



Environmental Consult (Pty) Ltd

ENVIRONMENTAL AUTHORISATION APPLICATION – MINING PERMIT

Name of Applicant: Kareelaagte Diamante (Pty) Ltd

DMR Reference No: NW30/5/1/3/2/1/10872MP

Humanskraal 346 IO

North West





mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

**BASIC ASSESSMENT REPORT FOR A MINING PERMIT,
COMBINED WITH A WASTE LICENCE APPLICATION FOR
THE MINING OF DIAMOND, DIAMOND (ALLUVIAL),
DIAMOND (GENERAL) AND DIAMOND (IN KIMBERLITE)
NEAR OTTOSDAL ON A PORTION OF PORTION 34 (4.95Ha)
OF THE FARM HUMANSKRAAL 346, RD IO, NORTH WEST
PROVINCE.**

NAME OF APPLICANT	Kareelaagte Diamante (Pty) Ltd
PREPARED BY	Kuhle Environmental Consult (Pty) Ltd
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SAMRAD REF NUMBER:	NW30/5/1/3/2/1/10872MP

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1. IMPORTANT NOTICE

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

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

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

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

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

2. ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

- (1) The environmental impact assessment process must be undertaken in line with the approved plan of study for environmental impact assessment.
- (2) The environmental impacts, mitigation and closure outcomes as well as the residual risks of the proposed activity must be set out in the environmental impact assessment report.

3. OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

2. The objective of the environmental impact assessment process is to, through a consultative process-

- (a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- (b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- (c) identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- (d) determine the--
 - (i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
 - (ii) degree to which these impacts-
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources, and
 - (cc) can be avoided, managed or mitigated;
- (e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
- (f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;
- (g) identify suitable measures to avoid, manage or mitigate identified impacts; and
- (h) identify residual risks that need to be managed and monitored.

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AIS:	Alien Invasive Species
BAR:	Basic Assessment Report
CARA:	Conservation of Agricultural Resources Act
CBA:	Critical Biodiversity Area
DEDECT:	Department of Economic Development, Environment, Conservation and Tourism
DMR:	Department of Mineral Resources
EA	Environmental Authorisation
EAP:	Environmental Assessment Practitioner
EIA:	Environmental Impact Assessment
ECO	Environmental Control Officer
EMPr:	Environmental Management Program
Ha:	Hectares
IDP:	Integrated Development Plan
I&AP:	Interested and affected Parties
LCZ	Lower Critical Zone
MP:	Mining Permit
MPRDA	Mineral and Petroleum Resources Development Act
NDP:	National Development Plan
NEMA:	National Environmental Management Act
NEM:BA	National Environmental Management: Biodiversity Act
NEM:WA	National Environmental Management: Waste Act
NWA	National Water Act
PGM:	Platinum Group of Metals
PPP:	Public Participation Process
READ:	Department of Rural, Environmental and Agriculture Development
SANBI:	South African National Biodiversity Institute
SAHRA:	South African Heritage Resources Agency

SCC:	Species of Conservation Concern
SFSD:	Strategic Framework for Sustainable Development
UCZ	Upper Critical Zone
WUA:	Water Use Application

PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT

a) Contact Person and correspondence address

i) Details of the EAPs

Table 1: Details of EAPs

Name of Practitioner	Danie Labuschagne
Contact details	Cell No.: (061) 970 2449 Email address: danie.kuhle@outlook.com
Name of Practitioner	Miané Swanepoel
Contact details	Email address: miane.kuhle@outlook.com

ii) Expertise of the EAP

1) Qualifications of the EAPs (with evidence as Appendix 1)

Table 2: Qualifications of EAPs

Name of Practitioner	Danie Labuschagne
Qualifications	Master's Degree in Geography and Environmental Management. EAPASA: 2019/1122 Pr. Sci.Nat: 117285
Name of Practitioner	Miané Swanepoel
Qualifications	Completing Master's in Environmental Health

2) Summary of EAPs past experience (In carrying out the Environmental Impact Assessment Procedure)

Kuhle Environmental Consult (Pty) Ltd, which was registered in 2020 by Mr Labuschagne, is a professional environmental consultancy company with experience in the mining and non-mining industry which provides a diverse range of environmental management services. Our Environmental management services include environmental assessment and planning which ensures compliance with relevant environmental and mining legislation/regulations.

Kuhle Environmental Consult (Pty) Ltd benefits from the combined resources, various skills and experience in the environmental and mining field held by its team and outsourced specialists. These benefits are actively involved in undertaking environmental and specialist studies for a wide variety of projects throughout South Africa. Kuhle Environmental Consult (Pty) Ltd does not have any interest in secondary developments that may arise out of the approval of the proposed prospecting project.

Danie Labuschagne's and Miané Swanepoel's experience lies mainly in the environmental consulting and management industry; including the compilation of environmental studies in support of Environment Authorisations, project management and ensuring compliance to legislation/regulations

and guidelines. They are currently undertaking several Environmental Impact Assessments (EIAs) for mining and non-mining projects across South Africa.

CVs attached as Appendix 1

b) Location of the overall activity

The proposed site is located approximately 18.5km northwest of the town Ottosdal in the North West Province, under the Tswaing Local Municipality (LM), in the North West Province. The application area is made up of a portion of Portion 34 (4.95ha) of the farm Humanskraal 346 (as seen in Table 3 below) and the total area that will be affected is approximately 4.95ha.

Table 3: Farm Included in the Application Area.

Name of the proposed farm:	A portion of Portion of the farm Humanskraal 346
Application area (Ha) - Extent	4.95ha
Magisterial district:	Ngaka Modiri Molema District Municipality
Local Municipality	Tswaing Local Municipality
Distance and direction from the nearest town	The property is located approximately 18.5km northwest of the town Ottosdal in the North West Province.
21-digit Surveyor General Code for each farm portion	T0IO00000000034600034

Table 4: Farm Co-ordinates

Farm portion description	Longitude (East) (Degrees, Minutes, Seconds)	Latitude (South) (Degrees, Minutes, Seconds)
A portion of Portion 34 (4.95ha) of the farm Humanskraal 346	25°50'41.019"E	26°43'13.189"S
	25°50'36.041"E	26°43'12.647"S
	25°50'39.063"E	26°43'17.972"S
	25°50'42.983"E	26°43'25.915"S
	25°50'46.951"E	26°43'22.968"S

c) Locality Map

(show nearest town, scale not smaller than 1:250000 attached as **Appendix 2**).

A Locality Map is attached in **Appendix 2** and on figure 1 below.

