrastructure.

A historical quarry located to the west has, however, already introduced localised disturbance within the immediate landscape.

The relatively flat terrain and low topographic relief limit long-distance visibility of the site. As a result, views of the proposed quarry are expected to be largely confined to the immediate surroundings, including sections of the R61 and the adjacent farm area.

Potential visual receptors are limited and include nearby farmsteads and road users along the R61. Given the rural setting, distance to receptors, and the localised extent of the development, visual exposure to the activity is expected to be limited.

Taking into account the existing disturbance, the rural context, and the constrained viewshed, the visual sensitivity of the area is considered low to moderate. Visual impacts associated with the proposed quarry are expected to be localised and temporary, and can be further reduced through phased mining and progressive rehabilitation.

AIR AND NOISE QUALITY

The Aberdeen area is characterised by generally low background levels of air pollution, largely due to the absence of significant industrial or urban emission sources. Air quality is primarily influenced by natural and rural activities, with dust generation mainly associated with windblown soil, vehicle movement on gravel roads, and agricultural practices.

Ambient noise levels in the area are typically low, reflecting the rural setting, with intermittent contributions from farm-related activities and passing vehicles along the surrounding road network.

GEOLOGY AND SOIL

The site is underlain by dolerite intrusions associated with the Karoo Dolerite Suite of the Karoo Supergroup. These intrusive bodies form resistant outcrops within the surrounding landscape and consist of hard, fine- to medium-grained igneous rock suitable for use as construction aggregate.

Soil within the proposed footprint are generally shallow, stony, and weakly developed, with low organic content. The topsoil layer is limited and variable in depth, reflecting the rocky nature of the underlying geology.

Land capability in the area is low and primarily suited to extensive livestock grazing, with little to no potential for cultivation. Due to the limited availability of topsoil, careful

stripping, stockpiling, and reuse during rehabilitation will be required to support vegetation recovery and maintain long-term land stability.

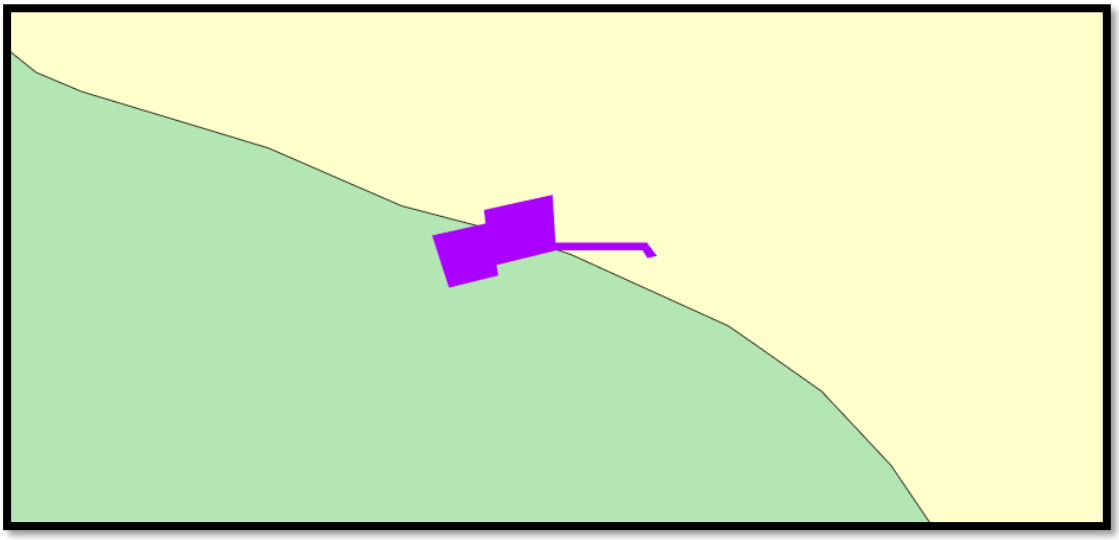


Figure 8: Geological map of the study area showing the Middleton Formation (green) and unconsolidated surface deposits (light yellow), including alluvium, colluvium, eluvium, gravel, scree, sand, soil, and debris, surrounding the proposed quarry, laydown, and access area (purple polygon) (Image obtained from the Council for Geoscience)

HYDROLOGY

The proposed quarry is located within the Orange Water Management Area in a semi-arid Karoo environment characterised by low and variable rainfall, resulting in limited and episodic surface water flow.

According to the National Web-Based Environmental Screening Tool, the broader area is associated with elevated aquatic biodiversity sensitivity. However, site-specific verification confirmed that no perennial rivers, wetlands, or defined watercourses occur within the proposed quarry footprint.

The nearest notable drainage feature is an ephemeral system located outside the proposed development footprint and surrounding infrastructure areas of the site, outside the development footprint. Minor, poorly defined drainage features may occur within the surrounding landscape and along the proposed access road alignment. Although these features are not wetlands or perennial systems, they function as watercourses during rainfall events and contribute to local hydrological processes.

In line with a precautionary approach and to ensure compliance with the National Water Act (Act 36 of 1998), stormwater and erosion control measures will be implemented to minimise potential impacts on these features. These measures will include appropriate road design, management of surface runoff, and stabilisation of disturbed areas through phased rehabilitation.

Groundwater in the area is associated with fractured Karoo sediments and dolerite intrusions and is typically characterised by low yield potential. The proposed quarry is expected to remain shallow and is unlikely to intersect the groundwater table, thereby limiting the risk of groundwater contamination or drawdown.

Water use for the project will be minimal and limited to dust suppression and domestic use. Water will be sourced from a lawfully authorised supply, and any additional water use will be authorised in terms of the National Water Act, if required.

Based on the site-specific verification of aquatic features, the hydrological sensitivity of the development footprint is considered low, and potential impacts on surface and groundwater resources are expected to be localised and manageable with the implementation of the mitigation measures outlined in the EMPr.

Table 10: Aquatic characteristics of the greater study area

Water Management Area	Orange Water Management Area
Sub Water Management Area	Sundays Sub-Water Management Area
Quaternary Catchment	N14A
FEPA Status	NFEPA river - 21_N_U

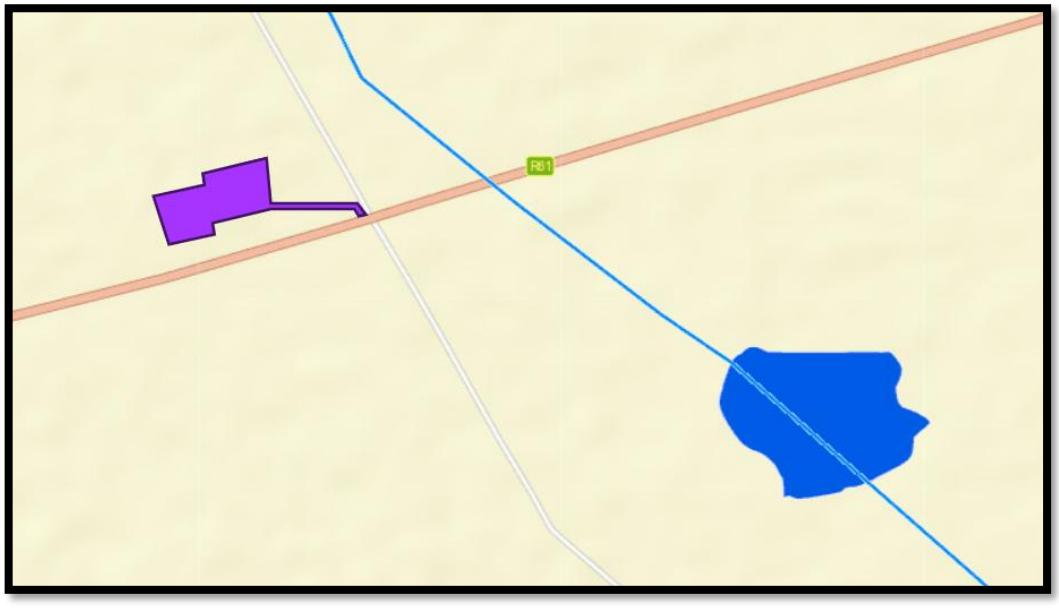


Figure 9: Map showing the proposed mining footprint (purple polygon) approximately 550m from the NFEPA river (Image obtained from BGIS)

BIOLOGICAL ENVIRONMENT

MINING AND BIODIVERSITY

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

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

When the mining footprint is layered over the Mining and Biodiversity Map, as shown in the figure below, it does not fall over an area specified for risk of mining therefore the risk is seen to be insignificant. The Mining and Biodiversity Guideline's describes areas of moderate risk biodiversity importance as: "*These areas are of moderate biodiversity value."* The guideline notes that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.

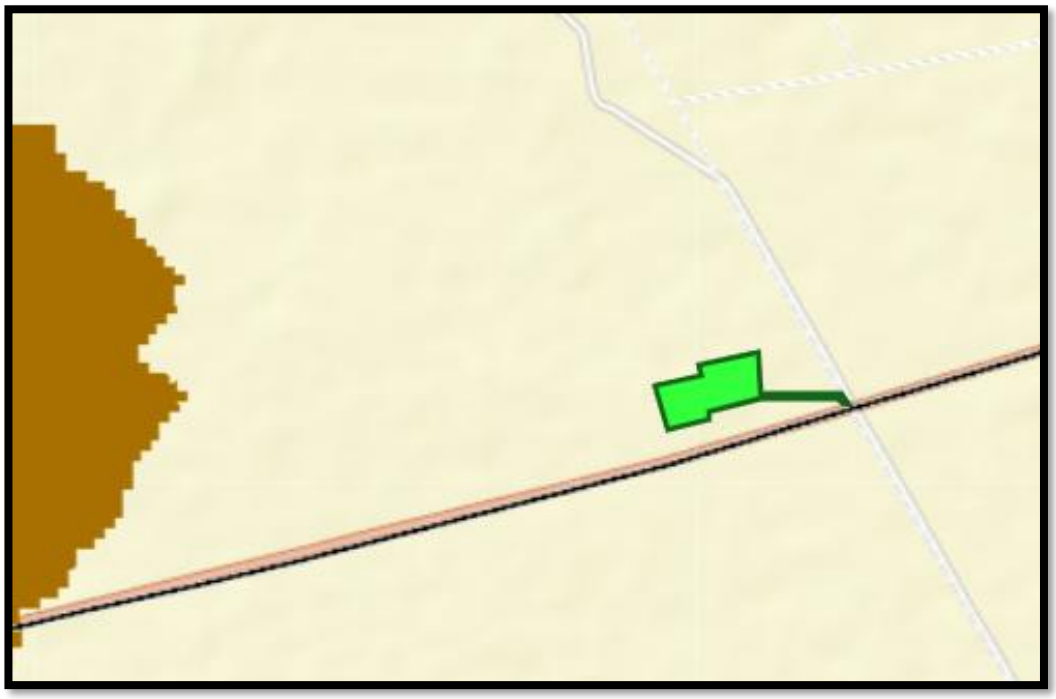


Figure 10: The Mining and Biodiversity importance map with the proposed mining footprint indicated by the green polygon. Dark brown – high biodiversity importance, high risk for mining, Light brown – moderate biodiversity importance, moderate risk for mining, (image obtained from the BGIS Map Viewer – Mining Guidelines).

BIODIVERSITY CONSERVATION AREAS

The 2024 Eastern Cape Biodiversity Spatial Plan (NCBSP) shows that the proposed mining footprint and all relevant areas, overlaps with an Ecological Support Area One (ESA 1) and partially with a Critical Biodiversity Areas Two (CBA 2) as indicated by the green area in the figure below. An Ecological Support Area is described as areas NOT essential for meeting biodiversity targets, but are essential in terms of:

- Terrestrial landscape: Ensuring connectivity between CBAs, strengthening climate change resilience, and proper function of ecosystem infrastructure for delivery of ecosystem services. From a terrestrial perspective, ESAs may include riparian areas, coastal corridors, ridges, etc.
- Aquatic landscape: ESAs extend into catchments that are essential for the maintenance of CBA rivers and wetlands.

ESAs need to be maintained in a semi-natural, if not natural, state.

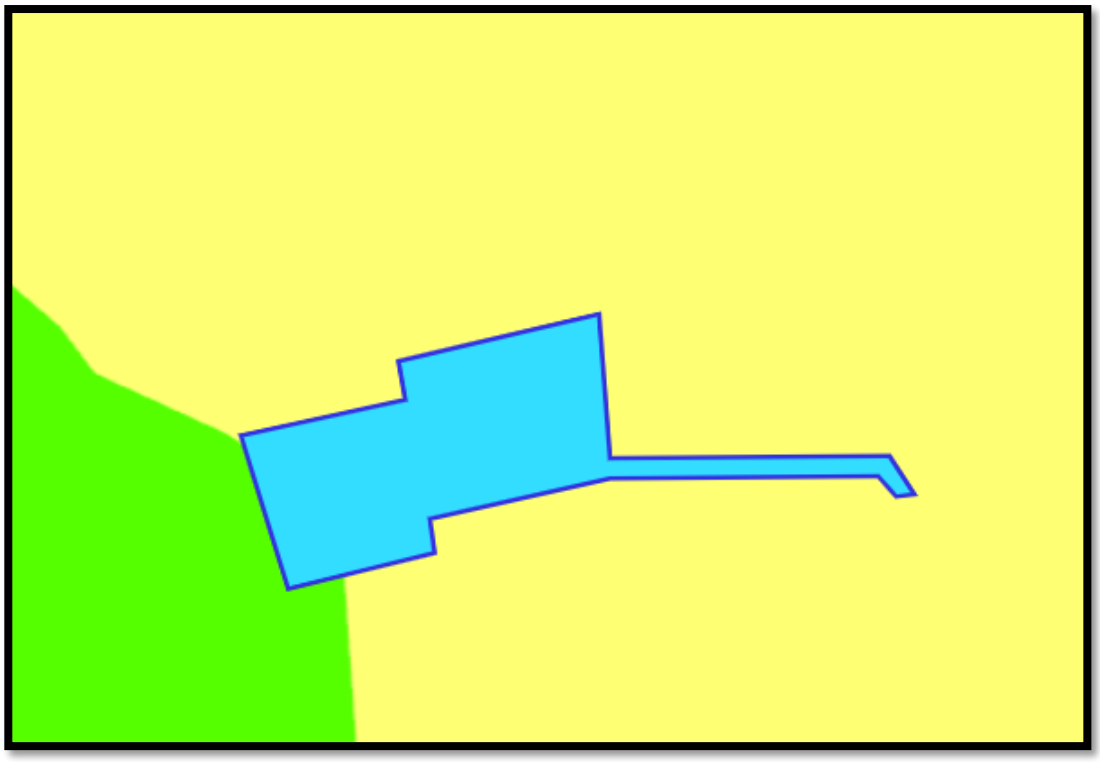


Figure 11: Eastern Cape Biodiversity Spatial Plan showing the mining area (blue polygon) within an ESA 1 (yellow area) (Image obtained from BGIS Map Viewer – 2024 Eastern Cape Biodiversity Spatial Plan).

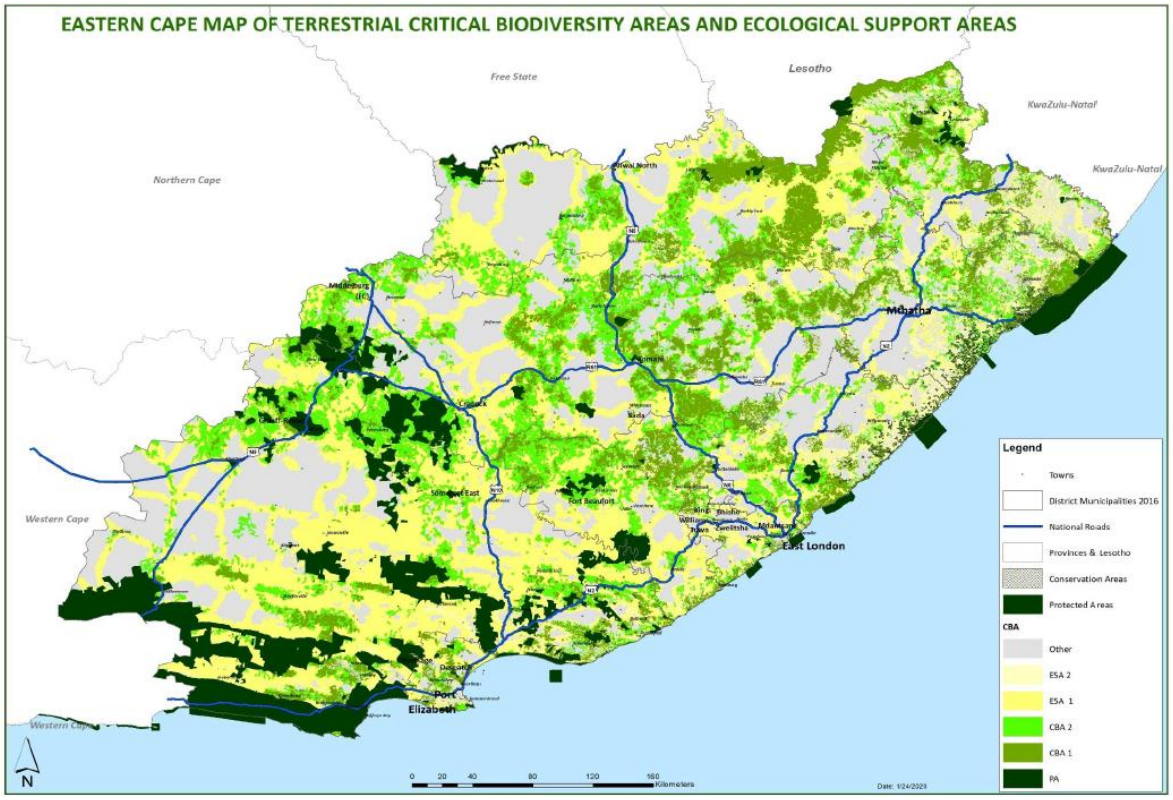


Figure 12: Terrestrial CBA map of the Eastern Cape (map obtained from 2019 Eastern Cape Biodiversity Conservation Plan handbook)

GROUNDCOVER

According to Mucina and Rutherford (2012), the vegetation type of the project area is classified as Eastern Lower Karoo (NKu 3), which is listed as Least Concern. This vegetation type is widely distributed within the Nama-Karoo Biome and is characterised by a mosaic of low shrubland, grasses, succulents, and geophytic species adapted to arid conditions.

The landscape comprises gently undulating plains interspersed with rocky outcrops and dolerite ridges. Vegetation structure is typically dominated by dwarf karroid shrubs, with a variable but generally sparse grass component, including species from genera such as Aristida and Eragrostis. Succulents and geophytes are also well represented, particularly in rocky microhabitats.

The Terrestrial Ecological Assessment confirmed that the vegetation within the proposed mining footprint is in a good, largely natural condition, with moderate species diversity. Several microhabitats occur on site, including rocky ridges, shallow soils, and localised drainage features, which contribute to habitat heterogeneity.

Importantly, the site supports a high number of protected plant species, particularly succulent and geophytic taxa of conservation importance. While no threatened species were recorded, the presence of these protected species increases the

ecological value of the site and necessitates mitigation in the form of a pre-construction search-and-rescue and translocation programme.

Groundcover across the site is naturally low, which is characteristic of the semi-arid Eastern Lower Karoo environment. The sparse vegetation cover reflects natural climatic and edaphic conditions, including low rainfall, shallow soils, and extensive surface rock, rather than ecological degradation.

The vegetation structure consists of scattered shrubs and a patchy grass layer that provides sufficient soil stabilisation. Although the area is subject to livestock grazing, no significant overgrazing or associated degradation (such as bare soil expansion or erosion) was observed during the assessment. The site is therefore considered to be ecologically functional and largely undisturbed.

No significant invasive alien plant infestations were recorded during the survey; however, species such as Opuntia ficus-indica may occur within the broader area and will require monitoring and control to prevent establishment following disturbance.

Overall, the groundcover and vegetation within the proposed footprint are considered representative of the regional vegetation type, with impacts from the proposed development expected to be localised and manageable, provided that mitigation measures are implemented.

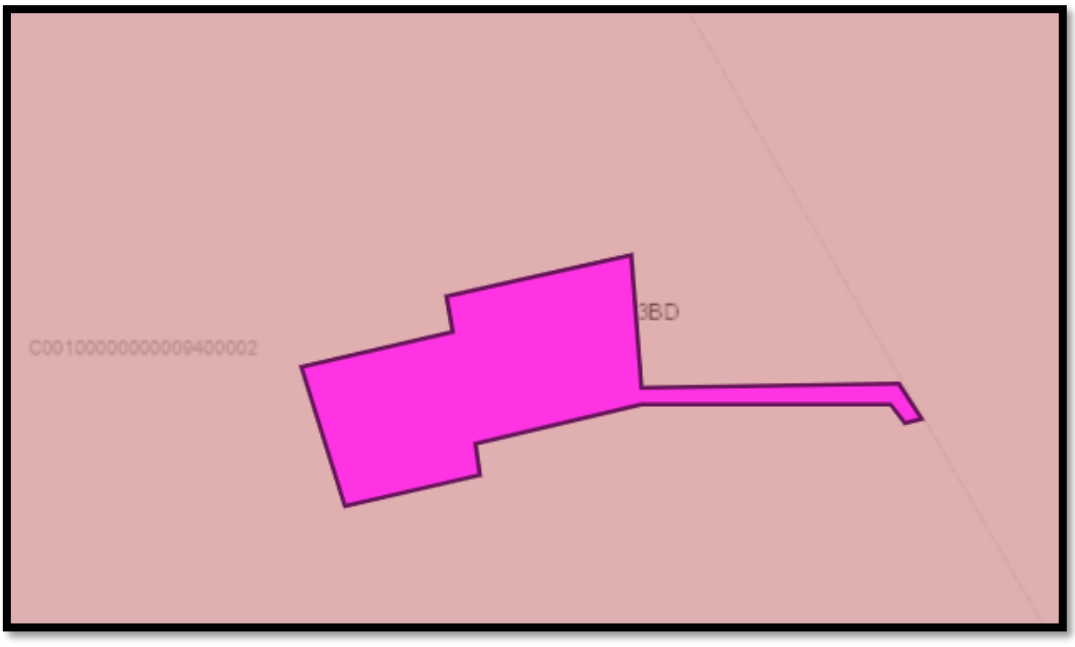


Figure 13: National vegetation cover map showing the mining area within the Eastern Lower Karoo lleast threatened terrestrial ecosystem (NKu 3) (light pink) (Image obtained from BGIS Map Viewer – National Vegetation Map).

The Terrestrial Ecological Assessment recorded the presence of numerous protected plant species within the proposed development area, including species such as *Albuca*

crispa, Aloe broomii, Stomatium rouxii, Anacampseros filamentosa, Trichodiadema setulifolium, Crassula deltoidea, Euphorbia caterviflora, Haworthiopsis venosa subsp. tessellata, Pachypodium succulentum, Pelargonium obtratanifolium (specially protected), Duvalia corderoyi, Euphorbia arida, Adromischus trigynus and Ceropegia filiformis.

In terms of applicable provincial conservation legislation, a permit may be required for the removal, disturbance, or relocation of protected plant species.

To mitigate impacts on these species, a pre-construction search-and-rescue operation will be undertaken by a suitably qualified specialist to identify and relocate selected individuals, where feasible, to suitable adjacent habitat. This process will be implemented in accordance with permit conditions and best practice guidelines

FAUNA

The faunal environment within the proposed mining footprint remains largely intact and reflects the predominantly natural condition of the surrounding Eastern Lower Karoo landscape. The Terrestrial Ecological Assessment recorded signs of common mammal species such as Steenbok, Porcupine, and Common Mole-rat, indicating active use of the area and functioning ecological processes.

Although historical and ongoing livestock grazing has influenced faunal composition, the habitat continues to support a diversity of widespread and adaptable species. There is potential for occasional use of the area by species of conservation concern, including Southern African Hedgehog, Black-footed Cat, and Brown Hyena.

The assessment confirmed that the specialised riparian habitat required for the Critically Endangered Riverine Rabbit is absent from the site. Sensitivity for this species is therefore considered low.

Reptiles typical of arid, rocky environments are expected to occur, including species such as Leopard Tortoise, girdled lizards, and Rock Monitor. Amphibian diversity is expected to be low due to the absence of permanent surface water, with only opportunistic species likely to occur following rainfall events.

Avifaunal diversity is moderate and typical of Karoo shrubland systems, with species such as Karoo Korhaan, larks, and Rock Kestrel expected. The site does not fall within a designated Important Bird and Biodiversity Area (IBA), and no critical habitat for threatened avifaunal species was identified.