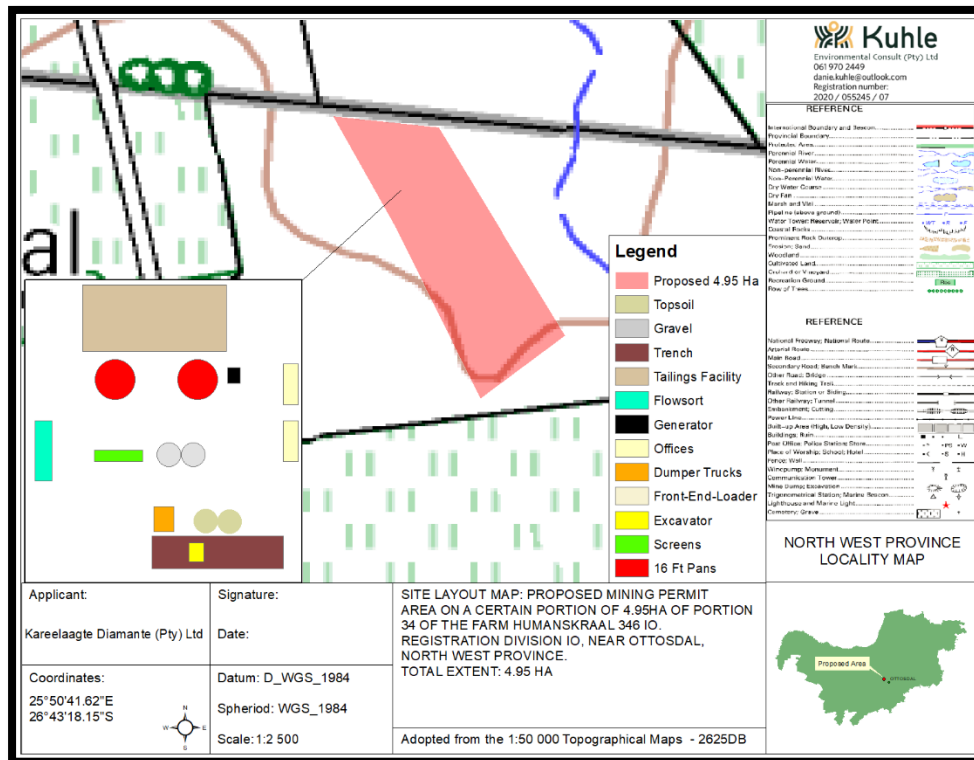


Figure 2: Site Plan Map

d) Description of the scope of the proposed overall activity

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

A Site Plan Map is attached in **Appendix 3** and on figure 3 below.

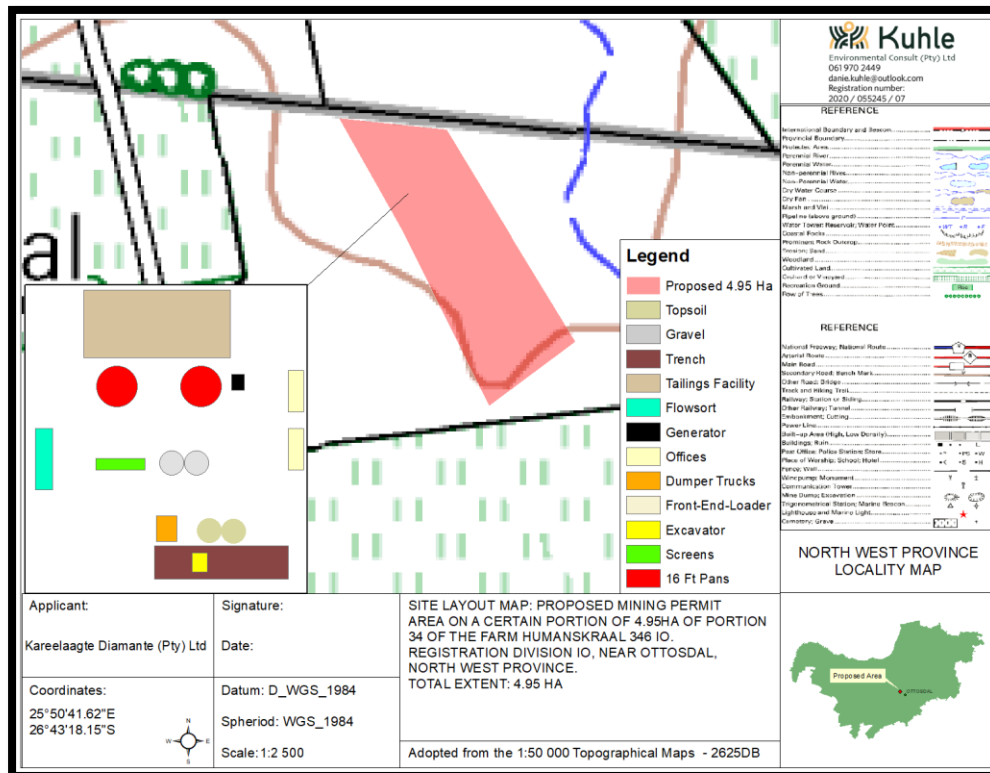


Figure 3: Site Plan Map

i) **Listed and specified activities**

Table 5: Listed and Specified Activities

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablation facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	AERIAL EXTENT OF THE ACTIVITY HA OR M²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GNR 983, GNR 984 or GNR 985) As Amended	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
The application for a Mining permit to conduct mining activities: GNR 327, Activity 21	4.95ha	X	GNR. 327 (As Amended)	-

Clearance of indigenous vegetation to prepare the application area for mining: GNR 327, Activity 27	4.95ha	X	GNR. 327 (As Amended)	-
Clearance of indigenous vegetation to prepare the application area for mining: GNR 324, Activity 12	4.95ha	X	GNR. 324 (As Amended)	-
STORAGE OF WASTE: The storage of general waste in lagoons	4.95ha		NEM: WA 59 of 2008 Category A: (1)	X
RESIDUE STOCKPILES OR RESIDUE DEPOSITS: The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	4.95ha		NEM: W A 59 of 2008 Category A: (15)	X

Table 6: Listed Activities

DESCRIPTION OF THE OVERALL ACTIVITY. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling,	Under NEMA: 1.Listing Notice GNR 327, Activity 27 (As Amended): "The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation." - 5 Hectares of indigenous vegetation will be cleared.
--	---

Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)

Under NEMA:

2.Listing Notice GNR 327, Activity 21 (As Amended): "Any activity including the operation of that activity which requires a MP in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including –

(a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource[,] ; or [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)]

(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies. – MP for the mining of **Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite)**, including associated infrastructure, structure and earthworks.

3.Listing Notice GNR 324, Activity 12 (h)(iv) & (vi) (As Amended):" The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; vi. Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland."

Under NEM:WA

Storage of waste

Category A: (1) The storage of general waste in lagoons

Residue stockpiles or residue deposits

Category A: (15) The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

ii) Description of the activities to be undertaken

(Describe Methodology or technology to be employed, and for a linear activity, a description of the route of the activity)

The applicant, **Kareelaagte Diamante (Pty) Ltd**, commissioned a BA process as required by the National Environmental Management Act (NEMA) (Act No.107 of 1998) for a MP combined with a Waste Licence Application for the mining of Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite), near near Ottosdal on a portion of Portion 34 (4.95Ha) of the farm Humanskraal 346, Registration Division: IO, North West Province.

This portion is proposed due to the expected Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) mineral resources/reserves. **Kareelaagte Diamante (Pty) Ltd** requires a MP in terms of the NEMA and the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA) to mine Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) within the Tswaing LM, North West Province (refer to a Locality Map attached in **Appendix 2**).

Methodology and technology to be employed

(These activities do not disturb the land where mining will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc)

The historical process of alluvial diamond mining involves the digging, washing and screening of mud, sand and diamond bearing gravel. Diamonds are known to be sourced from geologic rock formations called Kimberlites. Alluvial Diamonds are known to exist from these Kimberlites through erosion. Kimberlites erode over time through rivers and streams and then get deposited downstream in the sediments. These downstream sediment deposits are known as alluvial diamond deposits. The location of each deposit depends on the topography, drainage patterns, and the location of the Kimberlite source itself.

The vegetation will be cleared from the areas where stripping and stockpiling of topsoil is planned. The topsoil that is stripped, will be stockpiled separately next to the first pit. The topsoil will then be stockpiled in such a way that the minimum runoff and erosion will occur. Trenches and berms will be constructed to divert any runoff around the pile. The stockpiled topsoil will then be used for the final rehabilitation phase. Concurrent rehabilitation will also be done.

Once the topsoil has been removed the overburden is stripped and also placed adjacent the excavation. The overburden stockpiles and topsoil stockpiles will not be mixed. The reason for removing the overburden is that it covers the diamond bearing gravel.

Once the overburden has been removed and stockpiled, the exposed diamond bearing gravel is stripped with an excavator and stockpiled on the side of the excavation and from where front-end loaders and dumper trucks will haul it to the washing plant, as needed. The overburden stockpiles and gravel stockpiles will not be mixed.

The diamond bearing gravel is then fed into a feeding bin onto the primary conveyer by front-end loaders. The diamond bearing gravel is then fed by the conveyer into the 2 x 16ft washing pans.

The total amount of water used for washing / processing is between 10 000 and 18 000 litres an hour per washing pan, depending on the size (in feet) of the pan, of which 30% will be re-circulated from the open excavations in which the wet puddle is flowing and 70% is added by means of fresh water. The diamond bearing concentrate out of the washing pans goes directly into the steel bins that will be sorted for final recovery on site.

The wet waste tailings coming out of the washing pans is then pumped into the open excavations and possibly into a slimes / tailings dam, from where excess water is re-cycled and re-used.

During backfilling the following dumping sequence will be used:

- The gravel sifted from the pans will be transported back to the open excavations and used for backfilling purposes.

- The wet tailings will then be backfilled.
- This will then be followed by the overburden.

The sequence above will continue until the last excavated area is reached. The topsoil stockpiled will then be utilised for final rehabilitation. The maximum areas that will be disturbed during the mining operation are very difficult to determine because of the varying depth of the excavations.

The mining activities will be restricted to the 4.95ha applied for. For every 1 Ha there will be no more than 10 trenches at any given time, which will be dug.

The total area to be disturbed at any given time will be- 10 trenches x (40m x 12m) = 0.48Ha at any given time.

- No more than 0.48Ha (10 Trenches) will be left as un-rehabilitated. Rehabilitation will be done concurrently.

List of equipment & infrastructure

List of planned equipment to be used	
2 x 16ft Pans plus conveyors	
1 x 20t Excavator	
1 x 33t Excavator	
2 x Front End Loader	
1 x Scalping Screen	
3 x Dump Trucks	
1 x Flowsort Diamond Recovery Plant	
1 x 250 kVa Generator	

Other activities which will be undertaken

Access roads:

A new gravel road needs to be constructed and existing farm access roads will be used as far as possible.

Water Supply:

Additional water (portable water) will be supplied, as required for dust suppression and water consumption by employees and workers.

Water uses:

Water uses under the NWA: section 21 a-k of will be triggered, thus a Water Use Licence Application (WULA) will be lodged with the Department of Water & Sanitation (DWS) when needed.

These uses include:

- Borehole abstraction
- Water Use Pan Size specifications for Alluvial Diamond Mining (DWS NC & FS, 2001):
 - Pan size: 16 ft x 2 pans
 - Water/hour (m³): 17 x 2 = 34
 - Water/day(m³): 170 x 2 = 340
 - Gravel/hour (tons): 60 x 2 = 120
 - Gravel/day (ton): 600 x 2 = 1200
- Storage of water that was abstracted from the borehole
- Storage of tailings / "porrel"

Also, a Geohydrological Assessment should be conducted before any of the above water uses are commenced with.

Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states that the in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve

the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.

Ablution:

Only chemical toilets shall be permitted on-site, no french drains and pits shall be used.

Blasting:

No blasting will occur. A specialist must be consulted before any blasting activities are commenced. Also, the surrounding farms/community should be consulted before any blasting occurs.

Storage of dangerous goods:

The mining activities may require limited quantities of diesel and fuel, oil and lubricants to be stored on the proposed site. However, these will be below the threshold. If any storage occurs, these goods should be placed in a bunded area one and a half times the volume of the total amount of goods to be stored.

e) Policy and legislative context

Table 7: Summary of Applicable Legislation.

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 WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. E.g. In terms of the National Water Act a Water Use License has/ has not been applied for
The Constitution of South Africa (Act No. 108 of 1996)	-	
The National Environmental Management Act (Act No. 107 of 1998)	S24(1) of the NEMA S28(1) of the NEMA	EA being applied for
The National Water Act (Act No. 36 of 1998)	S21 of the NWA	
Management: Air Quality Act (Act No. 39 of 2004)	S21	
The National Heritage Resources Act (Act No. 25 of 1999)	-	
Conservation of Agricultural Resources Act (Act No. 85 of 1983)	-	
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	-	MP being applied for
National Infrastructure Plan	-	
National Forests Acts, Act 84 of 1998	Chap 3 (Part 1) 1998 S12(1) S15(1)	
Mine, Health and Safety Act 29 of 1996		
National Environmental Management: Waste Act 59 of 2008		

National Environmental Management: Biodiversity Act (NEM:BD) 10 of 2004		
Ngaka Modiri Molema District Municipality Integrated Development Plan (IDP)	-	
Moses Kotane Local Municipality Integrated Development Plan (IDP) Review	-	

POLICY AND LEGISLATIVE CONTEX

Table 8: Description of Applicable Legislation.

Legislation/Policy	Description
South African Constitution No. 108 of 1996	<p>The South African Constitution is the supreme law of the Republic of South Africa and includes the Bill of rights, which is the cornerstone of democracy in South Africa. It enshrines the rights of all the people in the country and affirms the democratic values of human dignity, equality and freedom. Under Section 24 it is included that everyone has the right to an environment which is not harmful to our human health or well-being; and to ensure that the environment is protected, for the benefit of current and future generations through, reasonable legislative and other measures that:</p> <ul style="list-style-type: none"> (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources <p>while promoting justifiable economic and social development.</p> <p>The project will ensure that the environment is not harmful to anyone during construction and operational as everyone has the right to a healthy environment.</p>
Strategic Framework for Sustainable Development (SFSD) in South Africa	<p>A development of a broad framework for sustainable development was initiated to provide an overarching and guiding National Sustainable Development Strategy (NSDS). The Draft Strategic Framework for Sustainable Development (SFSD) in South Africa (September 2006) is a goal orientated policy framework aimed at meeting the Millennium Development Goals (MDG). Biodiversity has been identified as one of the main crosscutting trends in the SFSD. The lack</p>