Invertebrates are expected to be diverse and play an important role in soil processes and ecosystem functioning; however, no species of conservation concern were recorded.

Sensitivity and Impact Assessment

The overall faunal sensitivity of the site is considered low to moderate. This is attributed to the absence of permanent surface water, the dominance of open shrubland habitat, and the prevalence of widespread and adaptable species typical of the Nama-Karoo.

A small portion of the site (approximately 0.6 ha) overlaps with a Critical Biodiversity Area 2 (CBA 2); however, this does not significantly elevate faunal sensitivity at a site level.

Potential impacts associated with the proposed quarry include:

- Temporary displacement of terrestrial fauna;
- Disturbance from noise and vibration during blasting and operational activities; and
- Localised habitat loss within the mining footprint.

These impacts are expected to be localised and of moderate significance prior to mitigation, and largely reversible with the implementation of appropriate management measures. Given the availability of extensive surrounding habitat, fauna is expected to relocate to adjacent areas during disturbance.

Mitigation and Management

- To minimise impacts on fauna, the following measures will be implemented:
- Pre-clearance inspections to identify and relocate fauna where feasible;
- Restricting disturbance strictly to the approved footprint;
- Prohibiting hunting, trapping, or intentional harm to fauna by site personnel;
- Implementing noise and dust control measures;
- Enforcing reduced vehicle speeds to minimise collisions;
- Adequate perimeter fencing must be installed and maintained around active quarry areas to prevent access by livestock and wildlife. Fencing must be inspected regularly and maintained to prevent animals from gaining access beneath or through the fence line.
- Managing excavations to prevent faunal entrapment (e.g. escape ramps); and
- Undertaking progressive rehabilitation to restore habitat and support recolonisation.

All personnel will receive environmental induction training, including awareness of fauna protection requirements.

Avifauna

A detailed Avifaunal Impact Assessment was undertaken, including a desktop review and site-specific field verification to assess bird diversity, habitat suitability, and potential impacts associated with the proposed quarry.

The study confirmed that bird diversity within the project area is moderate and typical of open Karoo shrubland systems. Species such as Karoo Korhaan (*Eupodotis vigorsii*), larks (*Calendulauda spp*.), and Rock Kestrel (*Falco rupicolus*) are expected to occur within the area. Although the Screening Tool identified elevated sensitivity due to the potential presence of species of conservation concern, field verification did not confirm the presence of any threatened or highly sensitive avifaunal species within the footprint.

The site does not fall within a designated Important Bird and Biodiversity Area (IBA), and no critical breeding, nesting, or roosting habitat was identified. Habitat within the footprint is considered typical and widely available in the surrounding landscape.

Potential impacts on avifauna are primarily associated with vegetation clearing, noise, and general disturbance during construction and operation. These impacts are expected to be localised and temporary, with birds likely to move into adjacent suitable habitat during periods of disturbance.

With the implementation of mitigation measures, including limiting disturbance to the approved footprint and progressive rehabilitation, impacts on avifauna are expected to be of low to moderate significance and manageable over time.

HUMAN ENVIRONMENT:

The proposed mining footprint is located on Portion 0 of Farm 94 within a rural Karoo landscape characterised by low-intensity livestock grazing, exposed dolerite outcrops, and shallow soils. The site is largely natural, with no significant disturbance within the footprint aside from grazing activities.

A Heritage Impact Assessment (HIA) has been undertaken for the site (refer to Appendix M3). The assessment identified archaeological material within the broader project area, including Stone Age artefacts of cultural and scientific significance. These resources will require appropriate management in accordance with the

recommendations of the specialist study and the provisions of the National Heritage Resources Act (Act 25 of 1999).

No graves, built heritage structures, or formal heritage sites were identified within the proposed quarry footprint during the assessment.

In terms of palaeontological sensitivity, the broader area is identified as sensitive in regional mapping; however, the Palaeontological Impact Assessment (PIA) confirmed that the site is largely associated with dolerite intrusions within the broader Beaufort Group geology. Although dolerite itself is non-fossiliferous and no fossils were identified during the site inspection, the broader region retains palaeontological sensitivity and mitigation measures, including a Chance Find Protocol, are required. No fossil material was identified during the site inspection, and with implementation of the recommended mitigation measures, residual impacts on palaeontological resources are expected to be low and acceptable.

Potential impacts on heritage resources may arise from vegetation clearing, excavation, and blasting activities, which could result in the disturbance of archaeological material if not properly managed. These impacts are expected to be localised and can be effectively mitigated.

Recommended mitigation measures include:

- Compliance with permitting requirements in terms of the National Heritage Resources Act;
- Implementation of a Heritage and Palaeontological Chance Find Procedure; and
- Monitoring during initial site clearance, where required.

With the implementation of these measures, impacts on heritage resources are expected to be manageable and of low to moderate significance.

When the footprint of the earmarked mining area is placed on the PSM, the SAHRIS palaeo-sensitivity map (see https://sahris.org.za/map/palaeo) the project lies on high sensitivity (red) rocks and on sands and gravel of unknown palaeosensitivity (no - colour) (as presented in the figure below).

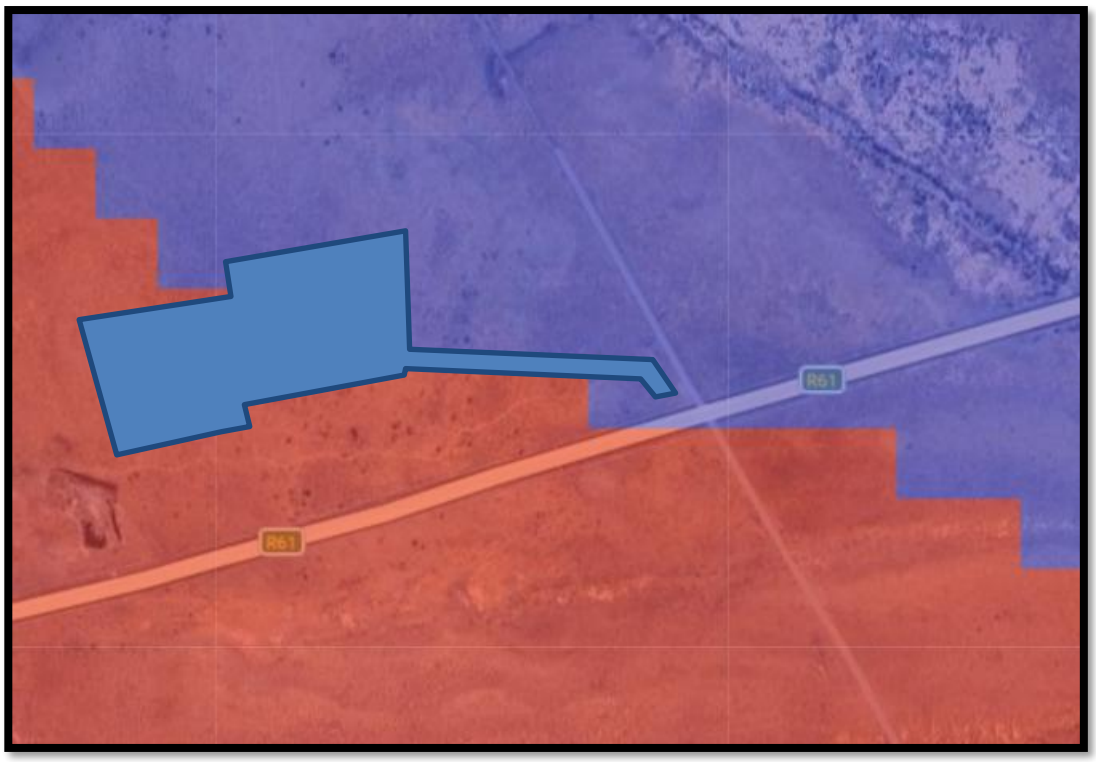


Figure 14: Screenshot from the SAHRIS palaeo-sensitivity map showing the location of the proposed mining area (blue polygon) Background colours indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; blue = low; grey = insignificant/zero. (Source: https://sahris.sahra.org.za/map/palaeo).

SOCIO-ECONOMIC ENVIRONMENT

(Information extracted from the Dr Beyers Naudé Local Municipality Integrated Development Plan – 2025/26)

The project falls within the jurisdiction of the Dr Beyers Naudé Local Municipality, which forms part of the Sarah Baartman District Municipality in the Eastern Cape Province. The municipality includes key towns such as Graaff-Reinet, Aberdeen, and Jansenville, and is characterised by a predominantly rural landscape.

According to the IDP, the municipality had an estimated population of approximately 101 001 people in 2022, representing about 19% of the Sarah Baartman District population. Population growth has been moderate, averaging approximately 2.4% per annum between 2012 and 2022.

The socio-economic profile reflects a rural economy with limited diversification. Economic activity is primarily driven by agriculture, tourism, and government services, with constrained private sector growth.

Unemployment remains a significant challenge within the municipality. In 2022, approximately 14 000 people were unemployed, reflecting a substantial increase

over the past decade and indicating ongoing socio-economic pressures within the region.

The IDP further highlights key development challenges including:

- High and increasing unemployment levels;
- Limited economic diversification;
- Skills shortages and education constraints; and
- Infrastructure backlogs, particularly in transport and municipal services.

Infrastructure development and maintenance, especially road infrastructure, are identified as important priorities to support economic growth and improve service delivery across the municipality.

In this context, the proposed quarry has the potential to contribute positively to local socio-economic objectives by:

- Supplying aggregate materials required for municipal and provincial infrastructure development;
- Creating short- to medium-term employment opportunities; and
- Supporting secondary economic activities such as transport and maintenance services.

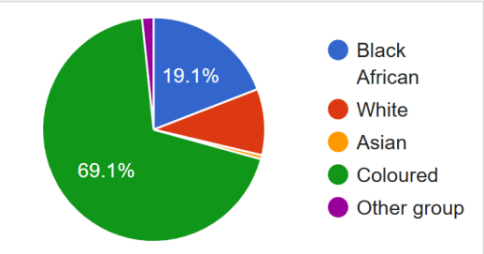
Given its scale and location within a rural setting, the project is considered compatible with existing land uses and is not expected to result in displacement of communities. The development is therefore aligned with local economic development objectives as outlined in the IDP.

Name	Status	Population Census 1996-10-09	Population Census 2001-10-09	Population Census 2011-10-09	Population Census 2022-02-02
Dr Beyers Naudé (incl. Camdeboo, Ikwezi, Baviaans)	Local Municipality	74,431	73,732	79,292	101,001

*Figure 15: Population Growth (*Dr Beyers Naudé Local Municipality *Integrated Development Plan –2025/26).*

REGION	POPULATION	RANKING	%
Kouga	107 014	1	20%
Dr Beyers Naude	101 001	2	19%
Makana	97 815	3	18%
Ndlambe	87 797	4	16%
Sundays River Valley	53 256	5	10%
Blue Crane Route	49 883	6	9%
Kou-Kamma	36 487	7	7%
SARAH BAARTMAN TOTAL	**533 253**		

Figure 16: Population for the region (Dr Beyers Naudé Local Municipality Integrated Development Plan – 2025/26).



Population Group (C 2022)	
Black African	19,310
White	9,633
Asian	586
Coloured	69,689
Other group	1,701

*Figure 17: Population by Group (*Dr Beyers Naudé Local Municipality *Integrated Development Plan* – 2025/26*).*

	Very Formal	Formal	Informal	Traditional	Other dwelling type	Total
Dr Beyers Naude	11,076	12,460	130	424	70	24,160
Blue Crane Route	5,009	6,088	42	165	22	11,326
Makana	10,627	12,309	457	1,114	110	24,617
Ndlambe	6,197	15,345	440	1,189	116	23,287
Sundays River Valley	5,318	13,682	259	1,436	83	20,778
Kouga	24,956	9,967	1,227	3,811	586	40,548
Kou-Kamma	9,557	4,462	187	236	94	14,536
Total	**72,740**	**74,313**	**2,742**	**8,374**	**1,083**	**159,252**

Sarah Baartman

*Figure 18: Households by dwelling type (*Dr Beyers Naudé Local Municipality *Integrated Development Plan* – 2025/26*).*

Economic Profile

The Dr Beyers Naudé Local Municipality economy is predominantly rural and is largely driven by agriculture, tourism, and government services. Agricultural activities include livestock farming (sheep, goats, and cattle) as well as game farming, with wool and meat production forming important components of the local economy. Tourism, particularly linked to heritage, nature reserves, and hunting, also contributes to economic activity.

Despite these sectors, the local economy remains poorly diversified, with limited industrial and private sector development.

Employment

Unemployment is a significant and growing concern within the municipality. According to the IDP:

Approximately 14 000 people were unemployed in 2022, reflecting a substantial increase from previous years

The municipality has experienced a steady rise in unemployment over time, indicating persistent economic challenges

Key employment constraints identified include:

- Limited job creation opportunities;
- Low levels of skills and education;
- Limited economic diversification; and
- Insufficient support for small business development and entrepreneurship.

Development Context

The IDP identifies infrastructure development, economic diversification, and local economic development (LED) as key priorities to stimulate growth. In particular, improving infrastructure and supporting sectors such as tourism and agriculture are seen as critical to unlocking economic potential.

In this context, the proposed quarry development aligns with municipal objectives by:

- Supporting the supply of construction materials for infrastructure development;
- Creating employment opportunities during both construction and operational phases; and
- Stimulating secondary economic activities such as transport, maintenance, and local services.

Overall, the project is considered to support the municipality's broader goal of enhancing economic activity and addressing unemployment within a predominantly rural setting.

	Dr Beyers Naude	Sarah Baartman	Eastern Cape	National Total
2012	19.9%	18.3%	28.9%	25.1%
2013	20.7%	18.8%	29.6%	25.2%
2014	20.7%	18.6%	29.4%	25.2%
2015	20.4%	18.3%	29.2%	25.5%
2016	22.1%	19.5%	30.5%	26.4%
2017	24.8%	21.8%	32.9%	27.2%
2018	27.0%	23.6%	35.0%	27.4%
2019	30.7%	26.5%	38.0%	28.4%
2020	35.5%	30.4%	41.5%	30.3%
2021	40.1%	34.2%	44.9%	33.6%
2022	38.7%	32.8%	43.8%	33.7%

Figure 19: Unemployment: District Context (Information extracted the Dr Beyers Naudé Local Municipality Integrated Development Plan – 2025/26)

Economic Development and Urban Renewal.

The Dr Beyers Naudé Local Municipality Integrated Development Plan (IDP) identifies Local Economic Development (LED) as a key strategic objective, aimed at promoting economic growth, supporting job creation, and creating an enabling environment for investment.

The IDP further outlines a number of urban renewal and development priorities for the period 2023–2027, which include:

- Upgrading of infrastructure, including access roads and areas within Aberdeen;
- Redevelopment and support of cultural and heritage assets, such as the Apollo Theatre precinct;
- Support for emerging farmers through improved access to commonage land;
- Promotion of tourism activities, including nature-based and cultural tourism; and
- Strengthening of local economic initiatives, including support for youth- and women-focused enterprises.

Within this context, the proposed quarry is considered broadly compatible with these objectives, as it may contribute to infrastructure development and support local economic activity. This is subject to the effective implementation of environmental management and rehabilitation measures, as well as continued stakeholder engagement.

Education

The Dr Beyers Naudé Local Municipality Integrated Development Plan (IDP) identifies Local Economic Development (LED) as a key strategic objective, aimed at promoting economic growth, supporting job creation, and creating an enabling environment for investment.

The IDP further outlines a number of urban renewal and development priorities for the period 2023–2027, which include:

- Upgrading of infrastructure, including access roads and areas within Aberdeen;
- Redevelopment and support of cultural and heritage assets, such as the Apollo Theatre precinct;
- Support for emerging farmers through improved access to commonage land;
- Promotion of tourism activities, including nature-based and cultural tourism; and
- Strengthening of local economic initiatives, including support for youth- and women-focused enterprises.

	Dr Beyers Naude	Sarah Baartman	Eastern Cape	National Total	Dr Beyers Naude as % of district municipality	Dr Beyers Naude as % of province	Dr Beyers Naude as % of national
No schooling	1,960	9,920	183,000	1,400,000	*19.8%*	*1.07%*	*0.14%*
Grade 0-2	930	6,830	84,800	420,000	*13.6%*	*1.10%*	*0.22%*
Grade 3-6	6,530	39,200	451,000	2,480,000	*16.6%*	*1.45%*	*0.26%*
Grade 7-9	14,100	82,600	968,000	5,760,000	*17.0%*	*1.46%*	*0.24%*
Grade 10-11	14,400	99,000	1,220,000	9,810,000	*14.6%*	*1.18%*	*0.15%*
Certificate / diploma without matric	151	756	13,200	140,000	*20.0%*	*1.15%*	*0.11%*
Matric only	15,200	95,500	1,110,000	13,400,000	*16.0%*	*1.37%*	*0.11%*
Matric certificate / diploma	2,450	16,800	258,000	2,740,000	*14.5%*	*0.95%*	*0.09%*
Matric Bachelors degree	1,450	9,890	131,000	1,710,000	*14.6%*	*1.10%*	*0.08%*
Matric Postgrad degree	880	6,170	63,000	1,060,000	*14.3%*	*1.40%*	*0.08%*

Figure 20: Education: District Context (Information extracted the Dr Beyers Naudé Local Municipality Integrated Development Plan –2025/26)

Within this context, the proposed quarry is considered broadly compatible with these objectives, as it may contribute to infrastructure development and support local economic activity. This is subject to the effective implementation of environmental management and rehabilitation measures, as well as continued stakeholder engagement.

(b) Description of the current land uses

The proposed quarry is located on Portion 0 of Farm 94 (Perseverance), approximately 20–23 km west of Aberdeen within the Dr Beyers Naudé Local Municipality, Sarah Baartman District Municipality, Eastern Cape Province. The site is accessed via the R61 and is situated within a rural landscape typical of the Nama-Karoo biome.

Land use in the surrounding area is dominated by extensive livestock farming, primarily sheep and cattle grazing. Farms are generally large and privately owned, with low-intensity agricultural practices suited to the semi-arid environment.

The proposed mining footprint (approximately 5 ha) forms part of land currently used for grazing. However, the footprint itself is characterised by shallow, stony soils, exposed dolerite outcrops, and sparse natural vegetation, resulting in relatively low grazing potential compared to the surrounding rangeland.

No cultivated fields, irrigation infrastructure, or permanent structures occur within the footprint. The area remains largely natural and undeveloped, with only minor localised disturbance in the broader vicinity.

Surrounding properties will continue to function as grazing farms, and no dense settlements or sensitive land uses occur in close proximity to the site. The proposed development is therefore considered compatible with the prevailing land use pattern and is not expected to alter the rural character of the area.

Given the limited agricultural potential of the footprint, together with the small scale and temporary nature of the proposed operation, the development represents a localised and reversible land use change. Following rehabilitation, the area is expected to be suitable for continued grazing.

The main land use within a 500 m radius of the site remains agricultural, as described in the table below:

Table 11: Land uses and/or prominent features that occur within 500 m radius of S1.

LAND USE CHARACTER	YES	NO	DESCRIPTION
Natural area	**YES**		Predominantly undeveloped Karoo rangeland characterised by sparse shrub vegetation, exposed dolerite, and shallow soils.
Low density residential		**NO**	No residential dwellings within 500 m. Nearest farmstead located beyond 500 m.
Medium density residential		**NO**	Not present in this rural setting.
High density residential		**NO**	No urban or high-density development in proximity to the site.
Informal residential		**NO**	No informal settlements observed.
Retail commercial & warehousing		**NO**	None within 500 m; nearest services located in Aberdeen.
Light industrial		**NO**	None present.
Medium industrial		**NO**	None present.
Heavy industrial		**NO**	None present in the surrounding area.
Power station		**NO**	None in the vicinity.
High voltage power line	**YES**	**NO**	Transmission lines observed crossing or near the site.
Office/consulting room		**NO**	Not applicable in rural agricultural setting.
Military or police base / station / compound		**NO**	None nearby.
Spoil heap or slimes dam		**NO**	No such features identified within 500 m.
Quarry, gravel or quarry	**YES**		Evidence of historical or small-scale excavation/disturbance occurs within the broader area west of the proposed footprint.
Dam or reservoir		**NO**	No dams or reservoirs within 500 m of the site.
Hospital/medical centre		**NO**	None within the vicinity; services located in Aberdeen.
School/ crèche		**NO**	None within 500 m.
Tertiary education facility		**NO**	None in the immediate or surrounding area.
Church		**NO**	None within 500 m.
Old age home		**NO**	None present.
Sewage treatment plant		**NO**	None within 500 m.
Train station or shunting yard		**NO**	None within 500 m.
Railway line		**NO**	No railway infrastructure within 500 m.
Major road (4 lanes or more)		**NO**	The R61 is a two-lane provincial road located adjacent to the site.
Airport		**NO**	No airport infrastructure within 500 m.
Harbour		**NO**	Not applicable (inland area).
Sport facilities		**NO**	None present.
Golf course		**NO**	None present.
Polo fields		**NO**	None present.
Filling station		**NO**	None within 500 m.
Landfill or waste treatment site		**NO**	None within 500 m.
Plantation		**NO**	None.

LAND USE CHARACTER	YES	NO	DESCRIPTION
Agriculture	**YES**		Surrounding land used for extensive livestock grazing (sheep and cattle). No cultivated fields within 500 m.
River, stream or wetland	**YES**		A non-perennial river, as identified by the National Freshwater Ecosystem Priority Areas (NFEPA), is located in the broader area outside the proposed mining footprint. No rivers, wetlands, or defined watercourses occur within the footprint itself. Minor, poorly defined ephemeral drainage features may occur within the broader area and along the access road alignment. Although these features are not permanent systems, they are recognised as watercourses in terms of the National Water Act (Act 36 of 1998), as they convey surface runoff during rainfall events.
Nature conservation area		**NO**	No formally protected or conserved areas within 500 m.
Mountain, hill or ridge	**YES**		Low dolerite ridges and rocky outcrops form part of the local topography.
Museum		**NO**	None within the vicinity.
Historical building		**NO**	None recorded.
Protected Area		**NO**	No protected areas within 500 m.
Graveyard		**NO**	None identified within the site or immediate surroundings.
Archaeological site		**NO**	No confirmed archaeological sites within 500 m based on available information.
Other land uses (describe)		**NO**	None – predominantly rural grazing land.

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

SPECIFIC ENVIRONMENTAL FEATURES

SITE SPECIFIC TOPOGRAPHY

The proposed quarry area is characterised by gently undulating terrain typical of the Karoo landscape. The site is situated on a low dolerite outcrop within a semi-arid environment, with relatively minor variation in elevation across the footprint.

The local topography is generally flat to gently sloping, allowing for diffuse overland flow during rainfall events. Surface runoff is not channelled within the footprint but drains towards minor drainage features in the surrounding landscape.

No steep slopes, incised drainage lines, or significant erosion features were observed within the approximately 5 ha mining footprint. The landform is considered stable and suitable for the proposed quarrying activities.

SITE SPECIFIC VISUAL CHARACTERISTICS

The site is located within a typical Karoo landscape characterised by open, gently undulating terrain, sparse vegetation, and limited built infrastructure. The visual

character is predominantly rural, with land use largely associated with low-intensity grazing.

An existing disturbed area, including a historical excavation located immediately adjacent to the proposed quarry footprint, has already altered the natural visual baseline of the site. The receiving environment is therefore not considered visually pristine, and the proposed development will extend an already disturbed area rather than introduce a new, isolated visual impact.

Viewshed analysis indicates that visibility of the site is largely confined to the immediate surroundings, particularly along the R61 and within the local farm environment. The broader landscape, including the town of Aberdeen, is not expected to have direct line-of-sight to the site due to distance and the gently undulating terrain.

Potential visual receptors are limited to nearby farmsteads and road users along the R61. Given the existing disturbance, rural context, and constrained viewshed, the visual sensitivity of the area is considered low to moderate.

Visual impacts associated with the proposed quarry are expected to be localised and temporary. These impacts will be reduced through phased mining, maintaining a low operational profile, and implementing progressive rehabilitation. The presence of existing disturbed areas further reduces the visual contrast of the development within the landscape.

Upon closure, the site will be rehabilitated and stabilised to reintegrate with the surrounding environment, and no significant long-term visual impact is anticipated.