	<p>of sustainable practices in managing natural resources, climate change effects, loss of habitat and poor land management practices were raised as the main threats to biodiversity.</p>
<p>National Environmental Management Act (NEMA) No. 107 of 1998</p>	<p>The NEMA is an important piece of legislation, which effectively promotes sustainable development and entrenches principles such as the 'precautionary approach', 'polluter pays' principle, and requires responsibility for impacts to be taken throughout the life cycle of a project. The NEMA provides the legislative backing (including Environmental Impact Assessment Regulations) for regulating development and ensuring that a risk-averse and cautious approach is taken when making decisions about planned activities.</p> <p>The project triggers activities listed in the 2014 EIA NEMA regulations (As Amended) and the activities should be approved prior to construction.</p>
<p>2014 Environmental Impact Assessment (EIA) regulations (As Amended)</p>	<p>These purpose of these Regulations s is to regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.</p> <p>The project is being applied for.</p>
<p>National Environmental Management: Biodiversity Act (NEM:BA) No. 10 of 2004</p>	<p>The purpose of this act is to ensure the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith. This Act lists threatened and/or protected</p>

	ecosystems, in four categories: Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Protected (Government Gazette, 2011). The main purpose of this listing is to ensure that the rate of ecosystem and species extinction is reduced and that the further degradation and loss of structure, function and composition of threatened ecosystems is prevented.
Conservation of Agricultural Resources Act (CARA) No. 43 of 1967	The main aim of this Act is to manage the over-utilization of South Africa's natural agricultural resources, and to promote the conservation of soil and water resources as well as natural vegetation. This Act has categorised a large number of invasive plants together with associated obligations of the land owner, including the requirement to remove categorised invasive plants and taking measures to prevent further spread of alien plants.
National Forest Act (NFA) No. 84 of 1998	<p>The purposes of this Act are to-</p> <ul style="list-style-type: none"> (a) promote the sustainable management and development of forests for the benefit of all; (b) create the conditions necessary to restructure forestry in State forests; (c) provide special measures for the protection of certain forests and trees; (d) promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes; (e) promote community forestry; (f) promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination.

	<p>Prohibition on destruction of trees in natural forests</p> <p>(1) No person may -</p> <ul style="list-style-type: none"> (a) cut, disturb, damage or destroy any indigenous tree in a natural forest; or (b) possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any tree, or any forest product derived from a tree contemplated in paragraph (a), except in terms of- <ul style="list-style-type: none"> (i) a licence issued under subsection (4) or section 23; or (ii) an exemption from the provisions of this subsection published by the Minister in the <i>Gazette</i> on the advice of the Council.
National Environmental Management: Protected Areas Act (NEM:PA) No. 57 of 2003	The Act allows for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas; for the continued existence, governance and functions of South African National Parks; and for matters in connection therewith.
Mine, Health and Safety Act (MHSA) No. 29 of 1996	For the purpose of executing the statutory mandate of the Department Mineral Resources and Energy to safeguard the health and safety aspect of mine employees and communities affected by mining operations.
National Environmental Management: Waste Act (NEM:WA) No. 59 of 2008	The Act reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and

standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.

f) Need and desirability of the proposed activities

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

For more than a 100 years mining has played a very important vital role in the economy of South Africa. The mining industry contributed approx. R286 billion towards South African Gross Domestic Product (GDP) in 2015, representing approx. 7.1% of the overall GDP. Mining is known to be significant contributor when it comes to employment in South Africa, with approx. 457 698 individuals being directly employed by the sector in the year of 2015. This represents just over 3% of all employed nationally. (Chamber of Mines, South Africa, 17:2016)

This proposed activity aligns with the National Development Plan (NDP) of 2030 which strives to create better lives for South African citizens. This plan places great emphasis on growing an inclusive economy, improving the capabilities of the state together with leaders to ultimately solve complex problems. One aspect of this plan focuses on the importance of employment to generate poverty alleviation, restorations of livelihood and to reduce inequality in South Africa. This plan sets out the goal to reduce unemployment from 24,9% (2012) to 6% by 2030.

The establishment of the Kareelaagte mine means that employment opportunities will be created and also the social infrastructure will be improved which aligns with the NDP. As well as the establishment of any future mine would provide job opportunities for unskilled, and potentially skilled, labour from the surrounding areas contributing further to the NDP. During the proposed activities, local services such as a drilling company and excavator services will be utilised as far as possible.

Prospecting and mining activities for Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) takes place in the vicinity of the proposed area which suggests the possibility of encountering further diamond deposits.

The North West Province is known to be one of the main contributor provinces when it comes to supplying Diamonds, Diamonds (Alluvial), Diamonds (General) and Diamonds (In Kimberlite) to the international market.

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

(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.)

The specific site location is adjacent to the Ottosdal community. Which will ensure additional job opportunities and prevent illegal mining activities.

The mining of Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) is one of the ideal preferred activities for the proposed site and the other being livestock farming.

The applicant believes that especially Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) are present on the proposed area.

The proposed mining activities and their associated technologies have been selected due to their success rate throughout the prospecting and mining history.

The proposed mining activities and their associated technologies for the proposed mining activities will be to excavate and remove the diamond-bearing gravel (resource) by making use of the excavators. The gravel (resource) will then be transported by dumper trucks to the

washing plant and then be deposited into the feed bins of the 10 – 18 feet rotary washing pan(s) to be washed and sorted.

The rotary washing pan was chosen as the best alternative after comparing the pros and cons thereof with that of a Dense Media Separator (DMS).

Advantages of a Rotary Washing Pan vs the advantages of a DMS

Advantages - rotary washing pan	Advantages - DMS
More cost-effective than that of a DMS	DMS plants are used mostly for kimberlite deposits
More available	
Creates more job opportunities	
Lower water consumption than that of a DMS	
Rotary Pan Plants are the most common technique used when it gets to the prospecting and mining of alluvial deposits	

Disadvantages of a Rotary Washing Pan vs the disadvantages of a DMS

Disadvantages - rotary washing pan	Disadvantages - DMS
The industry perception that Rotary Pan Plants yield poorer diamond recoveries	Known to be more expensive than Rotary Washing Pans
	Water consumption is higher than Rotary Washing Pans
	Operating costs are more expensive than Rotary Washing Pans

h) Full description of the process followed to reach the proposed development footprint 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 as provided above and the location of the individual activities on site, provide details of the alternatives considered with respect to:

The guidelines on ‘Assessment of alternatives and impacts’, by the Department of Environmental Affairs and Tourism (2006), proposed that four types of alternatives of namely, the no-go, site, activity, and technology alternatives should be considered.

However, it is important to note that it is explicitly referred to by the regulation and guidelines that only ‘feasible’ and ‘reasonable’ alternatives should be considered. The guideline further acknowledges that the consideration of alternatives is an iterative process of feedback between the applicant, the EAP and I&APs, which in some instances results in a single preferred project proposal. The sections below will explore each type of alternative concerned.

Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states that the in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m

bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.

- a) The property on which or location where it is proposed to undertake the activity;

It is evident from personal maps that Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) gravel occur on the proposed farm portion. Therefore, the applicant would like to commence with their mining activities on the proposed farm portion near Ottosdal.

The proposed development falls within Land in Class III (3), - Arable land moderate to severe limitations. Suitable for grazing with moderate potential for crop production. (AGIS, 2016). As seen in the Land capability map, **figure 4**, and attached as **Appendix 4**).