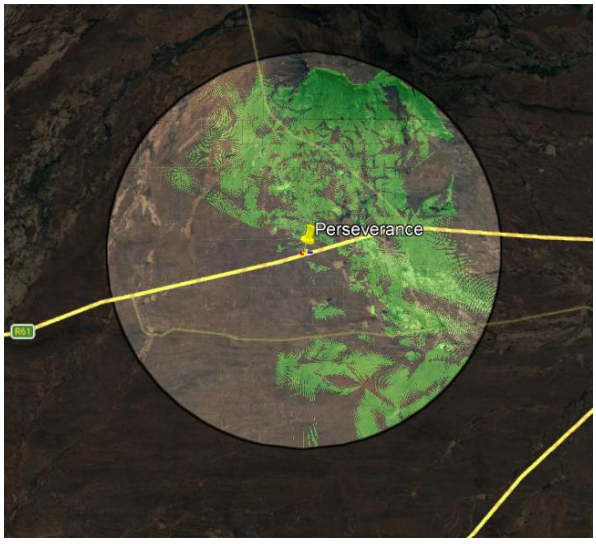


Figure 21: Viewshed of the proposed mining footprint where the green shaded areas show the positions from where the mining area (Proposed mining area) will be visible. (Image obtained from Google Earth).

SITE SPECIFIC AIR AND NOISE QUALITY

The ambient air quality in the area is generally good, owing to the absence of industrial emissions or dense settlements. Dust emissions are mainly limited to seasonal windblown dust and traffic on gravel roads. Mining operations may generate temporary dust and noise from drilling, blasting, and hauling, but these are expected to remain within acceptable limits due to the site's distance from receptors.

Emission into the atmosphere is controlled by the National Environmental Management: Air Quality Act, 2004. The proposed mining activity does not trigger an application in terms of the said act. The proposed activity will contribute the emissions mechanical mining equipment to the receiving environment for the duration of the operational phase. Should the permit holder implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low significance and compatible with the current land use.

Noise impacts will be managed through limited operating hours and adherence to SANS 10103 noise standards.

Overall, the areas air and noise quality are maintained at favourable levels, but development projects will require careful planning and monitoring to avoid significant impacts on the local environment and community well-being.

The potential impact on the noise ambiance of the receiving environment is expected to be of low significance.

SITE SPECIFIC GEOLOGY AND SOIL

The site is underlain by dolerite intrusions associated with the Karoo Supergroup, forming a hard and durable rock suitable for aggregate production.

Soils within the footprint are generally shallow, stony, and weakly developed over the dolerite substrate, resulting in limited agricultural potential. This is consistent with the semi-arid conditions of the Nama-Karoo environment.

Topsoil is limited and variable across the site, generally occurring as a thin surface layer. Where suitable material is present, it will be stripped ahead of mining activities and stockpiled for later use in rehabilitation.

SITE SPECIFIC HYDROLOGY

The site is located within a semi-arid Karoo landscape characterised by low and variable rainfall, with mean annual rainfall for the Aberdeen area estimated at approximately 200–240 mm. Surface runoff is episodic and occurs primarily in response to rainfall events.

Site verification and specialist assessment confirmed that no perennial rivers, wetlands, or defined watercourses occur within the proposed quarry footprint. A non-perennial drainage feature (as identified in NFEPA datasets) occurs in the broader area outside the footprint.

Minor, shallow drainage features occur within the broader landscape and may be intersected by the proposed access road. These features are ephemeral in nature and convey surface runoff only following rainfall events. Although not wetlands or permanently flowing systems, they are recognised as watercourses in terms of the National Water Act (Act 36 of 1998).

The specialist assessment confirmed that interactions with watercourses are limited to these minor ephemeral features associated with the access road alignment. Based on the nature and scale of the proposed activities, and provided that appropriate design and mitigation measures are implemented, impacts on these features are expected to be localised and manageable.

At this stage, the proposed activities are not anticipated to result in significant impeding or diversion of flow, or material alteration of watercourses, as contemplated in Sections 21(c) and 21(i) of the National Water Act. However, this is subject to detailed design and implementation, and confirmation may be required from the Department of Water and Sanitation (DWS).

Appropriate stormwater management and erosion control measures will be implemented to maintain existing drainage patterns and minimise sedimentation, particularly where the access road intersects minor drainage features.

Water required for dust suppression will be sourced from an existing lawful supply. Should any additional water uses be identified, the necessary authorisations will be obtained in accordance with the National Water Act.

SITE SPECIFIC MINING AND BIODIVERSITY CONSERVATION AREAS

According to the Eastern Cape Biodiversity Conservation Plan (ECBCP), the proposed mining footprint occurs predominantly within an Ecological Support Area 1 (ESA1),

with a small portion along the western boundary overlapping a mapped Critical Biodiversity Area (CBA 2). The specialist assessment confirmed that the section mapped as CBA 2 does not differ materially from the remainder of the site in terms of habitat condition or ecological characteristics. ESA1 areas are important for maintaining ecological connectivity and ecosystem functioning, while CBA 2 areas represent important biodiversity features that should preferably remain in a natural state.

The site is situated within the Eastern Lower Karoo vegetation type of the Nama Karoo Biome. This vegetation type is endemic to South Africa and is characterised by short to medium-height karoo shrubland dominated by dwarf succulent shrubs, woody karroid vegetation, drought-resistant grasses, rocky substrate, and patches of bare ground. The surrounding landscape consists largely of natural karoo vegetation utilised for livestock grazing, with hills, ridges, and non-perennial drainage features occurring in the broader area.

The National Web-Based Environmental Screening Tool identified the site as having High sensitivity for animal species due to the potential occurrence of Species of Conservation Concern (SCC), specifically Ludwig's Bustard (*Neotis ludwigii*) and Southern Black Korhaan (*Afrotis afra*). However, the site sensitivity verification and field surveys undertaken on 24 and 25 March 2026 confirmed that none of the SCC identified by the screening tool were recorded within the proposed footprint. The specialist therefore concluded that the avifaunal sensitivity of the site could be reduced to Medium due to the small footprint, historical disturbance in the surrounding area, proximity to the R61 regional road, and the generally disturbed and grazed condition of the habitat.

Field surveys confirmed that the site supports natural but grazed karoo vegetation in generally fair ecological condition, with some localised disturbance associated with historic quarrying activities adjacent to the site, livestock grazing, and existing access tracks. Important ecological features in the broader landscape include surrounding mountains, ridges, drainage lines, and expansive karoo habitat, rather than the proposed footprint itself.

Only 12 bird species were recorded during the field surveys, none of which are currently listed as Species of Conservation Concern. One Near Threatened Karoo Korhaan (*Heterotetrax vigorsii*) was heard calling approximately east of the site near the Kraal River, outside the proposed footprint area.

The specialist assessment concluded that the proposed quarry footprint is not considered highly sensitive from an avifaunal perspective and that impacts can be

managed through implementation of standard mitigation measures, including limiting disturbance to the approved footprint, controlling unnecessary vegetation clearance, preventing erosion and dust generation, and implementing rehabilitation measures following mining activities. The development was therefore not regarded as presenting a fatal flaw from an avifaunal or terrestrial ecological perspective. Only a small portion of the access road intersects such an area when overlaid on the Mining and Biodiversity Map. According to the Mining and Biodiversity Guidelines, areas of intermediate biodiversity importance are described as having “moderate biodiversity value.” The Guidelines further state that environmental screening, the Environmental Impact Assessment (EIA), and specialist studies should confirm the presence and significance of biodiversity features. These findings should then be used to establish a site-specific basis for applying the mitigation hierarchy and guiding regulatory decision-making.

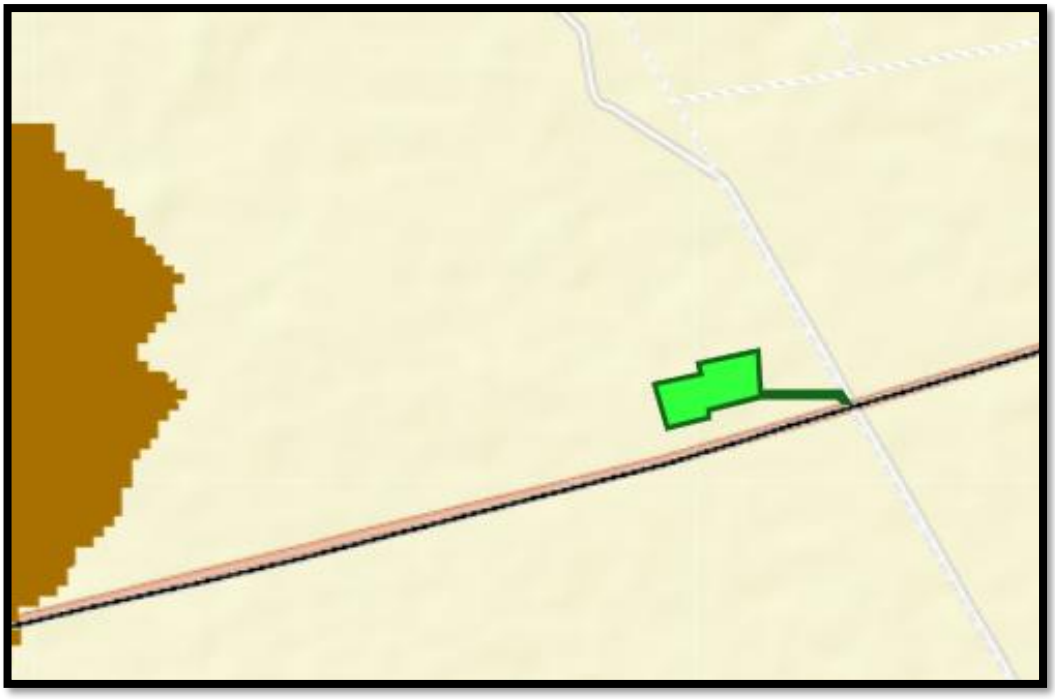


Figure 22: The Mining and Biodiversity importance map with the proposed mining footprint indicated by the green polygon. Dark brown – high biodiversity importance, high risk for mining, Light brown – moderate biodiversity importance, moderate risk for mining, (image obtained from the BGIS Map Viewer – Mining Guidelines).

The field assessment therefore verifies that the site supports moderate biodiversity sensitivity, driven primarily by the presence of protected plant species and small ephemeral drainage lines, rather than the presence of threatened fauna or irreplaceable ecological features. These findings refine the initial desktop sensitivity and establish the site-specific basis for applying the mitigation hierarchy within the EIA process.

SITE SPECIFIC GROUNDCOVER

Site-specific observations confirm that ground cover across the proposed mining footprint is naturally low, reflecting the semi-arid climate, shallow soils, and high proportion of surface rock typical of the Eastern Lower Karoo. The ecological assessment confirms that this low ground cover is not indicative of degradation, but rather characteristic of an intact karroid shrubland system where vegetation is inherently sparse and discontinuous.

The area supports a mosaic of dwarf karroid shrubs interspersed with open patches and a patchy but functional grass layer, including species from genera such as *Aristida, Fingerhuthia*, and *Eragrostis*. These conditions were observed consistently across the quarry site, stockpile area, and access road alignment.

No evidence of extensive bare-soil expansion or significant vegetation loss associated with overgrazing was recorded during the assessment. Livestock impacts are present but are considered moderate and not sufficient to alter natural ground cover patterns.

The ecological assessment confirms that percentage ground cover is representative of natural conditions for the region and indicative of a landscape that remains ecologically functional and largely intact, supporting the overall evaluation of the vegetation as being in good ecological condition.

SITE SPECIFIC FAUNA

The site-specific faunal assessment confirmed that the proposed mining footprint and its surroundings support a functioning assemblage of fauna typical of the Eastern Lower Karoo. Numerous signs of small to medium mammals were recorded, including tracks, droppings, and foraging evidence of Steenbok (Raphicerus campestris), Porcupine (*Hystrix africaeaustralis*), and Common Mole-rat (*Cryptomys hottentottus*), indicating regular use of the area.

Scat evidence suggested the possible presence of a small insectivorous mammal, potentially the Southern African Hedgehog (*Atelerix frontalis*), a Near Threatened species. Reptile remains were also recorded, including Leopard Tortoise and Rock Monitor, both common and widespread in this habitat.

Although the broader landscape may support species of conservation importance such as Brown Hyena, Black-footed Cat, and Karoo Padloper, no individuals, dens, or confirmed activity of these species were recorded within the proposed development footprint during the assessment.

Importantly, the site lacks the dense riparian vegetation required by the Riverine Rabbit, confirming a very low habitat suitability for this species.

Given the relatively small footprint of the proposed development in relation to the extensive surrounding natural habitat, fauna is expected to disperse into adjacent areas during disturbance. The overall site-specific faunal sensitivity is therefore assessed as low to moderate, driven primarily by general habitat availability rather than the confirmed presence of threatened species.

To minimise impacts on fauna, the following management measures will be implemented:

- Prohibition of hunting, trapping, or intentional harm to fauna by site personnel;
- Enforcement of reduced vehicle speeds on site to minimise collisions with fauna;
- Avoidance of leaving excavations open for extended periods, where practicable;
- Provision of escape mechanisms (such as soil ramps) in open excavations where necessary; and
- Environmental awareness training for site personnel to promote faunal protection.

With the implementation of these measures, impacts on fauna are expected to be localised and manageable, with no significant long-term impacts anticipated.

SITE SPECIFIC CULTURAL AND HERITAGE ENVIRONMENT

According to the National Web-Based Environmental Screening Tool, the archaeological and cultural heritage sensitivity of the broader area is indicated as low to moderate, while paleontological sensitivity is identified as elevated at a regional scale. These screening results are indicative and have been refined through site-specific specialist assessments.

A Heritage Impact Assessment (HIA) was undertaken for the proposed development (refer to Appendix M3). The assessment confirmed the presence of archaeological material within the broader project area, primarily in the form of Stone Age artefacts of low to moderate significance. No heritage resources of high significance were identified within the proposed mining footprint that would preclude development.

No graves built heritage structures, or formally protected heritage sites were identified within the proposed quarry footprint during the field assessment.

With respect to paleontology, the Paleontological Impact Assessment (PIA) confirmed that, although the broader region may include fossil-bearing formations, the site is predominantly underlain by dolerite, which is non-fossiliferous. No fossil material was

recorded during the assessment, and the likelihood of encountering significant paleontological resources within the footprint is therefore considered low.

The specialist studies will be submitted to the South African Heritage Resources Agency (SAHRA) for review in terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999).

Mitigation measures will be implemented in accordance with the recommendations of the specialist studies and will include:

- Compliance with permitting requirements in terms of the National Heritage Resources Act; and
- Implementation of a Heritage and Palaeontological Chance Find Procedure.
- Should any archaeological material, human remains, or fossil material be encountered during site clearance or excavation, work in the affected area will cease immediately, and the relevant authorities and specialists will be notified.

Overall, potential impacts on heritage resources are considered localised and of low to moderate significance, and can be effectively managed through the implementation of recommended mitigation measures and compliance with SAHRA requirements.

SITE SPECIFIC INFRASTRUCTURE

The site currently has no built infrastructure. Temporary site infrastructure for the quarry will include a crushing and screening plant, diesel storage area, containerised office and workshop, chemical toilets, weighbridge, salvage yard, and on-site generators for power. No permanent electricity or water connections are required, and all wastewater will be contained and removed from site by licensed service providers.

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

(d) Environmental and current land use map.

(Show all environmental and current land use features)

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

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

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

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

SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT: Alteration of the agricultural sense of place during site establishment

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.5**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.5**				
AFTER MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.5**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.5**				

Loss of agricultural land for duration of mining

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.5**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.5**				
AFTER MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.5**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: None**				
2	4	1	2.3	5	5	5	**11.5**				

Visual intrusion as a result of site establishment during site establishment

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

Potential impact on fauna within the footprint area during site establishment

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

Potential impact on vegetation and listed and/or protected plant species during site establishment

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partially**				
3	4	1	2.6	5	1	3	**8**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Fully**				
2	4	1	2.3	2	2	2	**4.6**				
AFTER MITIGATION											
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partially**				
2	4	1	2.3	4	1	2.5	**5.9**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: None**				
2	4	1	2.3	2	2	2	**4.6**				

Dust nuisance due to site establishment

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partially**				
3	4	1	2.6	4	3	3.5	**9.1**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Partially**				
3	4	1	2.6	4	3	3.5	9.1				
AFTER MITIGATION											
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	1	1.6	4	3	3.5	**5.6**				
Rating: Low - Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	2	1	1.6	4	3	3.5	**5.6**				

Potential impact on archaeological resources due to site establishment

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

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: High			**Site Layout Alternative 1**				**Degree of Mitigation: N/A**				
4	4	5	4.6	5	5	5	**23**				
Rating: High			**Site Layout Alternative 2**				**Degree of Mitigation: N/A**				
4	4	5	4.6	5	5	5	**23**				
AFTER MITIGATION											
Rating: High			**Site Layout Alternative 2**				**Degree of Mitigation: N/A**				
4	4	5	4.6	5	5	5	**23**				
Rating: High			**Site Layout Alternative 2**				**Degree of Mitigation: N/A**				
4	4	5	4.6	5	5	5	**23**				

CONSTRUCTION OF SITE ACCESS ROAD:

Visual intrusion caused by construction of site access road

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

Loss of stockpiled topsoil during construction of access road

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance: Low 1 - 4.9	Low-Medium 5 - 9.9	Medium 10 - 14.9	Medium-High 15 – 19.9	High 20 - 25
PRIOR MITIGATION											
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partially**				
3	1	1	1	4	1	2.5	**4**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Fully**				
3	1	1	1	4	1	2.5	**4**				
AFTER MITIGATION											
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	2	1	1.5	**3.9**				
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	2	1	1.5	**3.9**				

Dust nuisance as a result of the construction of access road

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance: Low 1 - 4.9	Low-Medium 5 - 9.9	Medium 10 - 14.9	Medium-High 15 – 19.9	High 20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partially**				
2	1	2	1.6	4	4	4	**6.6**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Partially**				
2	1	2	1.6	4	4	4	**6.6**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Noise nuisance generated by earthmoving machinery as a result of the construction of access road

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partially**				
2	1	2	1.6	4	4	4	**6.6**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Partially**				
2	1	2	1.6	4	4	4	**6.6**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Potential erosion of denuded areas as a result of the construction of access road

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

Potential contamination of footprint area and surface runoff as a result of hydrocarbon spillages as a result of the construction of access road

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	1	1	1.6	4	4	4	**6.4**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	1	1	1.6	4	4	4	**6.4**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN:

Visual intrusion caused by stripping and stockpiling of topsoil and/or overburden.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	4	4	**10.4**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: None**				
3	4	1	2.6	4	4	4	**10.4**				
AFTER MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	4	4	**10.4**				
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	4	4	**10.4**				

Loss of stockpiled topsoil during mining and stockpiling caused by stripping and stockpiling of topsoil and/or overburden

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	1	1	1	1	1	**1**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
1	1	1	1	1	1	1	**1**				

Dust nuisance as a result of the disturbance of soil caused by stripping and stockpiling of topsoil and/or overburden

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Noise nuisance generated by earthmoving machinery

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	3	2	2.3	4	4	4	**9.2**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	3	2	2.3	4	4	4	**9.2**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Potential impact on local fauna due to disturbance and loss of available habitat caused by stripping and stockpiling of topsoil and/or overburden

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	3	2	2.3	4	4	4	**9.2**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	3	2	2.3	4	4	4	**9.2**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	2	2	2	2	2	**4**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	2	2	2	2	2	2	**4**				

Potential erosion of denuded areas caused by stripping and stockpiling of topsoil and/or overburden

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Loss of stockpiled material due to ineffective storm water control caused by stripping and stockpiling of topsoil and/or overburden

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				

Potential contamination of footprint area and surface runoff as a result of hydrocarbon spillages caused by stripping and stockpiling of topsoil and/or overburden

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	4	4	**9.2**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	4	4	**9.2**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				

EXCAVATION, LOADING AND HAULING TO THE PROCESSING PLANT

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: None**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				

Noise nuisance due to excavation and from loading and vehicles transporting the material

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				

Unsafe working environment for employees as a result of excavation and from loading and vehicles transporting the material

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	3	2	2.5	**5.75**				
Rating: Low - Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	3	2	2.5	**5.75**				

Soil contamination from hydrocarbon spills and/or littering as a result of excavation and from loading and vehicles transporting the material

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	1	1.6	3	3	3	**5**				
Rating: Low - Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	2	1	1.6	3	3	3	**5**				

Potential impact on areas of palaeontological concern as a result of excavation and from loading and vehicles transporting the material

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	1	1	1	1	1	**1**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
1	11	1	1	1	1	1	**1**				

Facilitation of erosion due to mining activities as a result of excavation and from loading and vehicles transporting the material

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	2	3	**7.8**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	2	3	7.8				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	2	2	2	**4.6**				

DRILLING AND BLASTING ACTIVITIES

Visual intrusion as a result of drilling and blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				
AFTER MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	3	1	2.3	4	2	3	**6.9**				

Dust nuisance due to drilling and blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	4	4	4	**9.2**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	4	4	4	**9.2**				
AFTER MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				

Noise nuisance as a result of drilling and blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				
AFTER MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	4	2	3	**6.9**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	4	2	3	**6.9**				

Unsafe working environment for employees as a result of drilling and blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				
AFTER MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	3	3	3	**6.9**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	3	3	3	**6.9**				

Soil contamination from hydrocarbon spills and/or littering as a result of drilling

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	3	3.5	**9.1**				
AFTER MITIGATION											
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	2	4	3	**7.8**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	2	4	3	**7.8**				

PROCESSING, STOCKPILING AND TRANSPORTING OF MATERIAL:

Dust nuisance generated at the processing plant

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	4	3	**6.9**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	4	3	**6.9**				

Noise nuisance stemming from operation of the processing plant

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	4	3	**6.9**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	4	3	**6.9**				

Visual intrusion as a result of operation of the processing plant

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	4	3	**6.9**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	4	3	**6.9**				

Potential contamination of environment due to improper waste management as a result of operation of the processing plant

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low-Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Overloading of trucks impacting road infrastructure as a result of operation of the processing plant

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	5	4.5	**11.7**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Degradation of the access road as a result of operation of the processing plant

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	2	3	4	5	4.5	**13.5**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	2	3	4	5	4.5	**13.5**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

CUMULATIVE IMPACTS:

Cumulative -Long-term habitat modification.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low – Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	2	1	1.6	4	3	3.5	**5.6**				
Rating: Low – Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Partial**				
2	2	1	1.6	4	3	3.5	**5.6**				
AFTER MITIGATION											
Rating: Low – Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	2	1	1.6	4	3	3.5	**5.6**				
Rating: Low – Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Partial**				
2	2	1	1.6	4	3	3.5	**5.6**				

Cumulative -Increased risk of invasive species.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low – Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
3	3	1	2.3	4	4	4	**9.2**				
Rating: Low – Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Partial**				
3	3	1	2.3	4	4	4	**9.2**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Partial**				
2	4	1	2.3	2	2	2	**4.6**				

Cumulative -Impact on existing infrastructure as a direct result of the mining operation

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

SLOPING AND LANDSCAPING DURING REHABILITATION:

Safety risk posed by un-sloped areas during rehabilitation phase

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	5	1	3	4	5	4.5	**13.5**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	5	1	3	4	5	4.5	**13.5**				
AFTER MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Erosion of returned topsoil after rehabilitation

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Low – Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	2	3	**7.8**				
Rating: Low – Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	2	3	**7.8**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

Infestation of the reinstated areas by weeds and invader plant species after rehabilitation

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
AFTER MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low – Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
PRIOR MITIGATION											
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
Rating: Medium			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
3	4	1	2.6	4	4	4	**10.4**				
AFTER MITIGATION											
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				
Rating: Low			**Site Layout Alternative 2**				**Degree of Mitigation: Full**				
2	4	1	2.3	2	2	2	**4.6**				

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

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

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

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

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

DEFINITIONS AND CONCEPTS:

Environmental significance:

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

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

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

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

Impact

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

Consequence

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

Likelihood

A qualitative term covering both probability and frequency.

Frequency

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

Probability

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

Environment

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

Methodology that will be used

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

Environmental Significance = Overall Consequence X Overall Likelihood

Determination of Overall Consequence

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

Determination of Severity / Intensity

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

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

Table 12: Table to be used to obtain an overall rating of severity, taking into consideration the various criteria.

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

Determination of Duration

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

Table 13: Criteria for the rating of duration.

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

Determination of Extent/Spatial Scale

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

Table 14: Criteria for the rating of extent / spatial scale.

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

Determination of Overall Consequence

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

Table 15: Example of calculating overall consequence.

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

Determination of Likelihood:

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

Determination of Frequency

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

Table 16: Criteria for the rating of frequency.

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

Determination of Probability

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

Table 17: Criteria for the rating of probability.