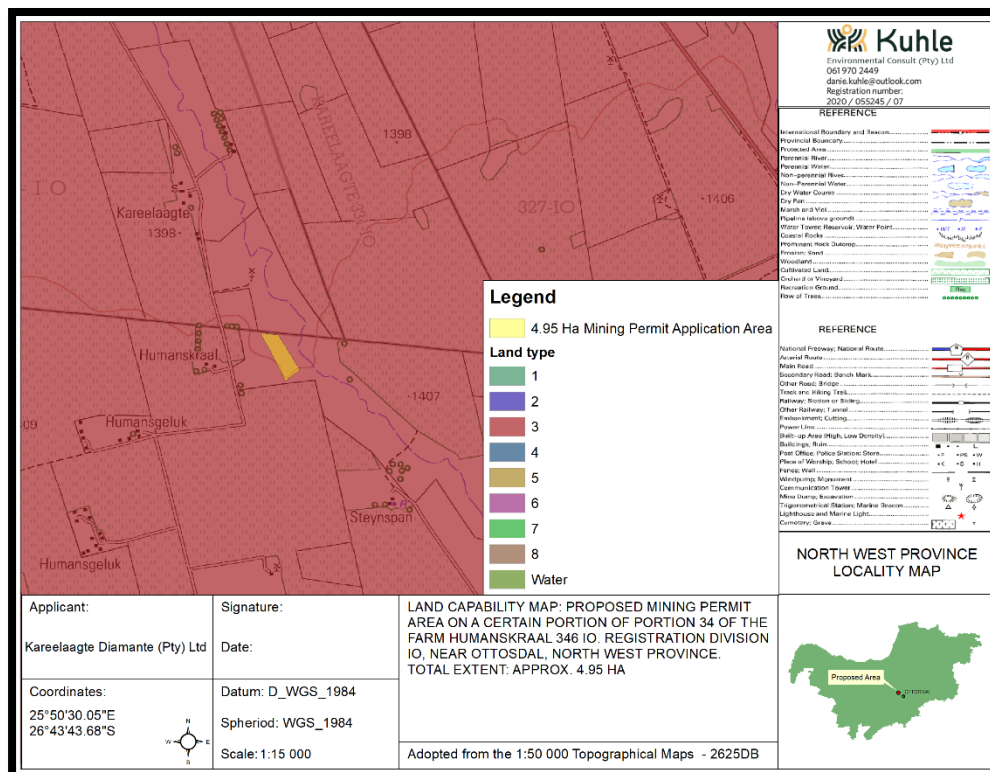


Figure 4: Land Capability Map

- b) The type of activity to be undertaken;

The EIA process has to consider if the proposed development of a Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) mine would be the best land use option for the proposed site area.

From a mining perspective it is evident from personal geological maps that Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) occur on this proposed farm portion. Therefore, the applicant would like to commence with their proposed mining activities.

From an agricultural perspective the site may be used for grazing with moderate potential for crop production, due to the site being Class 3 - arable, it.

It is advised that Kareelaagte Diamante (Pty) Ltd should take precautionary measures that will promote conservation of the natural resources, to ensure that food security/food production of the surrounding community of Ottosdal is not affected by any of the planned mining activities. Therefore, the applicant

should note that it is important to ensure that the negative impact on agricultural resources is minimized for sustainable utilization.

It is advised that the applicant should appoint an ECO to ensure that continuous monitoring takes place of the disturbed area and to ensure conservation of the natural resources.

- c) The design or layout of the activity;

Discussion between the EAP and the applicant were held throughout the planning and design phase to discuss the design and layout alternatives.

Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states that the in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.

The proposed mining activity's site layout shall be created in such a way to ensure the avoidance of potential identified sensitive areas and to avoid any unnecessary clearing of any natural indigenous vegetation **Appendix 3**.

- d) The technology to be used in the activity

See section g) Motivation for the overall preferred site activities and technology alternative

No permanent services in terms of water supply, electricity, or sewerage services are not required.

The lifetime of the project is expected to be approximately 2 years. During this time **Kareelaagte Diamante (Pty) Ltd** will undertake a detailed assessment of the viability of mining, which could increase the life of mine.

- e) The operational aspects of the activity;

The operational aspects of the proposed Kareelaagte Mine involve the mining of Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) from the proposed 4.95 Ha area. This is the preferred operational alternative assessed in this BAR. Opencast mining is the preferred mining method for these type of materials and for this proposed small scale mining operation (as discussed in Section "d" seen above). It is important to note that only 1 Ha of surface area will be disturbed at any one time of the project, the lifetime of the project is approximately 3 years.

- f) The option of not implementing the activity.

Should the proposed activity not proceed, the site will remain unchanged.

Should the no-go alternative be implemented, the following disadvantages will be associated

1. There will be a loss of direct and indirect opportunities for employment in the surrounding community.
2. Unutilised diamond mineral resources will be lost which will lead to no additional income to the surrounding community.
3. This will ultimately harm the South Africa economy for the mining industry contributes greatly to our local economy.

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.)

The Public Participation Process (PPP) according to Chapter 6 of the NEMA guidelines include the following processes.

1. Identification of the key Interested and Affected Parties ("I&APs") such as the affected and adjacent landowners and other stakeholders which includes organs of state and other parties.
2. The placement of site notices on farms, and within a 100m radius
3. The formal and direct notification of the application to key Interested and Affected Parties (all adjacent landowners) and other stakeholders
4. Consultation and correspondence with I&AP's and Stakeholders.
5. Public meetings at a central accessible location identified by I&AP and the addressing of their comments they might have.
6. Newspaper advertisements.

1. Identification of key Interested and Affected Parties

The principal objective of public participation is to inform and enrich decision-making. This is also a key phase in this Environmental Impact Assessment ("EIA") process.

Landowners (affected and adjacent) were identified through a search conducted via online search engines accessing the Title Deed office database. In addition to landowners, other relevant organisations were identified and notified of the application. This includes Municipal and Governmental Departments with jurisdiction in the project area and Non- Governmental Organisations (NGOs) with an interest. I&AP's representing the following sectors of society were identified:

- National, provincial and local government;
- Agriculture, including local landowners;
- Community Based Organisations
- Non-Governmental Organisations;
- Department of Water and Sanitation
- Industry and Mining;
- Other stakeholders

2. Placement of site notices

Numerous site notices were placed (as anticipated on the coordinates below) on-site in English on **02 July 2021** to inform the surrounding communities and immediately adjacent landowners of the proposed development. I&APs were given the opportunity to raise comments within thirty (30) days of placing the site notices. Photographic evidence of the site notices is included in Appendix 5. Below are the coordinates where the site notices were placed.



Figure 5: Site Notice Co-ordinates

3. Formal and Direct notification and circulation of BAR to identified I&APs

The Identified I&APs and key stakeholders representing various Departments, were directly informed of the proposed mining development and the availability of the **BA Report** via registered post and emails on **01 July 2021** and were requested to submit comments by **31 July 2021**. For a complete list of stakeholder details and for proof of registered post see **Appendix 5**.

I&APs were expected to provide their inputs and comments within 30 days after receipt of the notification or BA Report. When the comment period ended, all comments received were included in the final BA Report & EMP Report.

Direct notification of surrounding landowners and occupiers

Notices and the availability of the BA Report were also provided to all the identified surrounding landowners and land occupiers on **01 July 2021**. The identified surrounding landowners were given the opportunity to raise comments by **31 July 2021**. For a list of surrounding landowners see **Appendix 5**.

Table 9: Summary of Stakeholders, Landowners and Surrounding Landowners.