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

Overall Likelihood

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

Table 18: Example of calculating overall likelihood.

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

Determination of Overall Environmental Significance:

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

Table 19: Determination of overall environmental significance.

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

Qualitative description or magnitude of Environmental Significance

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

Table 20: Description of environmental significance and related action required.

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

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

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

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

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

The environmental assessment considered the impacts of the preferred site layout (Site Alternative 1 – S1), a feasible alternative layout (S2), and the No-Go Alternative in order to determine the most appropriate option in terms of environmental, social, and economic considerations.

Assessment of Alternatives

Preferred Layout (S1)

The preferred layout is located on a viable dolerite outcrop and represents the most practical option for resource extraction.

Advantages:

- Utilises a confirmed, economically viable mineral resource;
- Maintains a compact development footprint, limiting disturbance;
- Requires minimal additional infrastructure, including a shorter access route;
- Located on land with low agricultural potential; and
- Supports phased mining and progressive rehabilitation.

Disadvantages:

- Localised loss of natural vegetation and habitat;
- Disturbance of protected plant species;
- Temporary dust, noise, and visual impacts; and
- Minor disruption to the rural landscape during operations.

These impacts are expected to be localised and can be effectively mitigated through the implementation of the EMPr.

Alternative Layout (S2)

An alternative layout was considered to avoid the small portion of CBA 2 within the footprint by shifting the quarry further north.

Advantages:

- Reduced direct impact on the identified CBA 2 portion;

Disadvantages:

- Insufficient quantity and quality of dolerite resource;
- Reduced operational feasibility and efficiency;
- Potential increase in disturbance due to expanded footprint or infrastructure; and
- No meaningful improvement in overall environmental outcomes.

This alternative was therefore not considered feasible.

No-Go Alternative

The No-Go Alternative entails not proceeding with the proposed quarry.

Advantages:

- Avoids all environmental impacts associated with the development;

Disadvantages:

- Loss of economic opportunities and employment;
- No local supply of aggregate material for infrastructure development;
- Continued reliance on material sourced from further distances; and
- No contribution to local and regional development objectives.
- Positive Impacts of the Proposed Activity

The proposed development is expected to result in the following positive impacts:

- Creation of temporary employment opportunities;
- Stimulation of local economic activity and support for service providers;
- Provision of aggregate material for local and regional infrastructure projects;
- Contribution to road maintenance and development; and
- Opportunity for progressive rehabilitation and restoration of disturbed areas.
- Negative Impacts of the Proposed Activity

Potential negative impacts associated with the proposed quarry include:

- Localised loss of natural vegetation and habitat;
- Disturbance of fauna and protected plant species;
- Dust generation and noise during operations;
- Visual impacts within the immediate surroundings;
- Soil disturbance and erosion risks; and
- Increased vehicle activity on access routes.

These impacts are expected to be temporary, localised, and of moderate significance, and can be effectively managed through the implementation of mitigation measures contained in the EMPr.

Conclusion

The preferred layout (S1) represents the Best Practicable Environmental Option (BPEO), as it allows for the extraction of a site-specific resource while minimising the extent of environmental disturbance.

Although the development will result in short-term environmental impacts, these are localised and manageable. The alternative layout does not provide a viable or environmentally superior option, while the No-Go Alternative would result in the loss of socio-economic benefits.

The proposed activity is therefore considered acceptable, provided that mitigation measures and monitoring requirements are effectively implemented.

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

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

The environmental assessment identified key potential impacts associated with the proposed quarry, based on specialist studies, site verification, and issues raised during the public participation process. These concerns primarily relate to biodiversity disturbance, dust and noise, visual impacts, soil and erosion risks, heritage resources, and temporary loss of grazing land.

Appropriate mitigation measures have been identified to address these concerns and reduce the level of risk to acceptable levels.

Key Issues, Mitigation Measures and Residual Risk

Terrestrial Biodiversity and Vegetation

Issue:

Loss of natural vegetation and disturbance of protected plant species, including a limited portion of CBA 2 within the footprint.

Mitigation:

- Restrict disturbance strictly to the approved footprint;
- Undertake pre-construction search-and-rescue of protected plant species;
- Obtain necessary permits for removal or relocation of protected flora;
- Implement phased mining and progressive rehabilitation; and
- Monitor and control invasive alien plant species.

Residual Risk:

- Low to moderate. Impacts are localised and reversible over time through rehabilitation.

Fauna

Issue:

- Disturbance and displacement of fauna during site clearing and operations.

Mitigation:

- Limit vehicle movement to designated routes;
- Prohibit hunting, trapping, or harm to fauna;
- Implement environmental awareness training for personnel; and
- Rehabilitate disturbed areas to support habitat recovery.
- Install and maintain adequate perimeter fencing around active quarry areas to prevent access by livestock and wildlife. Fencing must be inspected regularly and maintained to prevent animals from gaining access beneath or through the fence line.

Residual Risk:

- Low. Faunal impacts are temporary, with sufficient surrounding habitat available.

Soils and Erosion

Issue:

- Soil disturbance, erosion, and loss of limited topsoil.

Mitigation:

- Strip and stockpile available topsoil separately for reuse;
- Stabilise disturbed areas through contouring and rehabilitation;
- Implement erosion control measures; and
- Limit exposure of bare surfaces through phased mining.

Residual Risk:

- Low to moderate. Risks can be effectively managed through good site practice.

Hydrology and Stormwater

Issue:

- Potential erosion and sedimentation, particularly in relation to minor drainage features.

Mitigation:

- Implement stormwater management measures to maintain natural flow patterns;
- Avoid disturbance within drainage features where feasible;
- Install erosion and sediment control measures; and
- Maintain separation of clean and dirty water systems.

Residual Risk:

- Low. No significant watercourses occur within the footprint.

Air Quality and Noise

Issue:

- Dust generation and noise impacts affecting the surrounding environment.

Mitigation:

- Apply dust suppression measures (e.g. water spraying, speed control);
- Maintain equipment to reduce emissions and noise;
- Limit operations during extreme wind conditions where feasible; and
- Implement general operational controls.

Residual Risk:

- Low to moderate. Impacts are temporary and localised.

Visual Impact

Issue:

- Temporary visual disturbance within the rural landscape.

Mitigation:

- Maintain a compact footprint and low operational profile;
- Limit vegetation clearing to active areas; and
- Implement progressive rehabilitation.

Residual Risk:

- Low. Impacts are localised and reduce over time.

Heritage and Palaeontology

Issue:

- Potential disturbance of archaeological material and low-risk palaeontological resources.

Mitigation:

- Implement a Heritage and Palaeontological Chance Find Procedure;
- Avoid identified resources where feasible;
- Undertake documentation and permitting where required; and
- Submit specialist studies to SAHRA for approval.

Residual Risk:

- Low to moderate. Impacts are manageable with compliance and monitoring.

Land Use and Agricultural Potential

Issue:

- Temporary loss of grazing land within the mining footprint.

Mitigation:

- Limit disturbance to approximately 5 ha;
- Implement phased mining to reduce active footprint; and
- Rehabilitate disturbed areas for grazing post-closure.

Residual Risk:

- Low. Impacts are localised and reversible.

Access and Traffic

Issue:

- Increased use of access roads and potential localised disturbance.

Mitigation:

- Use existing access routes where possible;
- Maintain roads and control vehicle speeds; and
- Prevent erosion along access routes.

Residual Risk:

- Low.

Waste and Pollution Control

Issue:

- Risk of contamination from fuels, waste, and operational activities.

Mitigation:

- Store fuels and hazardous substances in bunded areas;
- Use drip trays and spill kits;
- Dispose of waste at licensed facilities; and
- Implement spill response procedures.

Residual Risk:

- Low.

Consideration of Alternatives to Address Concerns

An alternative layout (S2) was considered to avoid the limited CBA 2 area; however, this option was not feasible due to insufficient mineral resource in that area and would not provide a meaningful environmental benefit.

The preferred layout (S1) therefore represents the most balanced option, allowing resource extraction while limiting overall disturbance.

Conclusion

The identified impacts are typical of small-scale quarrying activities and are generally localised, temporary, and manageable. With the implementation of the proposed mitigation measures and adherence to the EMPr, the level of risk associated with the development is considered low to moderate.

The proposed activity is therefore considered acceptable from an environmental perspective.

ix) Motivation where no alternative sites were considered.

No alternative sites were considered for the proposed development, as the occurrence of the dolerite resource is site-specific and can only be economically extracted where it occurs. The selection of the site is therefore inherently constrained by the location, quality, and quantity of the mineral resource.

An alternative layout (Site Alternative 2 – S2) within the property was considered, which involved shifting the footprint to avoid a small portion of CBA 2. However, this option was not viable, as the dolerite resource diminishes towards this area, resulting in insufficient material of suitable quality and quantity to sustain the operation.

In addition, the alternative layout would not result in a meaningful reduction in environmental impacts and may increase disturbance due to operational inefficiencies and potential expansion of the footprint or associated infrastructure.

The preferred layout (S1) was therefore selected as it represents the most practical and environmentally acceptable option, allowing for efficient extraction of the resource while limiting the extent of disturbance.

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

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

The preferred development location and final site layout for the proposed quarry were determined through an integrated assessment of resource availability, environmental sensitivities, and operational requirements.

The selected footprint is positioned over a confirmed dolerite outcrop, which represents the most suitable and economically viable portion of the site. As the mineral resource is site-specific, the location of the quarry is inherently constrained to areas where sufficient material of appropriate quality and quantity occurs.

Within the property, the chosen layout is located in an area characterised by shallow, stony soils and low agricultural potential, thereby limiting the loss of productive grazing land. The footprint is compact and well-defined, which reduces the extent of disturbance and allows for effective environmental management.

Alternative layout options within the site were considered, including shifting the footprint to previously disturbed areas and adjusting the position of infrastructure. These options were not preferred, as they either lacked sufficient mineral resource, increased haul distances, or resulted in a larger disturbance footprint without providing meaningful environmental benefits.

The preferred layout also responds to identified environmental sensitivities by:

- Avoiding sensitive features where practicable;
- Limiting disturbance to a manageable footprint; and
- Incorporating phased mining and progressive rehabilitation.

From an operational perspective, the layout:

- Minimises haul distances between extraction, processing, and stockpiling areas;
- Utilises a direct and efficient access route from the R61; and
- Reduces the need for additional infrastructure.

Based on these considerations, the selected layout represents the Best Practicable Environmental Option (BPEO), balancing resource utilisation with environmental protection. The development is therefore considered appropriate within the context of the site and surrounding land use.

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

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

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

identifying mitigation measures to address the impact that the proposed mining activity may have on the surrounding environment.

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

The environmental impact assessment process undertaken for the proposed quarry included the identification, assessment, and ranking of potential environmental and socio-economic impacts associated with the preferred site layout throughout all phases of the activity life cycle, including site establishment, operation, rehabilitation, and closure.

The process was informed by:

- Site inspections and baseline environmental observations;
- Specialist studies, including ecological, heritage, and palaeontological assessments;
- Information obtained through the public participation process;
- Applicable legislative requirements; and
- The characteristics and sensitivities of the receiving environment.

Potential impacts and risks associated with the proposed activities were identified for each project phase and assessed in terms of:

- Nature and consequence of the impact;
- Extent and duration;
- Probability of occurrence;
- Degree of reversibility;
- Potential irreplaceable loss of resources; and
- The extent to which impacts can be avoided, managed, or mitigated.

An initial significance rating was assigned to each identified impact assuming that no mitigation measures were implemented. These ratings are reflected in the impact assessment tables provided under Section v) Impacts and Risks Identified.

Mitigation measures were then identified to avoid, minimise, manage, or rehabilitate identified impacts where practicable. Following the incorporation of mitigation measures, each impact was reassessed using the methodology described under Section vi) Methodology Used in Determining and Ranking the Significance. The post-mitigation ratings reflected in the impact assessment tables therefore represent the anticipated residual impacts associated with the preferred final layout and operational proposal.

The assessment concluded that the majority of impacts can be reduced to low or moderate significance through implementation of the proposed mitigation and management measures contained in the EMPr. No fatal flaws were identified during the assessment process that would preclude the proposed development from proceeding.

l) Assessment of each identified potentially significant impact and risk

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

Table 21: Assessment of each identified potentially significant impact and risk

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

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

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
• Stripping and stockpiling of topsoil and overburden. • Excavation, Loading and Hauling to the processing plant			Decommissioning Phase			
	• Noise nuisance as a result of the mining activities	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low
	• Unsafe working environment for employees	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low - medium
	• Soil contamination from hydrocarbon spills and/or littering	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	• Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	• Low - Medium
• Site establishment and infrastructure development. • Excavation, loading and hauling to the processing plant.	• Potential impact on archaeological artefacts. • Potential impact on areas of palaeontological concerns.	This could impact on the cultural and heritage legacy of the receiving environment.	Operational Phase	• Low • Low	Control & Stop: Implementing good management practices, as well as the chance-find protocol.	• Low • Low
• Construction of Access Road	• Visual intrusion caused by construction of site access road	The visual impact may affect the aesthetics of the landscape.	Site establishment phase	• Low-Medium	Control & Stop: Implementing good management practices, as well as the chance-find protocol	• Low-Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	Loss of stockpiled topsoil during construction of access road	This will impact on the biodiversity of the receiving environment.	Site establishment phase	Low-Medium	Control & Stop: Implementing good management practices, as well as the chance-find protocol	Low – Medium
	Dust nuisance as a result of the construction of access road	This will impact on the biodiversity of the receiving environment.	Site establishment phase	Low-Medium	Control & Stop: Implementing good management practices, as well as the chance-find protocol	Low
	Noise nuisance generated by earthmoving machinery	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	Low-Medium	Control & Stop: Implementing good management practices, as well as the chance-find protocol	Low
	Potential erosion of denuded areas	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	Low-Medium	Control & Stop: Implementing good management practices, as well as the chance-find protocol	Low
	Potential contamination of footprint area and surface runoff as a result of hydrocarbon spillages	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	Low-Medium	Control & Stop: Implementing good management practices, as well as the chance-find protocol	Low
Site establishment and infrastructure development.	New job opportunities because of the mining operation (+)	Contribution to the socio-economic status of the area.	Operational Phase	Medium-High	Control: Proper site management.	Medium-High
Drilling and Blasting	Health and safety risk posed by blasting activities	This will impact on the biodiversity of the receiving environment	Operational Phase	Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	Low - Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	Dust nuisance caused by blasting activities	This will impact on the biodiversity of the receiving environment	Operational Phase	Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	Low - Medium
	Noise nuisance as a result of blasting	This will impact on the biodiversity of the receiving environment	Operational Phase	Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	Low - Medium
Processing, Stockpiling and transporting of material	Dust nuisance generated at the processing plant	This will impact on the biodiversity of the receiving environment	Operational Phase	Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	Low
	Noise nuisance stemming from operation of the processing plant	This will impact on the biodiversity of the receiving environment	Operational Phase	Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	Low
	Potential contamination of environment due to improper waste management	This will impact on the biodiversity of the receiving environment	Operational Phase	Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	Low
	Overloading of trucks impacting road infrastructure	This will impact on the biodiversity of the receiving environment	Operational Phase	Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	Low-Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	Degradation of the access road	This will impact on the biodiversity of the receiving environment	Operational Phase	Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	Low-Medium
Sloping and landscaping during rehabilitaition	Safety risk posed by un-sloped areas	This will impact on the biodiversity of the receiving environment	Decommissioning Phase	Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management.	Low
	Erosion of returned topsoil after rehabilitation	This will impact on the biodiversity of the receiving environment	Decommissioning Phase	Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	Low
	Infestation of the reinstated areas by weeds and invader plant species	This will impact on the biodiversity of the receiving environment	Decommissioning Phase	Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	Low
	Potential impact associated with litter/waste left at the mining area	This will impact on the biodiversity of the receiving environment	Decommissioning Phase	Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	Low
Cumulative Impacts	Long-term habitat modification.	This will impact on the biodiversity of the receiving environment	Site Establishment-, Operational-, and Decommissioning Phase	Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	Low - Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	• Increased risk of invasive species.	This will impact on the biodiversity of the receiving environment	Site Establishment-, Operational-, and Decommissioning Phase	• Low - Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	• Low - Medium
	• Impact on existing infrastructure as a direct result of the mining operation	This will impact on the biodiversity of the receiving environment	Site Establishment-, Operational-, and Decommissioning Phase	• Medium	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan and Proper site management	• Low - Medium

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

m) Summary of specialist reports.

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

Table 22: Summary of specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
The screening report for an environmental authorisation, as required in terms of the 2014 NEMA EIA Regulations on portion of Portion 0 of farm 94, Aberdeen, Eastern Cape Province. The report identified the following list of specialist assessment for inclusion in the assessment report: • Agricultural Impact Assessment • Archaeological and Cultural Heritage Impact Assessment • Palaeontology Impact Assessment • Terrestrial Biodiversity Impact Assessment • Aquatic Biodiversity Impact Assessment • Hydrology Assessment • Noise Impact Assessment • Radioactivity Impact Assessment • Traffic Impact Assessment • Geotechnical Assessment • Socio-Economic Assessment • Plant Species Assessment • Animal Species Assessment Power Construction (Pty) Ltd (hereafter referred to as the applicant) appointed Greenmined Environmental (Pty) Ltd as the environmental impact assessment practitioner (EAP) to undertake the EIA associated with the mining permit application. In light of this Greenmined would like to respond as follows to the list of required specialist studies:			

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Agricultural Impact Assessment	The Screening Tool identified moderate agricultural sensitivity. However, site verification confirmed that the soils are shallow, stony, and of low agricultural potential, with land use limited to extensive livestock grazing. The proposed footprint is small (±5 ha) and will be temporarily disturbed, with rehabilitation planned post-mining. The activity is therefore not expected to result in a significant loss of agricultural capability, and a standalone Agricultural Impact Assessment was not considered necessary.	N/A	Section IV(a) – Baseline Environment: Land Use
Archaeological and Cultural Heritage Impact Assessment	Archaeological and Cultural Heritage Impact Assessment The National Web-Based Environmental Screening Tool identified elevated heritage sensitivity within the broader area, thereby triggering the requirement for a Heritage Impact Assessment. A Phase 1 Archaeological and Cultural Heritage Impact Assessment (HIA) was undertaken for the proposed quarry in accordance with the National Heritage Resources Act (Act 25 of 1999). The study included both a desktop review and a site-specific field survey to identify and assess heritage resources within the proposed development area. The assessment confirmed the presence of archaeological material within the broader study area, primarily in the form of Stone Age artefacts associated with Early and Middle Stone Age occupation. These artefacts	X	Section v – Specialist Inputs; Appendix M3

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	are considered to be of low to moderate significance at a site-specific level. No graves, built heritage structures, or formally protected heritage sites were identified within the proposed mining footprint during the field assessment. The assessment identified archaeological material associated with Early and Middle Stone Age occupation within the broader study area, including site PST01, which contains lithic artefacts of scientific and cultural significance. Although these resources do not constitute a fatal flaw to the proposed development, mitigation and monitoring measures are required to avoid or minimise impacts. Potential impacts on heritage resources may arise from vegetation clearing, excavation, and blasting activities, which could result in disturbance of archaeological material if not appropriately managed. The specialist recommends the implementation of mitigation measures, including: - Avoidance of heritage resources where feasible; - Documentation and recording of archaeological material prior to disturbance, where required;		

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	• Compliance with permitting requirements in terms of the National Heritage Resources Act; and • Implementation of a Heritage Chance Find Procedure during all phases of the project. The report concludes that, with the implementation of these mitigation measures and subject to review and approval by the South African Heritage Resources Agency (SAHRA), potential impacts on heritage resources are expected to be localised and manageable.		
Palaeontology Impact Assessment	A Palaeontological Impact Assessment (PIA) was undertaken for the proposed quarry in accordance with the requirements of the National Heritage Resources Act (Act 25 of 1999). The assessment included a desktop review of regional geological and palaeontological data, supported by site verification to evaluate the likelihood of fossil occurrence within the development footprint. The National Screening Tool identified the broader area as having elevated palaeontological sensitivity, which is typical of Karoo formations known to contain fossil-bearing sediments. However, site-specific assessment confirmed that the proposed quarry footprint is largely associated with dolerite intrusions within the broader Karoo geological setting.	X	Section v – Specialist Inputs; Appendix M3

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	Dolerite is an igneous rock and is considered non-fossiliferous. As such, the likelihood of encountering significant fossil material within the footprint is low. No fossil material was recorded during the site assessment. Potential impacts on paleontological resources are therefore considered to be minimal and limited to the unlikely chance of encountering fossil material in underlying or adjacent sedimentary layers during excavation. The specialist recommends that a precautionary approach be followed, including the implementation of a Paleontological Chance Find Procedure. Should any fossil material be uncovered during mining activities, work must cease in the affected area and a qualified specialist must be notified for assessment and further guidance. The assessment concludes that no further paleontological studies are required prior to development and that, with the implementation of the recommended mitigation measures and subject to SAHRA review, the proposed quarry is unlikely to result in significant impacts on paleontological resources.		
Terrestrial Biodiversity Impact Assessment (Including Flora & Fauna)	The Screening Tool identified very high terrestrial biodiversity sensitivity, high animal species sensitivity, and medium plant species sensitivity, including the presence of species of conservation concern.	X	Section IV(a) – Baseline Environment: Biological Environment; Appendix M2

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	A Terrestrial Biodiversity Impact Assessment was undertaken to evaluate the ecological characteristics of the site and to assess potential impacts associated with the proposed quarry development. The study included a desktop review of biodiversity planning tools and a detailed field-based assessment of vegetation, flora, fauna, and habitat condition. The site is located within the Nama-Karoo Biome and is characterised by Eastern Lower Karoo vegetation, which is classified as Least Concern. The vegetation within the proposed footprint is largely natural and in good ecological condition, although influenced by grazing and minor historical disturbance. The assessment confirmed a moderate diversity of plant species, including several protected plant species, particularly succulent taxa of conservation importance. No threatened plant species were recorded during the survey. A small portion of the proposed footprint (approximately 0.6 ha) overlaps with a Critical Biodiversity Area 2 (CBA 2), while the broader area is classified as an Ecological Support Area (ESA 1). Although this contributes to the ecological value of the site, the limited extent of the CBA within the footprint does not constitute a fatal flaw.		