Identified Stakeholders	Identified Landowners / Occupier	Identified Surrounding Landowner / Occupier
Department of Agriculture and Rural Development (DARD)	Owner of Portion 34 of Humanskraal 346 IO	Portion 4 of Kareelaagte 330 IO
Department of Economic Development, Environment, Conservation and Tourism (DEDECT)		Portion 5 of Kareelaagte 330 IO
The Department of Human Settlements, Water & Sanitation (DHSWS)		The remaining extent of portion 1 of Kareelaagte 331 IO
Provincial Heritage Resources Agency (PHRA) North West		Portion 10 of Humanskraal 346 IO

Identified Stakeholders	Identified Landowners / Occupier	Identified Surrounding Landowner / Occupier
Department of Community Safety and Transport Management		Portion 16 of Humanskraal 346 IO
Department of Public Works, Roads and Transport in NW (DPWRT)		Portion 17 of Humanskraal 346 IO
Department of Agriculture Forestry, and Fisheries (DAFF)		The remaining extent of portion 20 of Humanskraal 346 IO
Department of Environment, Forestry, and Fisheries (DEFF)		
Department of Agriculture, Land Reform and Rural development		
Bojanala District Municipality		
Municipal councillor of the ward & Municipal Manager for Tswaing LM		
North West Department: Economy and Enterprise Development		
South African Heritage Resources Agency (SAHRA)		
South African National Roads Agency (SANRAL)		
WESSA (National Office)		
Eskom		
Transnet		

4. Public meetings at a central accessible location identified by I&AP and the addressing of their comments they might have.

1. Public Meeting

Due to Covid-19, no public meetings were held.

2. Issues Raised by I&APs

The comments received are captured in the comments and response table/form (See **Appendix 5** for comments and response form).

6. Newspaper Notice

A notice was placed in English in the local newspaper (**Noordwester**) on **02/07/2021** (see **Appendix 5**) notifying the public of the proposed mining application and its associated EIA process and to allow Interested and Affected Parties (I&APs) to register with, and submit their comments to Kuhle Environmental Consult (Pty) Ltd. I&APs were given the opportunity to raise comments and concerns within 30 days of the notice.

iii) Summary of the issues raised by the I&APS
(Complete the table summarising comments and issues raised, and reaction to those responses)

Table 10: Summary of the Issues Raised by I&APs

INTERESTED AND AFFECTED PARTIES		ISSUES RAISED	EAPS RESPONSE TO ISSUES AS MANDATED BY THE APPLICANT	SECTION AND PARAGRAPH REFERENCE IN THIS REPORT WHERE THE ISSUE AND OR RESPONSE WERE INCORPORATED
List the names of persons consulted in this column, and Mark with an X where those who must be consulted were consulted.				
Organisation	Owner & Contact person			
Land Owner				
Portion 34 of Humanskraal 346 IO	Mr. M.J. Theunissen	In a telephonic conversation on 04/08/2021, Mr Theunissen stated that he has no comments.	In an email dated 4/08/2021, the EAP provided the Draft documents via Dropbox.	
Surrounding Land Owners				
The remaining extent of portion 1 of Kareelaagte 330 IO	Wilco Trust	No objection		
	Mr. J.A. Coetzee			
Portion 4 of Kareelaagte 330 IO	Wilco Trust	No objections		
	Mr. J.A. Coetzee			
Portion 5 of Kareelaagte 330 IO	Wilco Trust	No objections		
	Mr. J.A. Coetzee			
Portion 10 of Humanskraal 346 IO	Wilwest Boerdery CC Mr. C.J.L. West	On a Comments and Response Form dated 7/07/2021, the following is stated: “The fence was constructed by myself. The current owner made no contribution what so ever. No mining to happen within 15 meters of the fence. The owner was notified of all the expenses that I had regarding the fence.”		
Portion 16 of Humanskraal 346 IO	Mr. M.J. Theunissen	No objection		

Portion 17 of Humanskraal 346 IO	Protected by POPI Act	None received to date		
The remaining extent of portion 20 of Humanskraal 346 IO	Mr. M.J. Theunissen	No objection		
The Municipality in which jurisdiction the development is located				
Tswaing LM	Municipal Manager: Mr Valtein Mokopane Letsoalo	None received to date		
Municipal councillor of the ward in which the site is located				
Tswaing LM	Ward 30 Councillor	None received to date		
Organs of the state having jurisdiction				
Department of Economic, Development, Environment, Conservation and Tourism (DEDECT)	Ouma Skosana	None received to date		
Department Mineral Resources & Energy	Ms Ntanganedzeni Mushome	<p>In a letter dated 24/05/2021, the mineral application submitted is accepted. This letter was attached to an email dated 28/05/2021.</p> <p>In a letter dated 29/04/2021, the Environmental Authorisation Application is acknowledged.</p> <p>In an email dated 15/05/2021, the Department granted the extension.</p>	In an email dated 11/05/2021, the EAP notified the Department of a 20 day timeframe extension.	
The Department of Human Settlements, Water & Sanitation (DHSWS)	Mr K. Mudau Mr Chadwick Lobakeng Dr Tseliso Ntili	None received to date		
NW Agriculture and Rural Development (DARD)	Ms Bonolo Mohlakoana	None received to date		
Provincial Heritage Resources Agency (PHRA) North West	Mr. Motlhabane Mosiane	None received to date		

Department of Public Works, Roads and Transport in NW (DPWRT)	HOD: Mr P Mothupi	None received to date		
Department of Agriculture, Forestry, and Fisheries (DAFF)	Mr Maurice Vukeya & Mrs Mpho Gumula	None received to date		
North West Department: Economy and Enterprise Development	HOD Mr L Tshikovhi	None received to date		
Department of Agriculture, Land Reform and Rural Development	Land Claims Commissioner: Regional Offices, Chief Director: Mr Lengane Bogatsu	In a letter dated 16/07/2021, the request for comments is acknowledged. This letter was attached to an email dated 21/07/2021		
South African Heritage Resources Agency (SAHRA)	Ms Natasha Higgitt	None received to date		
South African National Roads Agency (SANRAL)	Ms Nicole Abrahams	None received to date		
Other-				
Bojanala District Municipality	Municipal Manager: Mr P Shikwane Secretary: Tsholofelo B Dikgole	None received to date		
WESSA (National Office)	To whom it may concern	None received to date		
North West Parks and Tourism Board	Mr Wilfred Seithamo	In an email dated 02/06/2021, Mr. Seithamo, acknowledged the request for comments.		
Eskom	Vuyokazi Dlulane Katlego Hungwane	None received to date		
Transnet	Transnet Ltd Norman Papenfus Real Estate Management	In an email dated 02/06/2021, Transnet confirmed that the application will have no affect to Transnet.		

	André Bodenstein Geo-Spatial (Inland)			
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iv) The environmental attributes associated with the site

1) Baseline Environment

The baseline environment is described with specific reference to geotechnical conditions, ecological habitat and landscape features, Soil, land capability and agricultural potential, climate and the visual landscape.

a) Type of environment affected by the proposed activity

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

Geographical Environment

The proposed site falls within the Tswaing LM, located in the North West Province of South Africa. The proposed site is 4.95ha in extent and is near the town of Ottosdal.

Physical Environment

A. Geology and Soils

The area forms further part of the old Palaeo River Valley which flowed from north to south and the Vaal River. The country rocks are lavas of the Ventersdorp supergroup and remnants of the Dwyka Tillite and Shale. The anticipated deposits are situated in channels and are covered in calcrete in some places. The deposits normally consist of thick medium to coarse-grained fluvial gravels of mixed lithological composition. (Lava, Dolomite, Fe-shale, Chert, Quartzite, Agate, Quartz etc).

A Geological Map is attached in **Appendix 6** and on figure 6 below.

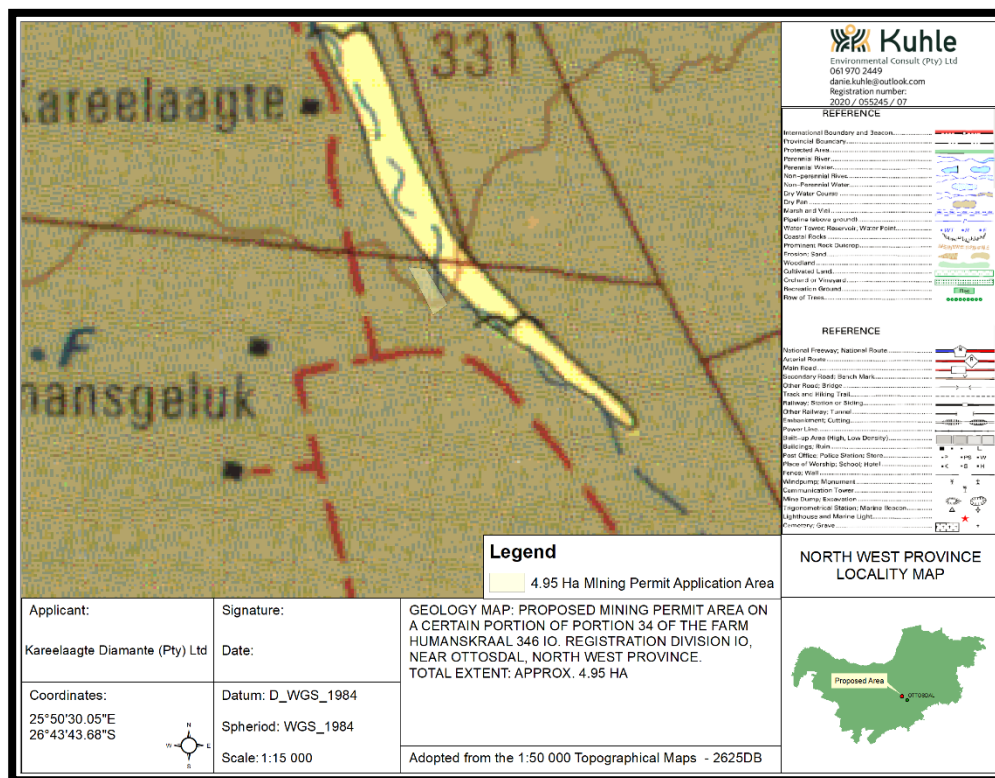


Figure 6: Geology Map

B. Climate and water availability

Ottosdal is 1499m above sea level. Ottosdal's climate is a local steppe climate. In Ottosdal, there is little rainfall throughout the year. This climate is considered to be BSk according to the Köppen-Geiger climate classification. The temperature here averages 17.4 °C | 63.4 °F. In a year, the rainfall is 565 mm | 22.2 inch.

Precipitation is the lowest in July, with an average of 4 mm | 0.2 inch. With an average of 103 mm | 4.1 inch, the most precipitation falls in January.

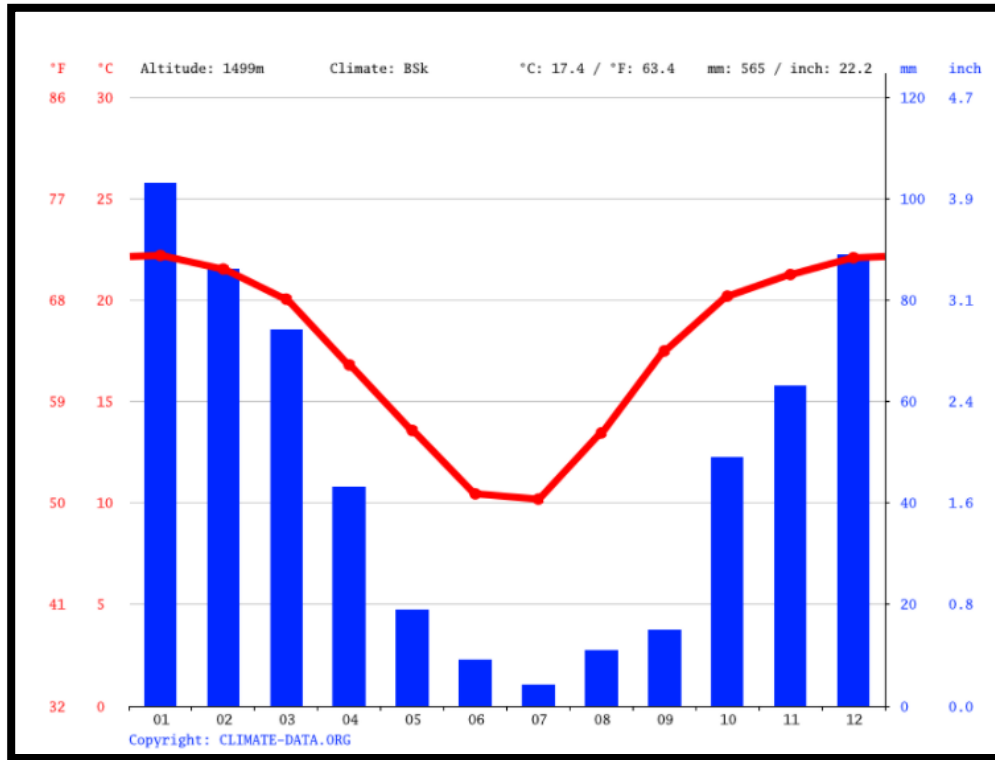


Figure 7: Ottosdal Climate Graph // Weather By Month

At an average temperature of 22.2 °C | 72.0 °F, January is the hottest month of the year. July has the lowest average temperature of the year. It is 10.2 °C | 50.3 °F.