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	Faunal habitat within the site remains largely intact and supports typical Karoo species. No threatened faunal species were confirmed, and the surrounding landscape provides sufficient alternative habitat, allowing for relocation during disturbance. Potential impacts associated with the development include vegetation clearing, loss of habitat, disturbance of protected plant species, soil disturbance, and the potential spread of invasive alien plants. These impacts are considered moderate prior to mitigation but can be reduced to low to moderate significance through appropriate management. The specialist recommends the implementation of mitigation measures including: • Pre-construction search-and-rescue of protected plant species; • Obtaining relevant permits for protected flora; • Restricting disturbance to the approved footprint; • Phased mining and progressive rehabilitation; • Conservation and reuse of available topsoil; and • Monitoring and control of invasive alien plant species. The assessment concludes that the site is of moderate ecological sensitivity and that the proposed development can proceed without		

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	resulting in significant long-term ecological impacts, provided that the recommended mitigation measures are effectively implemented. The assessment concluded that, subject to mitigation and finalisation of the proposed layout, impacts can be managed to acceptable levels.		
Aquatic Biodiversity Impact Assessment	The Screening Tool identified very high aquatic biodiversity sensitivity, linked to ESA features in the broader landscape. An Aquatic Biodiversity Impact Assessment was undertaken to evaluate the potential impacts of the proposed quarry on surface water features and associated ecological processes. The study included a desktop-based risk assessment, supported by site verification to confirm the presence and characteristics of aquatic features within and surrounding the development footprint. The National Web-Based Environmental Screening Tool identified elevated aquatic biodiversity sensitivity within the broader area. However, site-specific verification confirmed that no perennial rivers, wetlands, or defined seasonal watercourses occur within the proposed mining footprint. The nearest notable aquatic feature is an ephemeral drainage system located outside the proposed development footprint and surrounding infrastructure areas of the site, outside the development area. Minor, poorly defined drainage features may occur within the broader landscape	N/A	Section IV(a) – Hydrology

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	and along the proposed access road alignment. These features convey surface runoff during rainfall events and are therefore considered watercourses in terms of the National Water Act (Act 36 of 1998), although they are not classified as wetlands. Given the absence of significant aquatic features within the footprint, the overall aquatic sensitivity of the site is considered low. Potential impacts are primarily associated with soil disturbance, erosion, and sedimentation, particularly where access roads may intersect minor drainage lines. The specialist recommends the implementation of mitigation measures to manage these risks, including: • Implementation of stormwater management measures to maintain natural flow patterns; • Installation of erosion and sediment control measures; • Careful design and construction of access road crossings over minor drainage features; • Prevention of hydrocarbon contamination through proper storage and handling; and • Progressive rehabilitation to stabilise disturbed areas. The assessment concludes that, with the implementation of the recommended mitigation measures, impacts on aquatic systems are		

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	expected to be localised and of low significance, and can be effectively managed over the life of the project.		
Hydrology Assessment	Although the Screening Tool indicated elevated aquatic sensitivity, site-specific verification confirmed that no perennial rivers, wetlands, or defined watercourses occur within the development footprint. An ephemeral drainage feature is located outside the site. Given the small scale of the operation and the low hydrological sensitivity within the footprint, impacts can be adequately managed through standard stormwater and erosion control measures. A detailed Hydrology Assessment was therefore not required.	N/A	Section IV(a) – Hydrology
Noise Impact Assessment	The proposed quarry is small in scale and located within a rural area with limited nearby receptors. Noise-generating activities will be intermittent and typical of quarrying operations, and impacts are expected to be localised. Standard mitigation measures, including equipment maintenance and operational controls, are sufficient to manage noise impacts. A specialist Noise Impact Assessment was therefore not warranted.	N/A	Section viii – Mitigation Measures

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Radioactivity Impact Assessment	The proposed activity involves the extraction of dolerite, which is not associated with radioactive materials. There is no indication from the geological context or site conditions that radioactive substances are present. As such, the risk of radioactivity is negligible, and a Radioactivity Impact Assessment was not required.	N/A	Section IV(a) – Geology
Traffic Impact Assessment	The project will utilise the existing road network, including access to the R61. Traffic volumes associated with the operation are expected to be low to moderate and typical of small-scale quarrying activities. No significant upgrades to road infrastructure are required, and impacts can be managed through standard operational controls. A detailed Traffic Impact Assessment was therefore not considered necessary.	N/A	Section viii – Mitigation Measures
Geotechnical Assessment	The proposed quarry involves shallow excavation of competent dolerite rock with no permanent structures or complex engineering works. The geological conditions are stable and suitable for the proposed activity. Given the absence of structural infrastructure and the nature of the mining method, a detailed Geotechnical Assessment was not required.	N/A	Section IV(a) – Geology & Soil
Socio-Economic Assessment	The socio-economic context was comprehensively assessed using data from the *Dr Beyers Naudé Local Municipality IDP (2025/26)*. The project's impacts are positive, contributing to local employment. The socio-economic impacts of the proposed development are limited in scale and primarily positive, including temporary employment opportunities and the	N/A	Section:IV(a) – Socio-Economic Environment

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	supply of aggregate for local infrastructure development. The project is not expected to result in significant negative socio-economic impacts. These aspects have been adequately addressed within the DBAR, and a separate Socio-Economic Assessment was therefore not considered necessary		
Plant Species Assessment	Incorporated into the *Terrestrial Biodiversity Assessment*. The Screening Tool identified medium plant species sensitivity, indicating the potential presence of species of conservation concern. A dedicated Plant Species Assessment was not undertaken as these aspects were comprehensively addressed within the Terrestrial Biodiversity Impact Assessment, which included site-specific vegetation surveys conducted by a suitably qualified specialist. The assessment confirmed the presence of protected plant species, particularly succulent taxa, but no threatened species were recorded. Appropriate mitigation measures, including search-and-rescue and permitting requirements, have been incorporated into the EMPr. It is therefore considered that the requirements of a Plant Species Assessment have been adequately addressed within the broader terrestrial assessment, and no separate study is required.	X	Section IV(a) – Biological Environment

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Animal Species Assessment	Incorporated into the *Terrestrial Biodiversity Assessment*. The fauna component will focus on species of conservation concern, as identified in the screening report. The Screening Tool identified high animal species sensitivity, including the potential occurrence of species of conservation concern. A separate Animal Species Assessment was not undertaken, as faunal aspects were included in the Terrestrial Biodiversity Impact Assessment, which evaluated habitat suitability and the likelihood of occurrence of species of conservation importance. The assessment confirmed that the site supports typical Karoo fauna, with no confirmed presence of threatened species. The surrounding landscape provides sufficient alternative habitat, and impacts are expected to be localised and temporary. Mitigation measures, including controlled vegetation clearing, pre-construction inspections, and habitat rehabilitation, have been incorporated to minimise impacts on fauna. Accordingly, the requirements of an Animal Species Assessment are considered to have been adequately addressed within the terrestrial assessment, and no separate study is required.	X	Section IV(a) – Biological Environment

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Avifaunal Impact Assessment Report	The Screening Tool identified high avifaunal sensitivity, with potential presence of species of conservation concern. An Avifaunal Impact Assessment was undertaken to evaluate the potential impacts of the proposed quarry on bird species and associated habitat within the project area. The study included a desktop review of available data, including species of conservation concern identified in the National Web-Based Environmental Screening Tool, as well as site-specific field verification. The Screening Tool identified elevated avifaunal sensitivity within the broader area due to the potential presence of species of conservation concern. However, field verification confirmed that the site supports typical Karoo avifauna and that no threatened or highly sensitive bird species were recorded within the proposed mining footprint. The habitat within the site comprises open shrubland characteristic of the Eastern Lower Karoo and does not provide critical breeding, nesting, or roosting habitat for sensitive species. The surrounding landscape offers extensive similar habitat, allowing for movement and displacement of birds during disturbance. Potential impacts associated with the proposed development include temporary habitat loss, disturbance from noise and blasting, and	X	Section IV(a) – Biological Environment

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with X if applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	increased activity during construction and operation. These impacts are expected to be localised and temporary in nature. The specialist recommends the implementation of mitigation measures to minimise impacts, including: - Limiting disturbance to the approved footprint; - Avoiding unnecessary vegetation clearing; - Managing noise and operational disturbance where feasible; and - Implementing progressive rehabilitation to restore habitat. Field verification confirmed that no Species of Conservation Concern were recorded within the footprint and that the avifaunal sensitivity of the site is lower than initially indicated by the Screening Tool. The assessment concludes that, following site verification, the avifaunal sensitivity of the site is low to moderate and that potential impacts can be effectively managed. The proposed development is therefore unlikely to result in significant impacts on avifaunal communities.		

n) Environmental impact statement

The Environmental Impact Assessment (EIA) for the proposed quarry, located within a mining permit area of approximately 5 ha, indicates that the development can proceed with impacts that are localised, of moderate significance prior to mitigation, and low to moderate after mitigation. These impacts can be effectively managed through the implementation of the Environmental Management Programme (EMPr).

The assessment was undertaken in accordance with the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended), and considered potential impacts on the physical, biological, socio-economic, and heritage environments.

Site Context and Layout

The proposed quarry is located on Portion 0 of Farm 94 (Perseverance), approximately 20–23 km west of Aberdeen within the Dr Beyers Naudé Local Municipality. The site occurs within a rural Karoo landscape characterised by gently undulating terrain, dolerite outcrops, and shallow, rocky soils. Surrounding land use is dominated by low-intensity livestock grazing.

The layout has been refined to maintain a compact footprint and supports phased mining and progressive rehabilitation, thereby limiting the extent of disturbance.

Mining Activities

The proposed activity entails small-scale open-cast quarrying of dolerite using conventional methods, including drilling, controlled blasting, excavation, crushing, and screening. Material will be processed on site and transported via the existing road network.

Geology and Soils

The site is underlain by dolerite of the Karoo Supergroup, suitable for aggregate production. Soils are shallow, stony, and of low agricultural potential. Available topsoil will be stripped, stockpiled, and reused during rehabilitation.

Hydrology

No perennial rivers, wetlands, or defined watercourses occur within the mining footprint. A minor ephemeral drainage feature occurs outside the development area. Hydrological

sensitivity is considered low, and potential impacts can be effectively managed through stormwater and erosion control measures.

Biodiversity

The site falls within the Nama-Karoo Biome and supports Eastern Lower Karoo vegetation, classified as Least Concern. The vegetation is largely natural and supports protected plant species, although no threatened species were recorded.

A small portion of the footprint (approximately 0.6 ha) overlaps with a Critical Biodiversity Area 2 (CBA 2), while the broader area functions as an Ecological Support Area (ESA 1). The terrestrial assessment concluded that, subject to mitigation and implementation of the proposed layout, impacts can be managed to acceptable levels.

Faunal impacts are expected to be localised and temporary.

Heritage and Palaeontology

The National Screening Tool identified elevated heritage and palaeontological sensitivity; however, specialist assessments confirmed the presence of archaeological material of low to moderate significance and a low likelihood of palaeontological resources due to the underlying dolerite geology.

No heritage resources were identified within the footprint that would preclude development. Impacts can be managed through mitigation measures and implementation of a Chance Find Procedure.

Air Quality and Noise

Dust generation and noise impacts are expected during operations but will be localised and temporary. These impacts can be effectively managed through standard mitigation measures, including dust suppression, equipment maintenance, and operational controls.

Socio-Economic Environment

The proposed quarry will contribute to local economic activity through temporary employment opportunities and the provision of aggregate for infrastructure development. No significant negative socio-economic impacts are anticipated.

Cumulative Impacts

Due to the small scale and phased nature of the operation, cumulative impacts are expected to be low and localised.

Overall Findings

The assessment concludes that:

- The proposed development is environmentally acceptable, subject to the implementation of mitigation measures;
- Impacts are generally moderate prior to mitigation and low to moderate after mitigation;
- No fatal flaws were identified; and
- The development aligns with the principles of sustainable development as set out in the National Environmental Management Act.

i) Final Site Map

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

See the map indicating site activities attached as Appendix C.

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

The positive impacts associated with the project include:

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

Table 23:Potential negative impacts with a low-medium or higher significance/risk.

POTENTIAL IMPACT	SIGNIFICANCE (AFTER MITIGATION)
Loss of agricultural land for duration of mining	Medium
Loss of agricultural land for duration of mining	Medium
Visual intrusion as a result of site establishment.	Low-Medium

POTENTIAL IMPACT	SIGNIFICANCE (AFTER MITIGATION)
Potential impact on vegetation and listed and/or protected plant species during site establishment (Site Alternative 1)	Low-Medium
Dust nuisance due to site establishment	Low-Medium
Visual intrusion caused by construction of site access road.	Low-Medium
Visual intrusion caused by stripping and stockpiling of topsoil and/or overburden	Low-Medium
Noise nuisance generated by earthmoving machinery	Low-Medium
Visual intrusion as a result of excavation and from loading and vehicles transporting the material	Medium
Unsafe working environment for employees	Low-Medium
Visual intrusion caused by construction of site access road	Low-Medium
Loss of stockpiled topsoil during construction of access road.	Low
Loss of stockpiled topsoil during mining and stockpiling	Low
Dust nuisance generated at the processing plant	Low-Medium
Visual intrusion as a result of operation of the processing plant	Low - Medium
Overloading of trucks impacting road infrastructure	Low – Medium
Degradation of the access road	Low – Medium
Long-term habitat modification.	Low – Medium
Increased risk of invasive species.	Low – Medium

POTENTIAL IMPACT	SIGNIFICANCE (AFTER MITIGATION)
• Impact on existing infrastructure as a direct result of the mining operation	• Low – Medium

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

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

Table 24: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR

Aspect	Management Objective	Role / Responsibility	Management Actions	Management Outcome	Residual Risk
Topography & Rehabilitation	Ensure stable post-mining landform and effective rehabilitation	Site Manager; Environmental Control Officer (ECO)	• Implement phased mining and progressive rehabilitation • Re-contour and stabilise slopes • Replace available topsoil • Remove infrastructure on closure • Control erosion	Stable, non-polluting landform that integrates with surrounding landscape	Low
Visual Impact	Minimise visual disturbance	Site Manager; ECO	• Maintain compact footprint • Limit vegetation clearing • Keep site neat • Progressive rehabilitation	Visual impacts are localised and temporary	Low
Air Quality (Dust)	Reduce dust generation	Site Manager; ECO	• Apply dust suppression (water) • Control vehicle speeds • Maintain equipment • Manage exposed areas • Limit operations during high winds (where feasible)	Dust is controlled within acceptable limits	Low–Moderate
Noise	Minimise noise impacts	Site Manager; ECO	• Maintain silencers and equipment • Limit unnecessary noise • Apply operational controls • Monitor where required	Noise impacts remain localised	Low
Soils & Topsoil	Conserve and reuse topsoil	Site Manager; ECO	• Strip and stockpile topsoil • Prevent erosion and compaction • Limit stockpile height • Reapply during rehabilitation	Soil resources retained for rehabilitation	Low–Moderate
Hydrology & Stormwater	Protect drainage and prevent erosion	Site Manager; ECO	• Implement stormwater controls • Maintain natural flow	No significant impact on drainage systems	Low

			• Stabilise disturbed areas • Manage runoff at crossings		
Terrestrial Biodiversity	Protect vegetation and ecological integrity	Site Manager; ECO; Specialist (as required)	• Restrict clearing to footprint • Conduct search-and-rescue of protected plants • Obtain permits • Progressive rehabilitation • Control invasive species	Biodiversity impacts are localised and recoverable	Low–Moderate
Fauna	Minimise disturbance to fauna	Site Manager; ECO	• Conduct pre-clearance checks • Prohibit hunting/trapping • Limit vehicle movement • Install and maintain adequate perimeter fencing around active quarry areas to prevent access by livestock and wildlife. Fencing must be inspected regularly and maintained to prevent animals from gaining access beneath or through the fence line. • Provide awareness training • Rehabilitate habitat	Faunal disturbance is temporary	Low
Heritage & Palaeontology	Protect heritage resources	Site Manager; ECO; Heritage Specialist (if required)	• Implement Chance Find Procedure • Avoid resources where feasible • Obtain permits if required • Notify authorities if material is found	Heritage impacts are avoided or minimised	Low
Land Use	Minimise impact on grazing land	Site Manager; ECO	• Limit disturbance to ±5 ha • Implement phased mining • Rehabilitate for grazing post-closure	Land use restored post-mining	Low
Access & Infrastructure	Manage access and prevent damage	Site Manager; ECO	• Use designated access routes • Maintain roads- Control vehicle speeds • Repair damage caused by operations	Access maintained and impacts minimised	Low
Waste Management	Prevent pollution from waste				

p) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

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

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

(Which relate to the assessment and mitigation measures proposed)

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

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

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

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

ii) Conditions that must be included in the authorisation

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

s) Period for which the Environmental Authorisation is required.

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

t) Undertaking

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

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

u) 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 total environmental provision has been derived from the environmental cost estimates presented in the Financial and Technical Competence Report (Appendix H). This includes both the ongoing environmental management costs associated with operational activities, as well as the once-off rehabilitation costs required for closure.

As reflected in Table 3.1 of the report, the environmental cost amounts to approximately R331 100 per quarter, which incorporates routine mitigation measures such as dust suppression, stormwater management, monitoring, and general environmental compliance.

In addition, Table 2 of the report provides a detailed breakdown of environmental management and rehabilitation costs, indicating a total mitigation cost of approximately R189 000 and a rehabilitation cost of approximately R852 600.

These costs are distributed across the operational period to ensure that sufficient financial provision is available throughout the life of the project and for final rehabilitation.

The total environmental provision therefore amounts to approximately R1 986 600, which represents the full financial commitment required to manage environmental impacts and implement closure and rehabilitation measures in accordance with the requirements of the MPRDA.

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

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

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

v) Specific Information required by the competent Authority

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

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

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

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

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

  The viewshed analysis indicates that the proposed quarry will have a low visual impact. While the site may be visible from sections of the R61, located approximately 280 m from the footprint, visibility is largely confined to the immediate surroundings.

  The analysis shows that views are restricted by the gently undulating terrain and low ridges characteristic of the Karoo landscape, which limit long-distance exposure. As a result, the visual influence of the quarry does not extend significantly beyond the local area.

  The proposed activity will utilise equipment typical of quarrying and agricultural operations, and is therefore not expected to be visually incongruent with the surrounding rural setting.

  Visual impacts will be localised and temporary in nature, and can be further reduced through phased mining and progressive rehabilitation. Following closure and rehabilitation, the site is expected to reintegrate with the surrounding landscape, with no significant long-term visual impact anticipated.

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

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

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

  The potential impact on the noise ambiance of the receiving environment is expected to be of low significance and representative of the traffic of the

surrounding area. The distance of the proposed mining area from residential infrastructure further lessens the potential noise impact.

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

  The proposed labour component of the activity will be five or six employees. The operation will contribute to the local economy in the area, both directly and through the multiplier effect that its continued presence will create.

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

- **Compliance Management:**

  Should the MP application be approved, compliance with the mitigation measures and conditions approved as part of the EMPR and the Environmental Authorisation (EA) will be compulsory to the Permit Holder as both the EMPR and EA are legally binding documents. In terms of Section 34 of the NEMA EIA Regulations, 2014 (as amended 2017) the holder of an EA must: "(a) ensure that the compliance with the conditions of the environmental authorisation and the EMPR, and where applicable the closure plan, I audited; and (b) submit an environmental audit report to the relevant competent authority". The regulations further stipulate that the environmental audit report (EAR) must be prepared by an independent person with the relevant environmental auditing expertise; provide verifiable findings on the level of performance against and compliance with the provisions of the requisite EA, EMP and Closure Plan, and the ability of the measures contained in the EMPR and Closure Plan to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking. Within 7 days of the date of submission of an EAR to the competent authority (DMPR) the holder of the EA must notify all potential and registered I&AP's of the submission of that report and make such report immediately available to anyone on request, and on a publicly accessible website.

In accordance with the National Heritage Resources Act, 1999 (Act No. 25 of 1999), an assessment was undertaken to determine the potential impact of the proposed mining

activities on components of the national estate as defined in Section 3(2) of the Act. These include archaeological and palaeontological resources, cultural landscapes, and graves.

The National Web-Based Environmental Screening Tool identified elevated archaeological and palaeontological sensitivity within the broader area. These findings were subsequently verified and refined through specialist assessments, including a Heritage Impact Assessment (HIA) and a Palaeontological Impact Assessment (PIA) (refer to Appendix M3).

Archaeological and Cultural Heritage Resources

The Heritage Impact Assessment confirmed the presence of archaeological material within the broader study area, including Stone Age artefacts of cultural and scientific significance. No heritage resources of high significance were identified within the proposed mining footprint that would preclude development.

No graves, burial grounds, built heritage structures, or formally protected heritage sites were recorded within the footprint during the assessment.

Potential impacts on archaeological resources may arise from vegetation clearing, excavation, and blasting activities. These impacts are considered localised and manageable.

Palaeontological Resources

The Palaeontological Impact Assessment confirmed that, although the broader region is associated with fossil-bearing formations of the Beaufort Group, the quarry footprint is largely underlain by dolerite intrusions, which are non-fossiliferous. No fossil material was identified during the field assessment; however, the potential for subsurface fossil material within underlying sedimentary formations cannot be excluded. The specialist concluded that, with implementation of the recommended mitigation measures and Fossil Chance Find Protocol, residual palaeontological impacts are expected to be low and acceptable.

Potential impacts on palaeontological resources can be effectively managed through implementation of the recommended mitigation measures and Chance Find Protocol.

Mitigation and Management Measures

Mitigation measures will be implemented in accordance with specialist recommendations and the requirements of the National Heritage Resources Act, and include:

- Compliance with permitting requirements in terms of the NHRA;
- Implementation of a Heritage and Palaeontological Chance Find Procedure; and
- Monitoring during initial site clearance where required.

Should any archaeological material, human remains, or fossil material be encountered during site clearing or excavation, work in the affected area will cease immediately and the relevant authorities and specialists will be notified.

Impact Evaluation

Based on the findings of the specialist assessments:

- The proposed development may result in localised impacts on archaeological material of low to moderate significance;
- Palaeontological impacts are expected to be low due to the underlying dolerite geology; and
- No components of the national estate were identified within the footprint that would constitute a fatal flaw.

With the implementation of mitigation measures and compliance with SAHRA requirements, impacts on the national estate are expected to be localised, manageable, and of low to moderate significance.

Conclusion

The proposed development is not expected to result in significant or irreversible impacts on the national estate as defined in Section 3(2) of the National Heritage Resources Act, provided that all mitigation measures and specialist recommendations are implemented.

The relevant mitigation and management measures are fully reflected in Sections 2.5.3, 2.11.6, and 2.12 of this DBAR, and the Heritage Impact Assessment and Palaeontological Impact Assessment are attached as Appendix M.

In accordance with Section 24(4)(a) and (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), the Environmental Assessment Practitioner (EAP), Greenmined Environmental (Pty) Ltd, has undertaken a comprehensive investigation into the potential environmental, social, and economic impacts associated with the proposed dolerite quarry on Portion 0 of Farm 94 (Perseverance), near Aberdeen.

This process ensures that the proposed activity has been assessed in a manner that promotes sustainable development, including the identification and evaluation of impacts, the consideration of feasible alternatives, and the implementation of appropriate mitigation measures.

Proof of Investigation

The EAP confirms that the following investigations have been completed:

A National Web-Based Environmental Screening Tool assessment was undertaken in accordance with Regulation 16 of the EIA Regulations (2014, as amended), identifying environmental sensitivities relevant to the site;

The Screening Tool identified elevated sensitivities relating to biodiversity, heritage, and palaeontology, which were subsequently verified through site-specific assessments;

A combination of desktop studies, site verification, and specialist assessments was undertaken to characterise the receiving environment;

The following specialist studies were completed and informed the assessment:

Terrestrial Biodiversity Impact Assessment (including flora and fauna);

- Aquatic Biodiversity Assessment;
- Avifaunal Impact Assessment;
- Heritage Impact Assessment (HIA); and
- Palaeontological Impact Assessment (PIA);

The Draft Basic Assessment Report (DBAR) includes an assessment of potential environmental impacts, including cumulative impacts where applicable; and

A public participation process was undertaken in accordance with Regulations 39–44 of the EIA Regulations, providing Interested and Affected Parties (I&APs) with an opportunity to comment.

Detailed proof of investigation is provided in Appendix 4.

Motivation Regarding Alternatives

In accordance with Regulation 22(2)(h), alternatives have been considered and assessed as part of the environmental assessment process.

Location Alternatives

No alternative sites were considered, as the occurrence of the dolerite resource is geologically constrained and can only be economically extracted where it occurs. The identified deposit on Portion 0 of Farm 94 represents a viable and accessible resource.

Layout Alternatives

Alternative layouts within the property were considered, including shifting the footprint to avoid sensitive areas and utilising previously disturbed areas. These alternatives were not preferred due to insufficient mineral resource, reduced operational efficiency, and no meaningful reduction in environmental impacts. The preferred layout represents the most practical and environmentally acceptable option.

Technology and Operational Alternatives

Alternative extraction methods were considered; however, conventional open-cast quarrying using controlled blasting and mobile processing equipment was identified as the most efficient and appropriate method for hard rock extraction.

No-Go Alternative

The no-go alternative would avoid environmental disturbance but would result in the loss of socio-economic benefits, including local employment and the supply of aggregate material for infrastructure development. This option would also sterilise the mineral resource and is therefore not preferred.

Conclusion

Based on the investigations undertaken:

The proposed activity has been assessed in accordance with Section 24(4)(a) and (b) of the National Environmental Management Act;

Environmental sensitivities identified through the Screening Tool have been verified and addressed through specialist assessments; and

No reasonable or feasible alternative sites exist due to the site-specific nature of the mineral resource.

The preferred alternative is therefore considered the Best Practicable Environmental Option (BPEO), balancing environmental protection with socio-economic benefits.

Supporting motivation and documentation are included in Appendix 4 of this report.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME.

a) Details of the EAP,

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

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

b) Description of the Aspects of the Activity

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

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

c) Composite Map

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

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

d) Description of impact management objectives including management statements

i) Determination of closure objectives.

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

The closure objectives for the proposed quarry are informed by the site-specific environmental conditions, including the semi-arid Nama-Karoo environment, shallow and rocky soils, low agricultural potential, and limited topsoil availability. The primary objective is to ensure that the site is left in a safe, stable, and non-polluting condition that is compatible with the surrounding land use, namely extensive livestock grazing.

Rehabilitation will be undertaken progressively, as sections of the quarry become available, in order to limit the extent of disturbance and support ongoing restoration throughout the operational phase.

At closure, all infrastructure, equipment, and any remaining stockpiled material not required by the landowner will be removed from site. Disturbed areas will be reshaped and stabilised to achieve a safe and stable landform that integrates with the surrounding topography. The focus will be on ensuring long-term stability of the rehabilitated areas and reducing the potential for erosion.

Given that backfilling to original ground levels is not feasible due to the nature of the operation, the rehabilitated quarry will remain as a stable landform that blends with the surrounding landscape. Rehabilitation will therefore focus on functionality and stability rather than restoration to pre-mining topography.

Topsoil availability on site is limited due to the shallow, rocky nature of the terrain. Where suitable material is present, it will be stripped, stockpiled, and reused during rehabilitation. This material will be re-spread over reshaped areas to support vegetation re-establishment and reduce erosion.

Rehabilitation measures will include:

- Reshaping and stabilisation of the quarry and all disturbed areas;
- Re-spreading of available soil material where possible;
- Promotion of natural vegetation recovery suitable to the Nama-Karoo environment; and
- Monitoring and control of invasive alien plant species.
- The access road will either be retained for continued use by the landowner or rehabilitated where required to ensure stability and compatibility with the surrounding environment.

The intended post-closure land use will remain consistent with the current land use, namely extensive livestock grazing. Rehabilitation will aim to restore the site to a condition that supports this use, taking into account the natural limitations of the environment.

Closure activities will be implemented in accordance with the requirements of the DMRE and the approved Environmental Management Programme (EMPr), and are further detailed in the Closure Plan (Appendix L).

Erosion Control and Profiling:

Excavated areas will be contoured and graded to prevent erosion and promote natural water flow. These erosion control measures will also help prevent sediment runoff into nearby areas and support the overall stability of the rehabilitated sections.

Waste Management:

No waste material will be allowed to be deposited within the excavated areas. This will help maintain the integrity of the rehabilitated landscape and prevent any contamination that could hinder vegetation growth or future agricultural use.

Future Land Use Preparation:

This rehabilitation approach is tailored to prepare the land for either future agricultural use or natural regrowth, aligning with the site's existing land use and minimal soil resources. By focusing on stabilization and basic soil restoration, the site will be left in a condition that allows for flexible land use options post-rehabilitation.

This staged approach will ensure that each section is rehabilitated to acceptable standards before moving on to the next, facilitating a controlled, orderly rehabilitation process with ongoing oversight and soil management as required.

- Rehabilitation of plant, office, and service areas:

Unless otherwise agreed to in writing by the landowner, all stockpiled material must be removed from the site during the decommissioning phase, the area ripped, and the topsoil (available soil as described above) returned to its original depth to provide a growth medium.

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

- Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora (not applicable to this application).

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

On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm and graded to an even surface condition.

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

- Final rehabilitation:

Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation.

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

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

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

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

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

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

As no washing is proposed for this project, the applicant will exclusively use water for dust suppression purposes on the access road when needed. Approximately 90 000 litre water/day will be needed during the dry months. The water will be sourced from authorised on site source.

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

Although the proposed development does not involve direct alteration of defined watercourses within the mining footprint, a precautionary approach has been adopted in terms of water resource management. A Water Use Authorisation (WUA) may be pursued, where required, to ensure that all water-related activities are compliant with the National Water Act, 1998 (Act 36 of 1998), and formally recognised by the Department of Water and Sanitation.

The Aquatic Risk Matrix Assessment (Appendix M1) identified potential impacts as low risk. It is noted that this assessment was undertaken as a desktop exercise; however, subsequent site verification confirmed the absence of perennial rivers, wetlands, or defined seasonal watercourses within the proposed quarry footprint.

The site is located within a semi-arid Karoo environment characterised by low and variable rainfall (approximately 200–240 mm per annum), with surface runoff occurring primarily during rainfall events. A prominent ephemeral drainage feature is located outside the proposed development footprint and surrounding infrastructure areas of the site, outside the development footprint. Minor, poorly defined drainage features may occur within the broader landscape and along the proposed access road alignment. These features function only during rainfall events and are not classified as wetlands or perennial systems, but are recognised as watercourses in terms of the National Water Act.

No mining or stockpiling activities are proposed within these drainage features. As such, the proposed development is not expected to trigger Section 21(c) or 21(i) water uses within the mining footprint. However, where the access road may intersect minor drainage features, appropriate stormwater and erosion control measures will be implemented to maintain natural flow patterns and prevent sedimentation.

Water for dust suppression will be sourced from a lawfully authorised supply. Should any additional water use be required, the applicant will obtain the necessary authorisation in terms of the National Water Act.

With the implementation of these measures, impacts on surface water systems are expected to be localised and low, and can be effectively managed through the EMPr.

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iv) Impacts to be mitigated in their respective phases

Table 25: Impact to be mitigated in their respective phases

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
(as listed in 2.11.1)	of operation in which activity will take place. State; Planning and design, Pre-Construction, Operational, Rehabilitation, Closure, Post closure	(volumes, tonnages and hectares or m^2)	(describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either – Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Demarcation of site with visible beacons.	Site Establishment phase	5 ha	Demarcation of the site will ensure that all employees are aware of the boundaries of the mining area, and that work stay within the approved area.	Mining of aggregate is only allowed within the boundaries of the approved area. • MPRDA, 2008 • NEMA, 1998	Beacons need to be in place throughout the life of the activity.
Site establishment and infrastructure development.	Site Establishment & Operational Phase	5 ha	**<u>Loss of agricultural land for duration of mining:</u>** According to the landowner, the agricultural potential of the study area (S1) is of lower significance and therefore he supports the proposed mining operation. The proposed mining area will revert back to its previous state upon closure. The	Use of agricultural land must be managed in accordance with the: • CARA, 1983 Closure Plan (Appendix L)	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			mining area in its original state and again used for agricultural purposes.		
• Site establishment and stockpiling of topsoil and overburden	Site Establishment & Operational Phase	5 ha	**Visual Mitigation** • The site must have a neat appearance and be kept in good condition at all times. • Mining must be contained to the boundaries of the permitted area. • Mining equipment must be stored neatly in dedicated areas when not in use. • The permit holder must limit vegetation removal (if applicable), and stripping of topsoil may only be done immediately prior to the use of a specific area. • The excavation must be contained in within the approved footprint of the permitted area. • Upon closure, the mining area must be rehabilitated in accordance with approved closure objectives, focusing on stability, safety, and visual integration with the surrounding landscape, without implying backfilling of excavated areas.	Management of the mining area must be in accordance with the: • MPRDA, 2008 • NEMA, 1998	Throughout the site establishment-, and operational phase.
• Site establishment and infrastructure development. • Cumulative Impacts	Site Establishment phase	5 ha	**Management of vegetation removal:** • The approved mining footprint must be clearly demarcated prior to any site clearing, and all activities must be confined strictly within this area. Areas outside the footprint must be designated as no-go areas. • Vegetation clearing must be limited to the minimum area required for mining and associated infrastructure. Clearing outside the approved footprint is strictly prohibited.	Natural vegetated areas must be managed in accordance with the: • NEM:BA 2004	Throughout the site establishment phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Clearing must be undertaken in a phased manner and only immediately prior to mining activities to minimise disturbance. • A pre-construction botanical walk-through must be conducted by a suitably qualified specialist to identify and map protected and conservation-important plant species within the disturbance footprint. • All protected plant species identified within the footprint must be rescued and translocated to suitable adjacent habitat under specialist supervision prior to any disturbance. • The necessary permits must be obtained in terms of applicable provincial conservation legislation prior to the removal or relocation of protected species. • Vehicles and machinery must remain on designated access routes, and no unnecessary driving outside demarcated areas is permitted. • The Environmental Control Officer (ECO) must oversee vegetation clearing activities to ensure compliance with the EMPr and specialist recommendations. • No fires are permitted on site. • Measures must be implemented to prevent the introduction and spread of invasive alien plant species during clearing and construction activities..		
• Site establishment. • Sloping and landscaping upon closure of the mining area.	Site Establishment- and Decommissioning phase	±5 ha	**<u>Topsoil Management:</u>** The proposed mining area is characterised by shallow, stony soils with limited topsoil availability. As a result, rehabilitation will focus on the conservation and optimal reuse of available soil material to stabilise disturbed areas and support	Topsoil must be managed in accordance with the: • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008	Throughout the site establishment-, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			natural vegetation recovery, rather than full restoration of original soil profiles. • Where topsoil or suitable growth medium is present, the following measures must be implemented: • Topsoil must be stripped separately ahead of mining activities where practicable and stockpiled for later use in rehabilitation. • Topsoil handling must be undertaken in a phased and systematic manner to minimise the duration of stockpiling. • Stockpiles must be located within the approved mining footprint and must not be placed in undisturbed areas. • Stockpiles should be kept as low as practicable (generally not exceeding ±2 m) to reduce compaction and maintain soil quality. • Stockpiles must be protected from erosion and must be kept free of invasive alien plant species. • Stormwater runoff must be managed to prevent erosion of stockpiles and surrounding disturbed areas. • Available topsoil must be reused during progressive rehabilitation and final closure to stabilise surfaces and promote vegetation establishment. • Rehabilitation must be timed, where feasible, to coincide with favourable seasonal conditions to support vegetation recovery. • Rehabilitated areas must be monitored for erosion and stability, and remedial measures must be implemented where necessary.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
• Site establishment. • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area.	Site Establishment-, Operational- and Decommissioning phase	±1 ha	**Management of Invader Plant Species:** • An invasive plant species management plan (Appendix I) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the mining activities. • All stockpiles (topsoil) must be kept free of invasive plant species. • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: • The plants can be uprooted, felled or cut off and can be destroyed completely. • The plants can be treated chemically by a registered pest control officer (PCO) through the use of an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide. • A continuous invasive alien species monitoring and eradication programme must be implemented, with specific focus on *Prosopis glandulosa*, which has a high colonisation risk in disturbed Karoo environments. • Weed inspections must be conducted regularly during construction and operation, with immediate removal of Category 1 and 2 invasive species in compliance with CARA and NEMBA.	Invader plants must be managed in accordance with the: • CARA, 1983 • NEM:BA 2004 • Invasive Plant Species Management Plan (Appendix I)	Throughout the site establishment-, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
• Site establishment. • Mining of dolerite	Site Establishment- and Operational phase	5 ha	**<u>Protection of fauna</u>** • A pre-clearing walk-through must be conducted, where required, to identify and safely relocate any fauna within the disturbance footprint prior to vegetation clearing. • Any fauna encountered during site clearing must be allowed to move away from the area or, where necessary, be safely relocated to suitable adjacent habitat. • Open excavations must be inspected regularly to identify and safely remove any trapped fauna. • Vehicles and machinery must remain within demarcated areas, and unnecessary movement outside the approved footprint is prohibited. • A site speed limit (maximum 40 km/h) must be enforced to reduce the risk of vehicle collisions with wildlife. • The hunting, trapping, poisoning, or intentional harm of any fauna is strictly prohibited. • All personnel must undergo environmental induction, including awareness of fauna protection and the importance of not disturbing or harming wildlife. • Install and maintain adequate perimeter fencing around active quarry areas to prevent access by livestock and wildlife. Fencing must be inspected regularly and maintained to prevent animals from gaining access beneath or through the fence line. • Waste must be managed effectively, and no litter or food waste may be left on site that could attract or harm fauna. • Hazardous substances must be stored and handled in a manner that prevents	Fauna must be managed in accordance with the: • NEM:BA 2004	Throughout the site establishment-, and operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			contamination of the environment and harm to fauna.		
• Site establishment and infrastructure development. • Excavation, loading and hauling to the processing plant.	Site Establishment, & Operational Phase.	5 ha	**Archaeological, Heritage and Palaeontological Aspects:** • All mining, vegetation clearing, blasting, and associated activities must be confined strictly to the approved development footprint. • No disturbance of areas outside the demarcated footprint is permitted. • A Heritage and Palaeontological Chance Find Procedure must be implemented throughout all phases of the project. • If any archaeological material (e.g. stone artefacts, pottery, or historical material) is encountered during site clearing or excavation: • Work in the immediate area must cease immediately; • The find must be left in situ and secured; • The Site Manager and Environmental Control Officer (ECO) must be notified; • A qualified archaeologist must be appointed to assess the find; and • Work may only resume once clearance has been provided in accordance with the National Heritage Resources Act. • If human remains are encountered: • All work must cease immediately in the affected area; • The remains must not be disturbed;	Cultural/heritage aspects on site must be managed in accordance with the: NHRA, 1999	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• The ECO, a qualified specialist, and the relevant authorities must be notified; and • Work may only continue once formal authorisation has been granted. • Although palaeontological sensitivity is low due to the presence of dolerite, if any fossil material is encountered: • Work must cease in the affected area; • The ECO must notify a qualified palaeontologist; and • Work may only resume once clearance has been provided. • All personnel must receive environmental induction, including awareness of heritage resources and reporting procedures.		
• Stripping and stockpiling of topsoil and/or overburden. • Excavation, loading and hauling to the processing plant. • Drilling and blasting • Processing, stockpiling and transporting of material.	Site Establishment-, Operational Phase	280m	**<u>Drainage Line Protection (Where Vegetation Removal Intersects Watercourses)</u>** • Minor ephemeral drainage features associated with the broader landscape and access road alignment must be protected, and disturbance must be kept to a minimum. • All crossings of drainage features must be designed and constructed to maintain natural flow patterns and prevent erosion. • Erosion and sediment control measures must be implemented at all drainage crossings and disturbed areas, and must be maintained throughout the construction and operational phases. • Vegetation clearing within drainage features must be avoided as far as practicable and limited strictly to what is required for the approved access road.	• Disturbance limited to authorised footprint in compliance with NEMA Duty of Care (S28). • Erosion control installed at all crossings to meet Best Environmental Management Practice standards. • Natural water flow maintained, consistent with National Water Act requirements. • Riparian vegetation avoided except where essential for road footprint, in line with GN R326 EIA principles. • Immediate rehabilitation of disturbed areas to prevent sedimentation and meet water resource protection standards.	Throughout the site establishment-, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• No stockpiling of material, waste, or topsoil is permitted within or adjacent to drainage features. • Stormwater must be managed to prevent concentrated runoff, erosion, and sedimentation into surrounding areas.	• Ongoing ECO monitoring ensures continued compliance with Competent Authority conditions.	
• Stripping and stockpiling of topsoil and/or overburden. • Excavation, loading and hauling to the processing plant. • Drilling and blasting • Processing, stockpiling and transporting of material.	Site Establishment-, Operational Phase	±5 ha	**<u>Fugitive Dust Emission Mitigation:</u>** • Dust generation must be minimised through the application of appropriate dust suppression measures, including water spraying of haul roads, working areas, and stockpiles where required. • Vehicle speeds must be controlled to reduce dust generation (maximum 20 km/h on haul roads and 40 km/h on access roads). • Disturbance of exposed surfaces must be limited to active operational areas, and vegetation clearing must be undertaken only immediately prior to mining activities. • Crushing and screening operations must be fitted with effective dust suppression measures, including water sprays at key transfer points. • Stockpiles and fine material must be managed to minimise wind erosion, including maintaining stable surfaces and reducing drop heights where practicable. • Transported loads must be managed to prevent spillage and excessive dust generation on public roads. • Weather conditions must be monitored, and dust-generating activities must be reduced or temporarily halted during periods of strong winds where necessary.	Dust generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)	Throughout the site establishment-, operational, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Dust suppression measures and equipment must be regularly inspected and maintained to ensure effectiveness. • All dust-generating activities must comply with the National Dust Control Regulations (GN R827) under the National Environmental Management: Air Quality Act (Act 39 of 2004).		
• Site establishment. • Excavation, loading and hauling to the processing plant • Drilling and blasting • Crushing, screening, stockpiling and transporting material from site. • Sloping and landscaping upon closure of the mining area.	Site Establishment-, Operational-, and Decommissioning Phase	5 ha	**Noise Handling:** • The permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. • All vehicles and machinery must be fitted with effective silencers and must be regularly maintained to ensure optimal operation and minimal noise generation and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). • Unnecessary noise on site must be avoided, including loud music or disruptive behaviour by personnel. • Equipment must be operated in a manner that minimises excessive or prolonged noise generation. • Where required, occupational noise exposure must be managed in accordance with applicable health and safety legislation. • Best practicable measures must be implemented to minimise noise impacts on the surrounding environment. • A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS	Noise generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • NRTA, 1996	Throughout the site establishment-, operational-, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			10083:2004 (Edition 5) sampling method as well as NEM: AQA, 2004, SANS 10103:2008.		
• Stripping and stockpiling of topsoil and/or overburden. • Excavation, loading and hauling to the processing plant. • Drilling and blasting • Processing, stockpiling and transporting of material. • Sloping and landscaping during rehabilitation phase.	Site Establishment-, Operational-, and Decommissioning Phase	5 ha	**<u>Waste Management:</u>** • Regular vehicle maintenance, repairs and services may only take place in a demarcated service area of the permit holder. If emergency repairs are needed on equipment not able to move to the workshop / service area, drip trays must be present. All waste products must be disposed of in a 200-litre closed container/bin to be removed from the emergency service area to the workshop in order to ensure proper disposal. • Ablution facilities must be provided in the form of chemical toilets. The chemical toilets must be placed outside the 1:100-year floodline of any open water resource and must be serviced at least once every two weeks for the duration of the mining activities. • The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the permit holder. • If a diesel bowser is used on site, it must be equipped with a drip tray at all times. Drip trays must be used during each and every refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.	Mining related waste must be managed in accordance with the: • NWA, 1998 • NEM: WA, 2008 • NEM: WA, 2008: National norms and standards for the storage of waste (GN 926) • NEMA, 1998 (Section 30)	Throughout the site establishment-, operational-, and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. • A spill kit must be available on-site which can be operated by trained employees for the ad hoc remediation of minor chemical and hydrocarbon spillages. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed. • A waste management plan must be compiled by site management and implemented on site. The plan must focus on the waste hierarchy of the NEM: WA. • General waste must be contained in marked, sealable, refuse bins placed at a designated area, to be removed when filled to a recognised general waste landfill site. • No waste may be buried or burned on the site. • It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities is reported to the Department of Water and Sanitation and other relevant authorities.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
• Stripping and stockpiling of topsoil and overburden. • Excavation, loading and hauling to the processing plant. • Drilling and Blasting • Sloping and landscaping during rehabilitation.	Operational Phase	5 ha	**<u>Erosion Control and Storm Water Management:</u>** • Clearing of vegetation must be limited to the proposed mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place. • Stormwater must be diverted around the stockpiles and mining areas to prevent erosion. • Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms. • When mining within steep slopes, it must be ensured that adequate slope protection is provided. • During mining, the outflow of run-off water from the mining excavation must be controlled to prevent down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur. • Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation. • Any erosion problems within the mining area because of the mining activities observed must be rectified immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur. • Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control	Storm water must be managed in accordance with the: • CARA, 1983 • NEMA, 1998 • NWA, 1998	Throughout the operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose: ▪ Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. ▪ Dirty water must be collected and contained in a system separate from the clean water system. ▪ Dirty water must be prevented from spilling or seeping into clean water systems. ▪ A storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns). ▪ The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan. Polluting activities including storage of mining fleet, equipment wash down facilities and vehicle maintenance yards must be restricted to the workshop areas and must be undertaken on impermeable hard standing surfaces, which are formally drained to a dirty water drainage system at the site. All fuels and chemicals stored or used on site must be contained within fit for purpose containers and stored within designated storage areas. In order to prevent pollution of the surrounding environment during an		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			accidental spillage, the designated storage areas must be situated on an impermeable surface and must feature a perimeter bund and a drainage sump. The volume of the bund and sump must be sized to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area.		
• Crushing, screening, stockpiling and transporting material from site.	Operational Phase	±2 ha	**<u>Access Road Mitigation:</u>** • Storm water must be diverted around the access road to prevent erosion. • Vehicular movement must be restricted to the existing access road to prevent crisscrossing of tracks through undisturbed and inactive areas. • Rutting and erosion of the access road caused as a direct result of the mining activities must be repaired by the permit holder. • Overloading of the truck must be prevented, and proof of load weights must be filed for auditing purposes. • Minimise disturbance of ephemeral drainage lines intersected by the access road. • Ensure the access road design maintains natural flow paths and does not channel or concentrate runoff. • Stabilise all drainage line crossings immediately after construction to prevent gullying. • Avoid clearing indigenous vegetation along the access road alignment except for the minimum footprint required. • Where protected plant species occur along the alignment, these must be identified and relocated under specialist supervision prior to construction, and relevant permits must be obtained.	The access road must be managed in accordance with the: • NRTA, 1996	Throughout the operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Monitor the access road verges for invasive alien plants. • Remove invasive species immediately upon detection to prevent establishment along the corridor. • Conduct a pre-construction faunal walk-through, focusing on relocating reptiles and small mammals from the road alignment. • Check the road alignment daily during construction for tortoises, reptiles, and small mammals, especially in rocky terrain. • Speed limits must be enforced to reduce collision risk with wildlife (e.g., tortoises, hares, small carnivores). • Topsoil removed during road preparation must be separately stockpiled, protected, and reused for rehabilitation. • Disturbed road edges must be revegetated using preserved topsoil to restore natural seedbank and prevent long-term erosion. • Once construction is complete, all temporary disturbance areas next to the access road must be recontoured, stabilised, and revegetated. • Ensure that rehabilitation restores surface naturalness and does not create artificial channels or erosion features.		
• Excavation, loading and hauling to the processing plant. • Drilling and Blasting • Sloping and landscaping during	Site Establishment-, Operational-, and Decommissioning phase	5 ha	**Management of health and safety risks:** • Workers must have access to the correct personal protection equipment (PPE) as required by law. • Sanitary facilities must be located within 100 m from any point of work. • All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996)	Health and safety aspects must be managed in accordance with the: • MHSA, 1996 • OHSA, 1993 • OHSAS, 18001	Throughout the site establishment-, operational and decommissioning phase.

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

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			bund area, as well as the bund area itself for malfunctions or leakages. The bund area must be inspected at least weekly and any accumulated rainwater removed and handled as contaminated water. All valves and outlets must be checked to ensure that its intact and closed securely. • The bund base must slope towards an oil sump of sufficient size. Contaminated water may not be allowed to mix with clean water and must be contained until it is collected by a registered hazardous waste handling contractor or disposed of at a registered hazardous waste handling facility. • Drip trays must be used underneath all stationary equipment or vehicles. Used drip trays must be placed within a bunded area and are not stored on bare soil. The wastewater originating from the cleaning of drip trays must be discarded into the oil sump.		
• Sloping and landscaping during rehabilitation phase.	Decommissioning Phase	5 ha	**Rehabilitation/landscaping of mining area:** Rehabilitation of the proposed mining site will prioritize stabilizing and preparing disturbed areas for potential agricultural use or natural regrowth, considering the minimal topsoil available. Key elements of this plan are as follows: • Rehabilitation Process: Rehabilitation of the proposed mining site will focus on stabilising disturbed areas and preparing the land for a return to grazing use or natural vegetation recovery, taking into account the limited availability of topsoil. Mining will be undertaken in a phased manner, with progressive rehabilitation implemented as	Rehabilitation of the mining area must be in accordance with the: ❖ CARA, 1983 ❖ NEM:BA, 2004 ❖ MPRDA, 2002 Closure Plan (Appendix L)	Throughout the decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			sections of the quarry become available. This approach will limit the extent of disturbance at any given time and support ongoing rehabilitation throughout the operational phase. Earthmoving equipment will be used to manage excavated and overburden material during operations, ensuring that disturbance is contained within the active footprint as far as practicable. Given the rocky nature of the site and generally shallow soil profile, topsoil availability is expected to be limited. Where suitable material is present, it will be stripped, stockpiled appropriately, and reused during rehabilitation. Rehabilitation measures will include the reshaping and stabilisation of disturbed areas to blend with the surrounding landscape, the re-spreading of available soil, and the promotion of natural vegetation recovery. • Topsoil Redistribution: Although the site lacks substantial topsoil, any minimal amount of soil material recovered will be returned to its original depth after profiling the excavated areas with acceptable contours and erosion control measures. This redistribution will help stabilize the soil, reduce erosion, and foster natural regrowth or future agricultural use. • Erosion Control and Profiling: Excavated areas will be contoured and graded to prevent erosion and promote natural water flow. These erosion control measures will also help prevent sediment runoff into nearby areas		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			and support the overall stability of the rehabilitated sections. • Waste Management: No waste material will be allowed to be deposited within the excavated areas. This will help maintain the integrity of the rehabilitated landscape and prevent any contamination that could hinder vegetation growth or future agricultural use. • Future Land Use Preparation: This rehabilitation approach is tailored to prepare the land for either future agricultural use or natural regrowth, aligning with the site's existing land use and minimal soil resources. By focusing on stabilization and basic soil restoration, the site will be left in a condition that allows for flexible land use options post-rehabilitation. • This staged approach will ensure that each section is rehabilitated to acceptable standards before moving on to the next, facilitating a controlled, orderly rehabilitation process with ongoing oversight and soil management as required. • Rehabilitation of plant, office, and service areas: • Unless otherwise agreed to in writing by the landowner, all stockpiled material must be removed from the site during the decommissioning phase, the area ripped, and the topsoil (available soil as described above) returned to its original depth to provide a growth medium. • On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			Resources Development Act, 2002 (Act 28 of 2002). • On completion of mining operations, the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.		

e) Impact Management Outcomes

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

Table 26: Impact Management Outcomes

ACTIVITY whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure))	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc..) E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
• Demarcation of site with visible beacons.	• No impact could be identified other than the beacons being	N/A	Site Establishment phase	Control through management and monitoring.	Mining of aggregate is only allowed within the boundaries of the approved area.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	outside the boundaries of the approved mining area.				• MPRDA, 2008 • NEMA, 1998
• Site establishment and infrastructure development. • Stripping and stockpiling of topsoil and overburden.	• Visual intrusion as a result of site establishment.	The visual impact may affect the aesthetics of the landscape.	Site Establishment & Operational Phase	Control: Implementing proper housekeeping.	Management of the mining area must be in accordance with the: • MPRDA, 2008 • NEMA, 1998
• Site establishment and infrastructure development.	• Loss of agricultural land for duration of mining.	The impact may affect the agricultural opportunities of the property.	Site Establishment & Operational Phase	Should the proposed project be approved, the operation will temporarily interrupt the agricultural activities of the footprint area, only to be reversed upon the closure of the mine. The impact could be controlled through progressive rehabilitation.	Use of agricultural land must be managed in accordance with the: • CARA, 1983 Closure Plan (Appendix L)
• Stripping and stockpiling of topsoil and overburden. • Excavation, loading and hauling to the processing plant. • Sloping and landscaping during rehabilitation. • Construction of site access road	• Loss of stockpiled topsoil during mining and stockpiling. • Potential erosion of denuded areas. • Facilitation of erosion due to mining activities. • Erosion of returned topsoil after rehabilitation.	Loss of topsoil will affect the rehabilitation success upon closure of the mine.	Site Establishment-, Operational and Decommissioning Phase	Control & Remedy: Proper housekeeping and storm water management.	Topsoil must be managed in accordance with the: • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008
• Site establishment • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area.	• Infestation of denuded areas with invader plant species • Infestation of the reinstated area with invader plant species.	This will impact on the biodiversity of the receiving environment.	Site Establishment-, Operational- and Decommissioning phase	Control: Implementing soil- and storm water management.	Invader plants must be managed in accordance with the: • CARA, 1983 • NEM:BA 2004 • Invasive Plant Species Management Plan (Appendix I)

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
• Site establishment and infrastructure development. • Stripping and stockpiling of topsoil and overburden.	• Potential impact on fauna within the footprint area.	This will impact on the biodiversity of the receiving environment.	Site Establishment- and Operational phase	Control & Stop: Implementing good management practices.	Fauna must be managed in accordance with the: • NEM:BA 2004 Any water related matters must be managed in accordance with the: • NWA, 1998 • WUA conditions
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Excavation, loading and hauling to the processing plant. • Drilling and Blasting • Processing, stockpiling and transporting of material.	• Dust nuisance as a result of the mining activities. • Dust nuisance as a result of the mining activities.	Increased dust generation will impact on the air quality of the receiving environment.	Site Establishment- and Operational Phase	Control: Dust suppression methods and proper housekeeping.	Dust generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material.	• Noise nuisance generated by earthmoving machinery. • Noise nuisance as a result of the mining activities. • Noise nuisance as a result of the drilling and blasting activities. • Noise nuisance stemming from operation of the processing plant.	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	Control: Noise suppression methods and proper housekeeping.	Noise generation on site must be managed in accordance with the: • NEM: AQA, 2004 Regulation 6(1) • NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material.. • Sloping and landscaping upon closure of the mining area.	• Soil contamination from hydrocarbon spills. • Potential impact assocaited with littering and hydrocarbon spills. • Potential impact associated with litter left at the mining area.	Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the groundwater. It will also incur additional costs to the permit holder.	Site Establishment-, Operational-, and Decommissioning Phase	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	Mining related waste must be managed in accordance with the: • NWA, 1998 • NEM: WA, 2008 • NEM: WA, 2008: National norms and standards for the storage of waste (GN 926) • NEMA, 1998 (Section 30)
• Site establishment and infrastructure development. • Excavation, loading and hauling to the processing plant.	• Potential impact on area/infrastructure of heritage or cultural concern.	This could impact on the cultural and heritage legacy of the receiving environment.	Operational Phase	Control & Stop: Implementing good management practices, as well as the chance-find protocol.	Cultural/heritage aspects must be managed in accordance with the: • NHRA, 1999
• Construction of site access road • Screening, stockpile, and transporting material from site.	• Deterioration of the access road to the mining area.	Collapse of the road infrastructure will affect the landowner.	Operational Phase	Control & Remedy: Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to mining.	The access road must be managed in accordance with the: • NRTA, 1996
• Excavation, loading and hauling to the processing plant.	• Unsafe working environment for employees.	An unsafe working environment affects the labour force, as well as pose a threat	Operational-, and Decommissioning Phase	Stop & Control: Adherance to the rules and regulations, demarcation of the mining area and proper housekeeping.	Health and safety aspects on site must be managed in accordance with the: • MHSA, 1996

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
• Sloping and landscaping during rehabilitation phase.	• Safety risk posed by un-sloped areas.	to animals and humans that may enter the mining footprint.			• OHSA, 1993 • OHSAS 18001 USBM standards
• Screening, stockpile, and transporting material from site.	• Overloading of trucks having an impact on the public roads.	Overloading will negatively affect the roads in the vicinity of the mining area.	Operational Phase	Control: Proper site management.	Load weights must be managed in accordance with the: • NRTA, 1996

f) Impact Management Actions

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

Table 27: Impact Management Actions

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

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		topsoil may only be done immediately prior to the use of a specific area. • Upon closure, the mining area must be rehabilitated in accordance with approved closure objectives, focusing on stability, safety, and visual integration with the surrounding landscape, without implying backfilling of excavated areas. **Management of vegetation removal** • A pre-construction botanical walk-through must be conducted by a qualified ecologist/botanist to identify, tag, map, and record all protected and uncommon plant species within the disturbance footprint. • The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly. • Blanket clearing of vegetation must be limited to the proposed footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place. • Clearing of vegetation should be minimized and avoided where possible. • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. • All protected and uncommon species must be legally handled in accordance with the Eastern Cape Nature Conservation Act permits before any disturbance occurs.		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• Protected plant species identified within the development footprint must be carefully excavated and translocated to suitable adjacent habitat prior to vegetation clearing. This process must be undertaken under the supervision of a suitably qualified specialist and in accordance with applicable permit requirements. The identification and handling of species must be based on the findings of the Terrestrial Biodiversity Impact Assessment and pre-construction walk-through. • The appointed ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when the majority of vegetation clearing is taking place. • Translocation must be undertaken under direct specialist supervision and inspected by the ECO. • All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed. • No plant species, whether native or exotic, should be brought into, ore removed from, the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants. • No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the ECO and without the relevant permits. • No fires must be allowed on-site.		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• Vegetation clearing within or adjacent to ephemeral drainage lines must be avoided where possible and limited strictly to the approved access road footprint. • No clearing may alter the natural vegetation buffer that stabilises these watercourses. • Disturbed and cleared areas must be recontoured, stabilised, and rehabilitated progressively as construction and mining phases proceed. • Stored topsoil must be reapplied to encourage natural regrowth from the existing seedbank.		
• Site establishment • Crushing, screening, stockpiling and transporting material from site. • Sloping and landscaping upon closure of the mining area. • Construction of site access road	• Loss of topsoil and fertility during mining and stockpiling • Loss of stockpiled material due to ineffective storm water control. • Erosion of returned topsoil after rehabilitation	**<u>Topsoil Management:</u>** Topsoil must be stripped to ±30 cm, stored separately, protected from contamination, and reused during rehabilitation to preserve the natural seedbank. Even in areas with shallow and rocky soils, the surface layer must still be treated as topsoil due to the presence of seedbank and vegetative fragments. Subsoil must not be used as topdressing during rehabilitation. The proposed mining site lacks significant topsoil, as it is characterized by a rocky terrain. Due to the minimal natural topsoil layer, any rehabilitation efforts will not involve extensive topsoil replacement. Instead, rehabilitation will focus on redistributing whatever minimal soil material can be stripped during mining operations. This approach ensures that the disturbed areas are stabilized and prepared for future grazing or natural vegetation, while adhering to the limited soil resources available	Throughout the site establishment-, operational, and decommissioning phase.	Topsoil must be managed in accordance with the: • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		on-site. Therefore, any available topsoil should be managed as follows if practically possible. • Topsoil is a valuable and essential resource for rehabilitation, and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes. • Topsoil stripping, stockpiling and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time. • The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed and inactive areas. • Topsoil heaps may not exceed 2 m to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. • The temporary topsoil stockpiles must be kept free of invasive plant species. • Storm- and runoff water must be diverted around the mining area to prevent erosion. • The stockpiled topsoil must be evenly spread, to a depth of 300 mm or to a depth that is practical and aligns with the original and/or surrounding conditions, over the rehabilitated area upon closure of the site. • The permit holder must strive to re-instate topsoil to its previous natural state at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal. • The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement. • Control: Implementing the WUA conditions and specifications if applicable.		
• Site establishment • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area. • Construction of site access road	• Infestation of denuded areas with invader plant species • Infestation of the reinstated area with invader plant species.	**<u>Management of Invader Plant Species:</u>** • An invasive plant species management plan (Appendix I) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the mining activities. • All stockpiles (topsoil) must be kept free of invasive plant species. • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: ▪ The plants can be uprooted, felled or cut off and can be destroyed completely. ▪ The plants can be treated chemically by a registered pest control officer (PCO) using an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide.	Throughout the site establishment-, operational, and decommissioning phase.	Invader plants must be managed in accordance with the: • CARA, 1983 • NEM:BA 2004 • Invasive Plant Species Management Plan (Appendix I)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• All cleared and disturbed areas must be monitored regularly for alien invasive plants, which poses a high invasion risk following disturbance. • Any invasive species detected must be removed immediately using methods compliant with CARA and NEMBA regulations.		
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material.	• Potential impact on fauna within the footprint area.	**Protection of Fauna:** • The site manager must ensure no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set or nests raided for eggs or young. • Install and maintain adequate perimeter fencing around active quarry areas to prevent access by livestock and wildlife. Fencing must be inspected regularly and maintained to prevent animals from gaining access beneath or through the fence line. • Vegetation removal must only begin after a faunal pre-clearance survey has been conducted to safely relocate reptiles, tortoises, small mammals, and other fauna that could be harmed during clearing. The ECO must ensure no dens, burrows, or tortoise shelters are unknowingly destroyed during clearing.	Throughout the site establishment-, and operational phase.	Fauna must be managed in accordance with the: • NEM:BA 2004
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road	• Dust nuisance as a result of the mining activities. • Dust nuisance as a result of the mining activities.	**Fugitive Dust Emission Mitigation:** • The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, straw, water spraying and/or environmentally friendly	Throughout the site establishment-, operational, and decommissioning phase.	Dust generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.		dust-allaying agents that contains no PCB's (e.g. DAS products). • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Speed on the access road must be limited to 40 km/h to prevent the generation of excess dust. • Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining. • Loads must be flattened and covered to ensure that minimal spillage of material takes place during transportation, also preventing windblown dust. • Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts. • All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012). • Best practice measures shall be implemented during the stripping of topsoil, loading, and transporting of the aggregate from site to minimize potential dust impacts.		• National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road	• Noise nuisance as a result of the mining activities. • Noise nuisance as a result of the decomissiononig activities.	**<u>Noise Handling:</u>** • The permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site.	Throughout the site establishment-, operational-, and decommissioning phase.	Noise generation must be managed in accordance with the: • NEM: AQA. 2004 Regulation 6(1) • NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.		• No loud music may be permitted at the mining area. • All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). • Best practice measures shall be implemented in order to minimize potential noise impacts. • A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM: AQA, 2004, SANS 10103:2008.		
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.	• Soil contamination from hydrocarbon spills. • Potential impact assocaited with littering and hydrocarbon spills. • Potential impact associated with litter left at the mining area.	**<u>Waste Management:</u>** • Regular vehicle maintenance, repairs and services may only take place in a demarcated service area of the permit holder. If emergency repairs are needed on equipment not able to move to the workshop / service area, drip trays must be present. All waste products must be disposed of in a 200-litre closed container/bin to be removed from the emergency service area to the workshop in order to ensure proper disposal. • Ablution facilities must be provided in the form of a chemical toilet. The chemical toilets must be placed outside the 1:100-year floodline of any open water resource and must be serviced at least once every two weeks for the duration of the mining activities.	Throughout the site establishment-, operational-, and decommissioning phase.	Mining related waste must be managed in accordance with the: • NWA, 1998 • NEM: WA, 2008 • NEM: WA, 2008: National norms and standards for the storage of waste (GN 926) • NEMA, 1998 (Section 30)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• The use of any temporary, chemical toilet facilities may not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the permit holder. • If a diesel bowser is used on site, it must be equipped with a drip tray at all times. Drip trays must be used during each and every refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. • Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. • A spill kit must be available on-site which can be operated by trained employees for the ad hoc remediation of minor chemical and hydrocarbon spillages. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Should spillage occur, such as oil or diesel leaking from a burst pipe, the contaminated soil must, within the first hour of occurrence, be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. Proof must be filed. • A waste management plan must be compiled by site management and		

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		implemented on site. The plan must focus on the waste hierarchy of the NEM: WA. • General waste must be contained in marked, sealable, refuse bins placed at a designated area, to be removed when filled to capacity to a recognised general waste landfill site. • No waste may be buried or burned on the site. • No chemicals or hazardous materials may be stored at the mining area. • It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities is reported to the Department of Water and Sanitation and other relevant authorities.		
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Excavation, loading and hauling to the processing plant. • Sloping and landscaping upon closure of the mining area.	• Potential impact on area/infrastructure of heritage or cultural concern.	**Archaeological, Heritage and Palaeontological Aspects:** • All mining, vegetation clearing, blasting, and infrastructure development must be confined to the approved development footprint. • A Heritage and Palaeontological Chance Find Procedure must be implemented throughout all phases of the project. • If any archaeological material (e.g. stone artefacts, pottery, or historical material) is encountered: • Work in the immediate area must cease immediately; • The find must be left in situ and secured; • The Site Manager and Environmental Control Officer (ECO) must be notified; • A qualified archaeologist must be appointed to assess the find; and • Work may only resume once clearance has been provided in accordance with the	Throughout the operational phase.	Cultural/heritage aspects must be managed in accordance with the: • NHRA, 1999

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		National Heritage Resources Act (Act 25 of 1999). • If human remains are encountered: • All work must cease immediately in the affected area; • The remains must not be disturbed; • The ECO and relevant authorities must be notified; and • Work may only continue once formal authorisation has been granted. • Although palaeontological sensitivity is low due to the underlying dolerite geology, if any fossil material is encountered: • Work must cease in the affected area; • The ECO must notify a qualified palaeontologist; and • Work may only resume once clearance has been provided. • All personnel must receive environmental induction, including awareness of heritage resources and reporting procedures.		
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material.	• Loss of stockpiled material due to ineffective storm water control.	**<u>Storm Water Mitigation:</u>** • Storm water must be diverted around the topsoil heaps and mining area to prevent erosion. • Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose: ▪ Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from	Throughout the operational phase.	Storm water must be managed in accordance with the: • CARA, 1983 • NEMA, 1998 • NWA, 1998

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Sloping and landscaping upon closure of the mining area.		the dirty water system. You must prevent clean water from running or spilling into dirty water systems. ▪ Dirty water must be collected and contained in a system separate from the clean water system. ▪ Dirty water must be prevented from spilling or seeping into clean water systems.		
• Construction of site access road • Stripping and stockpiling of topsoil and/or overburden. • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.	• Deterioration of the access road to the mining area. • Overloading of trucks having an impact on the public roads.	**<u>Access Road Mitigation:</u>** • Storm water must be diverted around the access road to prevent erosion. • Vehicular movement must be restricted to the existing access road to prevent crisscrossing of tracks through undisturbed and inactive areas. • Rutting and erosion of the access road caused as a direct result of the mining activities must be repaired by the permit holder. • Overloading of the truck must be prevented, and proof of load weights must be filed for auditing purposes. • Minimise disturbance of ephemeral drainage lines intersected by the access road. • Ensure the access road design maintains natural flow paths and does not channel or concentrate runoff. • Stabilise all drainage line crossings immediately after construction to prevent gullying. • Avoid clearing indigenous vegetation along the access road alignment except for the minimum footprint required.	Throughout the operational phase.	The access road must be managed in accordance with the: • NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• Where protected succulent or geophytic species occur along the road alignment, they must be identified, mapped, permitted, and translocated before construction begins. • Monitor the access road verges for invasive alien plants, which favours disturbed soils. • Remove invasive species immediately upon detection to prevent establishment along the corridor. • Conduct a pre-construction faunal walk-through, focusing on relocating reptiles and small mammals from the road alignment. • Check the road alignment daily during construction for tortoises, reptiles, and small mammals, especially in rocky terrain. • Speed limits must be enforced to reduce collision risk with wildlife (e.g., tortoises, hares, small carnivores). • Topsoil removed during road preparation must be separately stockpiled, protected, and reused for rehabilitation. • Disturbed road edges must be revegetated using preserved topsoil to restore natural seedbank and prevent long-term erosion. • Once construction is complete, all temporary disturbance areas next to the access road must be recontoured, stabilised, and revegetated. • Ensure that rehabilitation restores surface naturalness and does not create artificial channels or erosion features.		
• Site establishment. • Stripping and stockpiling of topsoil and/or overburden.	• Potential health and safety risk to employees.	**Management of Health and Safety Risks:** • Adequate ablution facilities and water for human consumption must daily be available on site.	Throughout the site establishment-, operational and decommissioning phase.	Health and safety aspects must be managed in accordance with the: • MHSA, 1996 • OHSA, 1993 • OHSAS, 18001

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
• Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.		• Workers must have access to the correct personal protection equipment (PPE) as required by law. • All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).		

i) Financial Provision

(1) Determination of the amount of Financial Provision.

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

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

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

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

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

Comments received during this period will be included in the FBAR.

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

The requested rehabilitation plan is attached as Appendix L.

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

The rehabilitation plan is confirmed as compatible with the closure objectives based on the following considerations and its alignment with the applicable legislation detailed in Appendix L:

Progressive Rehabilitation Ensures Compatibility

Rehabilitation is performed progressively in sections of 1 to 1.5 hectares, minimizing environmental disruption and allowing immediate stabilization of disturbed areas. This approach aligns with the closure objective of rendering the site safe and suitable for agricultural use, reducing the likelihood of long-term environmental degradation. Section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) requires phased rehabilitation to mitigate environmental harm during and after mining operations.

Landform Stabilization and Drainage

The plan involves contouring and sloping the land to ensure proper drainage and prevent water pooling. The adaptation of the access road as a drainage pathway facilitates natural water flow, crucial for long-term stability and agricultural potential. The DMPR's minimum closure objectives mandate erosion control and land stabilization to ensure the site's safety and suitability for future use.

Topsoil Management

Despite limited topsoil, the plan emphasizes the redistribution of available soil to stabilize the land, promote vegetation, and reduce erosion. This effort ensures that the site can either support agriculture or revert to natural vegetation. Section 44 of the MPRDA, 2002 requires topsoil replacement and preparation of the area to support regrowth. The National Environmental Management: Biodiversity Act (NEM, 2004) regulations also emphasize soil preservation and invasive species control.

Restoration to Agricultural Grazing Potential

The plan aims to create a modest landscape feature, as restoring the site to its original topography is impractical. This approach supports its future use as low-potential agricultural / grazing land, aligning with the site's existing agricultural state and ensuring compatibility with closure objectives. The DMPR closure requirements focus on preparing land for post-mining use that aligns with its historical or intended future purpose.

Compliance with DMPR Standards

The plan meets the DMPR's minimum closure objectives, including removing stockpiles, equipment, and waste, along with restoring disturbed areas through landscaping, erosion control, and invasive species management. Section 43(4) of the MPRDA, 2002 and NEM (2004) mandate waste removal, invasive species control, and compliance with environmental rehabilitation standards Unless otherwise agreed to in writing by the landowner.

Erosion and Invasive Species Control

The rehabilitation plan integrates erosion control through scarification and grading while monitoring and eradicating invasive species, particularly those categorized under NEM Regulations in terms of NEM (2004) requires the eradication of Category 1a and 1b invasive species, while the DMPR closure objectives emphasize maintaining ecological stability through erosion and invasive species management.

Final Rehabilitation

The plan includes final landscaping and surface shaping of disturbed areas where practicable, limited to the treatment of stockpiled or previously disturbed surfaces and not involving the backfilling of excavated voids. This will be accompanied by the removal of all equipment and infrastructure, as well as the disposal of waste at appropriately licensed and recognised facilities. Compacted soil will be scarified, and vegetation will be reestablished where necessary using indigenous seed mixes. Monitoring will ensure vegetation regrowth aligns with closure goals as required in terms of Section 44 of the MPRDA, 2002 and Regulation 62 require comprehensive rehabilitation measures, including waste management and vegetation restoration.

The rehabilitation plan adheres to legislative requirements under the MPRDA, 2002 and NEM (2004) while fulfilling the DMPR's closure objectives. Its phased, environmentally conscious approach ensures the site's safety and agricultural potential, confirming its compatibility with the closure goals.

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

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

Mine type and saleable mineral by-product

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

Mine type	Quartzite/Sandstone/Sand
Saleable mineral by-product	None

Risk ranking

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

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

Environmental sensitivity of the mine area

According to Table B.4

Environmental sensitivity of the mine area	Low

Level of information

According to Step 4.2:

Level of information available	Limited

Identify closure components.

According to Table B.5 and site-specific conditions

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	NO
2(A)	Demolition of steel buildings and structures	-	NO
2(B)	Demolition of reinforced concrete buildings and structures	-	NO

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

Unit rates for closure components

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

Component No.	Main description	Master rate	Multiplication factor
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	-
2(A)	Demolition of steel buildings and structures	-	-
2(B)	Demolition of reinforced concrete buildings and structures	-	-
3	Rehabilitation of access roads	-	-
4(A)	Demolition and rehabilitation of electrified railway lines	-	-
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	-
5	Demolition of housing and facilities	-	-
6	Opencast rehabilitation including final voids and ramps	338597.55	0.04
7	Sealing of shafts, adits and inclines	-	-
8(A)	Rehabilitation of overburden and spoils	225731.93	1.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	-
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	-
9	Rehabilitation of subsided areas	-	-
10	General surface rehabilitation, including grassing of all denuded areas	178817.39	1.00
11	River diversions	-	-
12	Fencing	-	-
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	-
14	2 to 3 years of maintenance and aftercare	23797.69	1.00

Determine weighting factors

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1.1 (Undulating)
Weighting factor 2: Proximity to urban area where goods and services are to be supplied	1.05

Calculation of closure costs

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

Table 28: Calculation of closure cost

CALCULATION OF THE QUANTUM							
Mine:	Power Construction (Pty) Ltd			**Location:**	Aberdeen		
Evaluators:	Sonette Smit			**Date:**	April 2026		
No	**Description**	**Unit**	**A Quantity**	**B Master rate**	**C Multiplication factor**	**D Weighting factor 1**	**E=A *B*C*D Amount (Rand)**
			Step 4.5	**Step 4.3**	**Step 4.3**	**Step 4.4**	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	m²	0	24	1.00	1.1	R 0.00
2(A)	Demolition of steel buildings and structures	m^2	0	324	1.00	1.1	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m^2	0	477	1.00	1.1	R 0.00
3	Rehabilitation of access roads	m^2	0	59	1.00	1.1	R 0.00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	561	1.00	1.1	R 0.00
4(B)	Demolition and rehabilitations of non-electrified railway lines	m	0	307	1.00	1.1	R 0.00
5	Demolition of housing and/or administration facilities	m^2	0	646	1.00	1.1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	2	338598	0.04	1.1	R 27,087.80
7	Sealing of shaft, audits and inclines	m^3	0	175	1.00	1.1	R 0.00
8(A)	Rehabilitation of overburden and spoils	ha	0.1	225732	1.00	1.1	R 22,573.19
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	ha	0	281144	1.00	1.1	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	816576	0.51	1.1	R 0.00
9	Rehabilitation of subsided areas	ha	0	189017	1.00	1.1	R 0.00
10	General surface rehabilitation	ha	0,5	178817	1.00	1.1	R 89,408.70
11	River diversions	ha	0	178817	1.00	1.1	R 0.00

12	Fencing	m	0	204	1.00	1.1	R 0.00
13	Water Management	ha	0	67992	0.17	1.1	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	1	23798	1.00	1.1	R 23,797.69
15(A)	Specialists study	Sum	0				R 0.00
15(B)	Specialists study	Sum	0				R 0.00
Sum of items 1 to 15 above							R 162,867.38
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)			1,05			**Sub Total 1**	R 171,010.75

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 <R100 000 000.00	R 10,260.65
		12% of Subtotal 1 if Subtotal 1 >R100 000 000.00	-
2	Contingency	10.0% of Subtotal 1	R 17,101.08
		Sub Total 2 (Subtotal 1 plus management and contingency)	R 198,372.47
		Vat (15%)	R 29,755.87
		GRAND TOTAL (Subtotal 2 plus VAT)	**R 228,128.34**

The amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum total of **R 228,128.34**

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

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

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

g) Monitoring of Impact Management Actions

h) Monitoring and reporting frequency

i) Responsible persons

j) Time period for implementing impact management actions

k) Mechanisms for monitoring compliance

Table 29: Mechanisms for monitoring compliance with and performance assessment against the EMPR and reporting thereon.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
• Demarcation of site with visible beacons	Maintenance of beacons	• Visible beacons need to be placed at the corners of the mining area.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: • Ensure beacons are in place throughout the life of the mine.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

• Site establishment	**<u>Visual Characteristics:</u>** • Visual intrusion as a result of site establishment.	• Minimize the visual impact of the activity on the surrounding environment through proper site management and implementing good housekeeping practices.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Contain mining to the boundaries of the permitted area. • Ensure that the site have a neat appearance and is always kept in good condition. • Limit vegetation removal, and only strip topsoil immediately prior to the use of a specific area. • Upon closure, the mining area must be rehabilitated in accordance with approved closure objectives, focusing on stability, safety, and visual integration with the surrounding landscape, without implying backfilling of excavated areas.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.
• Site establishment • Crushing, screening, stockpiling and transporting material from site. • Sloping and landscaping upon closure of the mining area.	**<u>Geology and Soil:</u>** • Loss of topsoil and fertility during mining and stockpiling • Loss of stockpiled material due to ineffective storm water control. • Erosion of returned topsoil after rehabilitation .	• Earthmoving equipment to reinstate mined-out areas. • Erosion control infrastructure (if necessary)	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. • Environmental Control Officer (ECO) o Verify correct stripping, handling, stockpiling and re-spreading of topsoil. o Monitor effectiveness of erosion control measures after rainfall events. o Inspect topsoil stockpiles for invasive alien plants (*including Prosopis glandulosa*) and ensure immediate removal. o Confirm that stockpile placement and height comply with specialist recommendations. o Oversee rehabilitation progress and confirm vegetation establishment.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

			• Botanical / Ecological Specialist (as required pre-construction)
			  ○ Provide guidance on preservation of surface soil layers (seedbank-rich material).
			  ○ Advise on the suitability of rehabilitation soils and revegetation success indicators.
			• Site Supervisor / Contractors
			  ○ Implement all soil-handling procedures exactly as specified.
			  ○ Ensure machinery operators follow approved stripping and stockpiling boundaries.
			  ○ Install and maintain erosion-control structures along disturbed areas, especially drainage lines.
			
			<u>Responsibility:</u>
			• Strip and stockpile the available soil.
			• Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process.
			• Ensure topsoil stripping, stockpiling and re-spreading is done in a systematic way. Plan mining in such a way that topsoil is stockpiled for the minimum possible time.
			• Place topsoil heaps on a levelled area within the mining footprint area. Do not stockpile topsoil in undisturbed and inactive areas.
			• Protect topsoil stockpiles against losses by water and wind erosion. Position stockpiles so as not to be vulnerable to erosion by wind and water. Establishment of plants on the stockpiles will help prevent erosion.
			• Ensure that topsoil heaps do not exceed 2 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.
			• Keep temporary stockpiles free of invasive plant species.
			• Divert storm- and runoff water around the mining area to prevent erosion.	

			• Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. • Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement. • Topsoil Handling & Preservation • Treat the surface rocky layer as part of the topsoil, as it contains the natural Eastern Lower Karoo seedbank. • Prevent contamination of topsoil with subsoil, waste, or foreign materials. • Maintain separate, clearly marked stockpiles of topsoil and subsoil. • Do not compact soil stockpiles; ensure stable but aerated storage conditions. • Erosion Prevention & Drainage • Install erosion-control measures (stone packing, berms, contour banks) where topsoil is exposed or re-spread. • Stabilise slopes and disturbed soil immediately following heavy rainfall. • Prevent artificial channelling of stormwater that can erode disturbed soils. • Inspect rehabilitated areas after rainfall events and repair erosion promptly. • Alien Invasive Species Management • Conduct routine monitoring of all topsoil and temporary stockpiles for alien species recruitment. • Remove *Prosopis glandulosa* and other invaders at early germination stage to prevent colonisation. • Dispose of removed invasives according to NEMBA and CARA requirements. • Rehabilitation & Soil Restoration • Ensure re-spread topsoil is placed evenly and not mixed with subsoil.	

			• Facilitate natural revegetation using soil seedbank; avoid introducing external plant material. • Maintain groundcover restoration to minimise long-term erosion risk. • Continue monitoring rehabilitated areas for at least 12 months, extending if soil stability has not been achieved.	
• Site establishment • Screening, stockpile, and transporting material from site. • Sloping and landscaping upon closure of the mining area.	**<u>Groundcover:</u>** • Infestateion of denuded areas with invader plant species. • Infestation of the reinstated area with invader plant species.	• Designated team to cut or pull-out invasive plant species that germinated on site. • Herbicide application equipment.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. • Environmental Control Officer (ECO) o Monitor groundcover condition during all phases to detect early erosion or vegetation loss. o Inspect disturbed areas after rainfall events and ensure corrective action is taken. o Verify that invasive species (especially Prosopis glandulosa) are removed promptly from denuded soil and stockpiles. o Ensure that groundcover restoration and soil stabilisation measures are correctly implemented. • Contractor / Site Supervisor o Ensure machinery operators avoid unnecessary disturbance of soil and surface crust. o Maintain erosion-control structures until vegetation has re-established. o Prevent storage of materials on areas intended to rehabilitate groundcover. o Ecological / Botanical Specialist (when required) o Provide guidance on restoration of natural Eastern Lower Karoo groundcover using seedbank-rich topsoil.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

			○ Advise the ECO on slope stability, groundcover recovery and areas requiring additional intervention. <u>Responsibility:</u> • Implement an invasive plant species management plan to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. • Keep all stockpiles (topsoil) free of invasive plant species. • Control declared invader or exotic species on the rehabilitated areas. • Groundcover Protection & Restoration ○ Preserve natural soil crusts and rocky surface layers wherever possible, as these support the natural groundcover and seedbank. ○ Prevent unnecessary stripping of surface material outside the working footprint. ○ Stabilise bare soil immediately using contouring, stone-packing or brush-packing to prevent erosion until vegetation returns. ○ Re-spread stored topsoil evenly to promote natural revegetation from the existing seedbank. ○ Avoid dumping spoil or placing stockpiles on areas designated for groundcover rehabilitation. • Invasive Species Control (Groundcover-Specific) ○ Monitor denuded and reinstated areas regularly for invasive species germination. ○ Immediately remove invasive seedlings from groundcover restoration areas before they establish. ○ Ensure herbicide use, if necessary, is limited and supervised to avoid harming recovering indigenous vegetation. • Monitoring & Follow-Up	

			○ Conduct monthly inspections of reinstated areas during the first 6 months, followed by quarterly inspections thereafter. ○ Identify areas where vegetation has not re-established and implement additional stabilisation or reseeding where required. ○ Maintain photographic monitoring records to document groundcover recovery.	
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.	**<u>Fauna:</u>** • Potential impact on fauna within the footprint area. • Disturbance to fauna within the footprint area.	• Toolbox talks to educate employees how to handle fauna that enter the work areas.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. ○ Groundcover Protection & Restoration ○ Preserve natural soil crusts and rocky surface layers wherever possible, as these support the natural groundcover and seedbank. ○ Prevent unnecessary stripping of surface material outside the working footprint. ○ Stabilise bare soil immediately using contouring, stone-packing or brush-packing to prevent erosion until vegetation returns. ○ Re-spread stored topsoil evenly to promote natural revegetation from the existing seedbank. ○ Avoid dumping spoil or placing stockpiles on areas designated for groundcover rehabilitation. ○ Invasive Species Control (Groundcover-Specific) ○ Monitor denuded and reinstated areas regularly for invasive species germination. ○ Immediately remove invasive seedlings from groundcover restoration areas before they establish. ○ Ensure herbicide use, if necessary, is limited and supervised to avoid harming recovering indigenous vegetation.	Applicable throughout site establishment-, and operational phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

			• Monitoring & Follow-Up
			  ○ Conduct monthly inspections of reinstated areas during the first 6 months, followed by quarterly inspections thereafter.
			  ○ Identify areas where vegetation has not re-established and implement additional stabilisation or reseeding where required.
			  ○ Maintain photographic monitoring records to document groundcover recovery.
			
			<u>Responsibility:</u>
			• Ensure no fauna is caught, killed, harmed, sold or played with.
			• Instruct workers to report any animals that may be trapped in the working area.
			• Ensure no snares are set or nests raided for eggs or young.
			• Faunal Protection & Handling
			  ○ Conduct a pre-clearing faunal search and relocate small mammals, reptiles, and tortoises from construction areas.
			  ○ Inspect all open excavations, trenches, and pits daily and safely rescue trapped animals.
			  ○ Immediately report sightings of species of conservation significance (e.g., *Chersobius boulengeri*, *Atelerix frontalis*).
			  ○ Ensure no burrows, nests, or reptile shelters are knowingly destroyed.
			  ○ Install and maintain adequate perimeter fencing around active quarry areas to prevent access by livestock and wildlife. Fencing must be inspected regularly and maintained to prevent animals from gaining access beneath or through the fence line.
			  ○ Ensure only trained personnel handle snakes and potentially dangerous wildlife.
			  ○ Prevent injury or death of fauna by ensuring secure overnight storage of equipment and preventing animals from entering machinery.
			• Minimise Disturbance	

			○ Restrict clearing and heavy machinery activities to daylight hours where possible, reducing disturbance to nocturnal species. ○ Reduce noise and vibration during sensitive periods (e.g., during tortoise activity season in warmer months). • Preventing Habitat Degradation ○ Maintain natural refuge areas (e.g., rocky patches, shrub clusters) outside demarcated work areas. ○ Prevent accidental contamination of faunal habitat through correct waste storage and spill prevention. • Monitoring & Reporting ○ Record all fauna incidents (injuries, mortalities, relocations) in site environmental logs. ○ Follow ECO instructions regarding rehabilitation of disturbed fauna habitat. ○ Maintain open communication with the ECO regarding any risks observed on-site.	
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material.	**<u>Air Quality:</u>** • Dust nuisance as a result of the mining activities.	• Dust suppression equipment such as a water car. • Signage that clearly reduce the speed on the access roads.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Control the liberation of dust into the surrounding environment by the use of; inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • Ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Limit speed on the haul roads to 40 km/h to prevent the generation of excess dust.	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

• Sloping and landscaping upon closure of the mining area.			• Minimise areas devoid of vegetation. • Flatten and cover loads to prevent spillage and windblown dust during transportation. • Take weather conditions into consideration upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts. • Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM: AQA, 2004 and ASTM D1739 (SANS 1137:2012). • Implement best practice measures during the stripping of topsoil, loading, and transporting of material from site to minimize potential dust impacts.	
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.	**<u>Noise Ambiance:</u>** • Noise nuisance as a result of the mining activities. • Noise nuisance as a result of the decomissiononig activities.	• Silencers fitted to all project related vehicles, and the use of vehicles that are in road worthy condition in terms of the National Road Traffic Act, 1996.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the mining area. • Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. • Implement best practice measures to minimise potential noise impacts. • Contract a qualified occupational hygienist to quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring must be in accordance with SANS	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

			10083:2004 (Edition 5) sampling method as well as NEM: AQA 2004, SANS 10103:2008.	
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.	**Waste Management:** • Soil contamination from hydrocarbon spills. • Potential impact assocaited with littering and hydrocarbon spills. • Potential impact associated with litter left at the mining area.	• Oil spill kit. • Sealed drip trays. • Formal waste disposal system with waste registers.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: • Ensure regular vehicle maintenance, repairs and services take place in a demarcated service area of the permit holder. If emergency repairs are needed on equipment not able to move to the workshop / service area, drip trays must be present. All waste products must be disposed of in a 200-litre closed container/bin to be removed from the emergency service area to the workshop in order to ensure proper disposal. • Provide ablution facilities in the form of a chemical toilets that are placed outside the 1:100-year floodline of any open water resource. Ensure the toilets are serviced at least once every two weeks for the duration of the mining activities. • Ensure that the use of any temporary, chemical toilet facilities does not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately. • Equip the diesel bowser with a drip tray if used on site. The nozzle of the bowser must rest in a sleeve to prevent dripping after refuelling. • Clean drip trays after use. Do not use dirty drip trays. • Keep a spill kit on site. • Collect any effluents containing oil, grease or other industrial substances in a suitable	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

			receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Collect the contaminated soil from spillage that occurred, such as oil or diesel leaking from a burst pipe, within the first hour of occurrence, in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. File proof. • Compile a waste management plan and implement it on site. The plan must focus on the waste hierarchy of the NEM: WA. • Contain general waste in marked, sealable, refuse bins placed at a designated area and remove waste from the mining area to a recognised general waste landfill site. • Prevent the burning or burying of waste on site. • Report any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities to the Department of Water and Sanitation and other relevant authorities. • Park the machinery at the mining area with drip trays placed underneath stationary vehicles.	
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Excavation, loading and hauling to the processing plant. • Sloping and landscaping upon closure of the mining area.	• Potential impact on areas/infrastructure of heritage or cultural concern.	• Contact number of an archaeologist that can be contacted when a discovery is made on site.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Responsibility:</u> • Confine all mining to the development footprint area. • Implement the following change find procedure when discoveries are made on site: • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

			and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. • The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify SAHRA. • Work may only continue once the go-ahead was issued by SAHRA.	
• Stripping and stockpiling of topsoil and/or overburden. • Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.	**<u>Hydrology:</u>** • Storm water management	• Storm water management structures such as berms to direct storm- and runoff water around the stockpiled topsoil area (when needed). • Water use authorisation issued by the DWS.	<u>Role:</u> • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. • Adhere to the specifications of the water use authorisation for the duration of the mining operation. • Environmental Control Officer (ECO) o Monitor the condition of ephemeral drainage lines intersecting the access road and mining footprint. o Verify that stormwater diversion structures are functioning and maintained after rainfall events. o Ensure no unauthorised alteration of natural drainage patterns occurs. o Confirm erosion-control measures are installed and repaired when needed. • Contractor / Site Supervisor	Applicable throughout site establishment-, operational-, and decommissioning phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.

			○ Implement construction methods that avoid channelling or concentrating stormwater into sensitive areas. ○ Ensure machinery operators do not disturb drainage lines beyond the approved footprint. • Ecological Specialist (as required) ○ Provide guidance on protecting natural drainage features during construction. ○ Advise on corrective actions if erosion or sedimentation is detected in drainage lines. <u>Responsibility:</u> • Divert storm water around stockpiles to prevent erosion. • Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWS. • Drainage Line & Erosion Protection ○ Prevent disturbance to small ephemeral drainage lines and allow natural sheet flow to continue undisturbed. Inspect drainage crossings after storm events and repair any erosion or channel formation immediately. ○ Avoid altering slope gradients in ways that could accelerate runoff or cause gullying. ○ Stormwater Diversion & Management ○ Divert clean stormwater around disturbed areas, stockpiles, and work surfaces to prevent erosion. ○ Prevent contaminated stormwater from entering natural drainage lines. ○ Maintain all stormwater berms, drains and diversion channels throughout construction and operation. • Soil & Sediment Protection ○ Ensure stripped topsoil is stored outside natural flow paths and is protected from stormwater erosion.	

			○ If sediment movement is observed downslope of disturbed areas, implement additional sediment traps or brush-packing. ○ Rehabilitation of Hydrological Features ○ Rehabilitate disturbed drainage lines after construction by stabilising soil, reinstating natural contours, and promoting revegetation using topsoil with intact seedbank. ○ Monitor rehabilitated drainage areas for at least 12 months and re-stabilise if erosion persists. • Invasive Species Monitoring (Hydrology-Relevant) ○ Inspect drainage lines and stormwater pathways for invasive species establishment (*especially Prosopis glandulosa*) and remove immediately.	
• Construction of site access road • Drilling and Blasting • Excavation, loading and hauling to the processing plant. • Processing, stockpiling and transporting of material. • Sloping and landscaping upon closure of the mining area.	**Existing Infrastructure:** • Deterioration of the access road to the mining area. • Overloading of trucks having an impact on the public roads.	• Grader to restore the road surface when needed.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: • Divert storm water around the access road to prevent erosion. • Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed and inactive areas. • Repair rutting and erosion of the access road caused as a direct result of the mining activities. • Prevent the overloading of the truck, and file proof of load weights for auditing purposes.	Applicable throughout operational phases. • Daily compliance monitoring by site management. • Annual compliance monitoring of site by an Environmental Control Officer.
• Site establishment.	• Potential health and safety risks to employees.	• Stocked first aid box. • Level 1 certified first aider.	Role: • Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.	Applicable throughout operational-, and decommissioning phases. • Daily compliance monitoring by site management.

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

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

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

m) Environmental Awareness Plan

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

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

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

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

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

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

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

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

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

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

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

- **Air Quality:**
  - Wear protection when working in very dusty areas.
  - Implement dust control measures:

- ✓ Water all roads and work areas.
- ✓ Minimize handling of material.
- ✓ Obey speed limit and cover trucks.

- **Driving and Noise:**

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

- **Vegetation and Animal life:**

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

- **Fire Management:**

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

n) Specific information required by the Competent Authority

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

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

2. UNDERTAKING

The EAP herewith confirms

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

Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

Name of Company:

May 2026

Date:

-END-

APPENDIX A

REGULATION 2(2) MINE MAP

APPENDIX B
LOCALITY MAP AND LAND USE MAP

APPENDIX C
SITE ACTIVITIES PLAN

APPENDIX D

SCREENING REPORT

APPENDIX E
REHABILITATION MAP

APPENDIX F
PROOF OF PUBLIC PARTICIPATION

APPENDIX G
SUPPORTING IMPACT ASSESSMENT

ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, herewith please receive an environmental impact statement that summarises the impact that the proposed activity may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

+

ENVIRONMENTAL IMPACT STATEMENT			
SITE ALTERNATIVE 1			
TYPE OF IMPACT	**DURATION**	**LIKELIHOOD**	**SIGNIFICANCE**
Site establishment & infrastructure development			
• Alteration of the agricultural sense of place;	**Duration of site establishment phase (<1 month)**	**Possible**	**Low-Medium Concern**
• Loss of agricultural land for duration of mining;		**Low Possibility**	**Low-Medium Concern**
• Visual intrusion as a result of site establishment;		**Low Possibility**	**Low-Medium Concern**
• Potential impact on fauna within the footprint area;		**Low Possibility**	**Low Concern**
• Potential impact on vegetation and listed and/or protected plant species		**Low - MediumPossibility**	**Low Concern**
• Dust nuisance due to site establishment		**Low Possibility**	**Low Concern**
• Potential impact on archaeological resources;		**Low Possibility**	**Low Concern**
• Work opportunities to local residents **(Positive Impact)**		**Definite**	**Medium-High (+)**
Construction of site access road:	**Duration of site establishment phase (<1 month)**		
• Visual intrusion caused by construction of site access road		**Possible**	**Low Medium Concern**
• Loss of stockpiled topsoil during construction of access road		**Low Possibility**	**Low-Medium Concern**
• Dust nuisance as a result of the construction of access road		**Low Possibility**	**Low Concern**
• Noise nuisance generated by earthmoving machinery.		**Low Possibility**	**Low Concern**
• Potential erosion of denuded areas.		**Low Possibility**	**Low Concern**
• Potential contamination of footprint area and surface runoff as a result of hydrocarbon spillages.		**Low Possibility**	**Low Concern**

ENVIRONMENTAL IMPACT STATEMENT			
SITE ALTERNATIVE 1			
Mining of dolerite: • Soil contamination from hydrocarbon spills. • Disturbance to fauna within the footprint area. • Noise nuisance as a result of the mining activities. • Potential impact on areas/infrastructure of heritage or cultural concern.	**Duration of operational phase (5 years maximum)**	**Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility**	**Low Concern** **Low Concern** **Low Concern** **Low Concern** **Low Concern**
Stripping and stockpiling of topsoil and/or overburden: • Visual intrusion caused by mining activities; • Loss of stockpiled topsoil during mining and stockpiling; • Dust nuisance as a result of the disturbance of soil; • Noise nuisance generated by earthmoving machinery; • Potential impact on local fauna due to disturbance and loss of available habitat; • Potential erosion of denuded areas; • Loss of stockpiled material due to ineffective storm water control • Potential contamination of footprint area and surface runoff as a result of hydrocarbon spillages;	**Duration of site establishment phase (<1 month)**	**Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Possible**	**Low Medium Concern** **Low Medium Concern** **Low Concern** **Low Concern** **Low Concern** **Low Concern** **Low Medium Concern** **Low Concern**
Excavation, loading and hauling to the processing plant: • Visual intrusion as a result of excavation and from loading and vehicles transporting the material • Dust nuisance due to excavation and from loading and vehicles transporting the material; • Noise nuisance as a result of the mining activities; • Unsafe working environment for employees; • Soil contamination from hydrocarbon spills and/or littering;	**Duration of operational phase (5 years maximum)**	**Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility**	**Low Medium Concern** **Low Concern** **Low Concern** **Low Medium Concern** **Low Medium Concern** **Low Concern**

ENVIRONMENTAL IMPACT STATEMENT			
SITE ALTERNATIVE 1			
• Potential impact on areas of palaeontological concern; • Facilitation of erosion due to mining activities;		**Low Possibility** **Low Possibility**	**Low Concern** **Low Possibility**
Processing, stockpiling and transporting of material: • Dust nuisance generated at the processing plant; • Noise nuisance stemming from operation of the processing plant; • Visual intrusion as a result of operation of the processing plant • Potential contamination of environment due to improper waste management; • Overloading of trucks impacting road infrastructure; • Degradation of the access road;	**Duration of operational phase (5 years maximum)**	**Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility**	**Low Concern** **Low Concern** **Low Medium Concern** **Low Concern** **Low Medium Concern** **Low Medium Concern**
Cumulative impacts: • Impact the broad-scale ecological processes; • Transformation of intact habitat would contribute to the fragmentation of the landscape and would potentially disrupt the connectivity of the landscape for fauna, avifauna, and flora and impair their ability to respond to environmental fluctuations • Impact on existing infrastructure as a direct result of the mining operation;	**Duration of all phases**	**LIKELIHOOD** **Low Possibility** **Low Possibility** **Low Possibility**	**SIGNIFICANCE** **Low Medium Concern** **Low Medium Concern** **Low Medium Concern**
Sloping and landscaping upon closure of the mining area: • Safety risk posed by un-sloped areas; • Erosion after rehabilitation; • Infestation of the reinstated areas by weeds and invader plant species; • Potential impact associated with litter/waste left at the mining area. • Return of the mining area to landscape feature upon closure **(Positive Impact)**.	**Duration of decommissioning phase (±2 months)**	**LIKELIHOOD** **Low Possibility** **Low Possibility** **Low Possibility** **Low Possibility** **Definite**	**SIGNIFICANCE** **Low Medium Concern** **Low Medium Concern** **Low Medium Concern** **Low Medium Concern** **Medium-High (+)**

APPENDIX H
FINANCIAL AND TECHNICAL ABILITY

APPENDIX I

INVASIVE PLANT SPECIES MANAGEMENT PLAN

APPENDIX J

PHOTOGRAPHS OF THE PROPOSED SITE

APPENDIX K

CV AND EXPERIENCE RECORD OF EAP

APPENDIX L
CLOSURE - REHABILITATION PLAN

APPENDIX M
SPESIALIST STUDIES

APPENDIX N
SITE SENSITIVITY REPORT