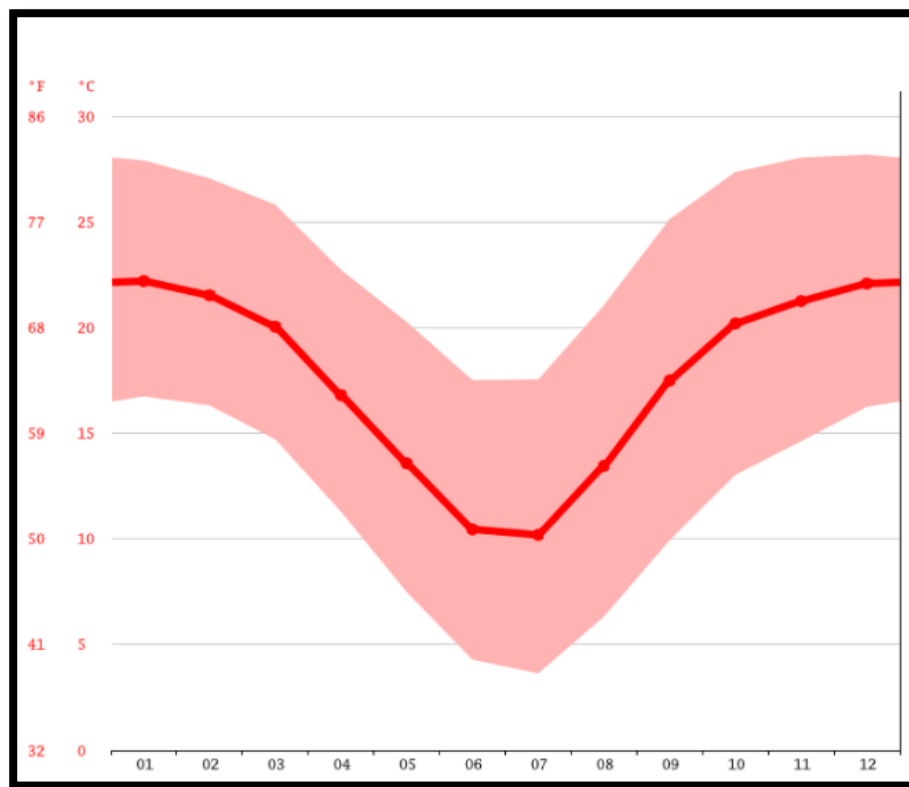


Figure 8: Ottosdal Average Temperature

Between the driest and wettest months, the difference in precipitation is 99 mm | 4 inch. During the year, the average temperatures vary by 12.0 °C | 21.6 °F.

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	22.2 °C (72) °F	21.5 °C (70.7) °F	20 °C (68.1) °F	16.8 °C (62.2) °F	13.6 °C (56.4) °F	10.5 °C (50.8) °F	10.2 °C (50.3) °F	13.5 °C (56.2) °F	17.5 °C (63.5) °F	20.2 °C (68.3) °F	21.3 °C (70.3) °F	22.1 °C (71.7) °F
Min. Temperature °C (°F)	16.7 °C (62.1) °F	16.3 °C (61.4) °F	14.7 °C (58.5) °F	11.3 °C (52.3) °F	7.5 °C (45.5) °F	4.3 °C (39.7) °F	3.6 °C (38.5) °F	6.3 °C (43.4) °F	9.9 °C (49.9) °F	13 °C (55.5) °F	14.6 °C (58.3) °F	16.3 °C (61.3) °F
Max. Temperature °C (°F)	27.9 °C (82.2) °F	27.1 °C (80.7) °F	25.8 °C (78.5) °F	22.7 °C (72.9) °F	20.3 °C (68.5) °F	17.5 °C (63.5) °F	17.5 °C (63.6) °F	21.1 °C (69.9) °F	25.1 °C (77.2) °F	27.4 °C (81.3) °F	28 °C (82.5) °F	28.2 °C (82.7) °F
Precipitation / Rainfall	103	86	74	43	19	9	4	11	15	49	63	89
mm (in)	(4.1)	(3.4)	(2.9)	(1.7)	(0.7)	(0.4)	(0.2)	(0.4)	(0.6)	(1.9)	(2.5)	(3.5)
Humidity(%)	56%	58%	58%	57%	50%	49%	43%	34%	30%	35%	41%	51%
Rainy days (d)	11	10	9	5	2	1	1	1	2	6	7	10
avg. Sun hours (hours)	10.8	10.3	9.8	9.1	9.2	8.9	9.3	9.8	10.3	10.9	11.1	11.2

Figure 9: Ottosdal Weather By Month // Weather Averages

In Ottosdal, the month with the most daily hours of sunshine is December with an average of 11.16 hours of sunshine. In total there are 345.89 hours of sunshine throughout December.

The month with the fewest daily hours of sunshine in Ottosdal is January with an average of 11.16 hours of sunshine a day. In total there are 345.89 hours of sunshine in January.

Climate data source: <https://en.climate-data.org/africa/south-africa/north-west/ottosdal-189666/>

C. Wetlands and Rivers

Wetland Areas

Wetlands are defined as land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil (from the South African National Water Act; Act No. 36 of 1998).

The maps below illustrate all the possible wetland areas in the proposed portion. The proposed 4.95ha area consists of no wetlands. However, a dam is found north-eastern corner of the farm.

Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states that the in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.

A Wetland Map is attached in **Appendix 6** and on figure 10 below.

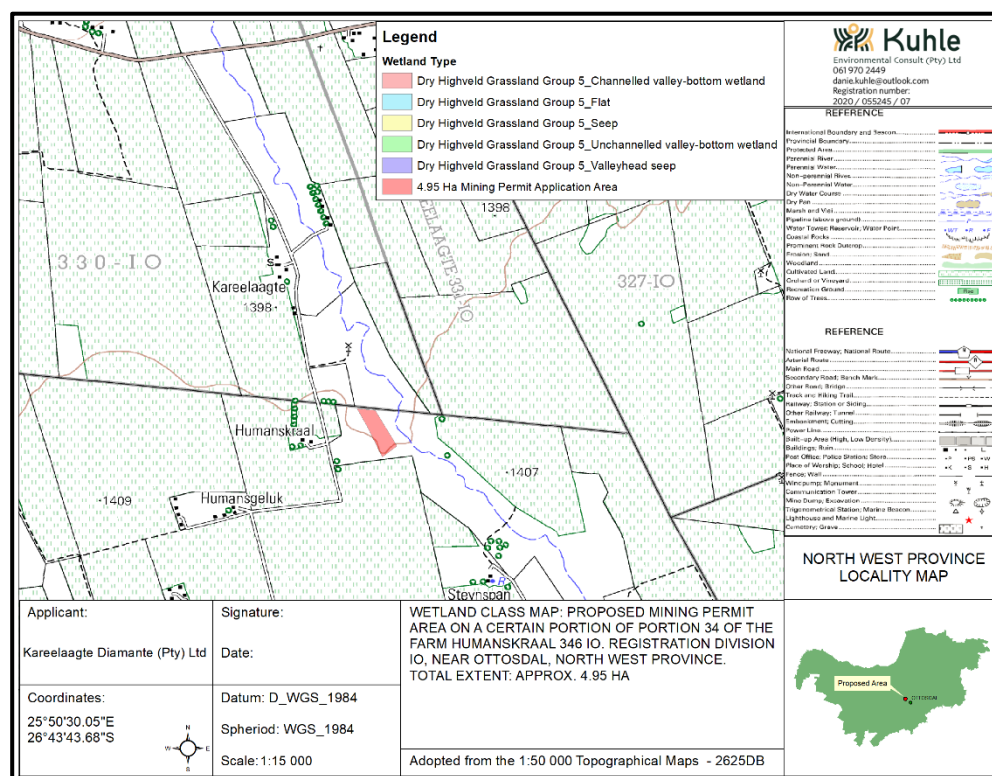


Figure 10: Wetland Types Present on Site

River Ecosystem Status

No major river occurs on or adjacent to the proposed application area. However, a tributary to the Klein-Harts River flows through the north-easterly corner of the farm.

Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states that the in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.

A Rivers Map is attached in **Appendix 6** and on figure 11 & 12 below.

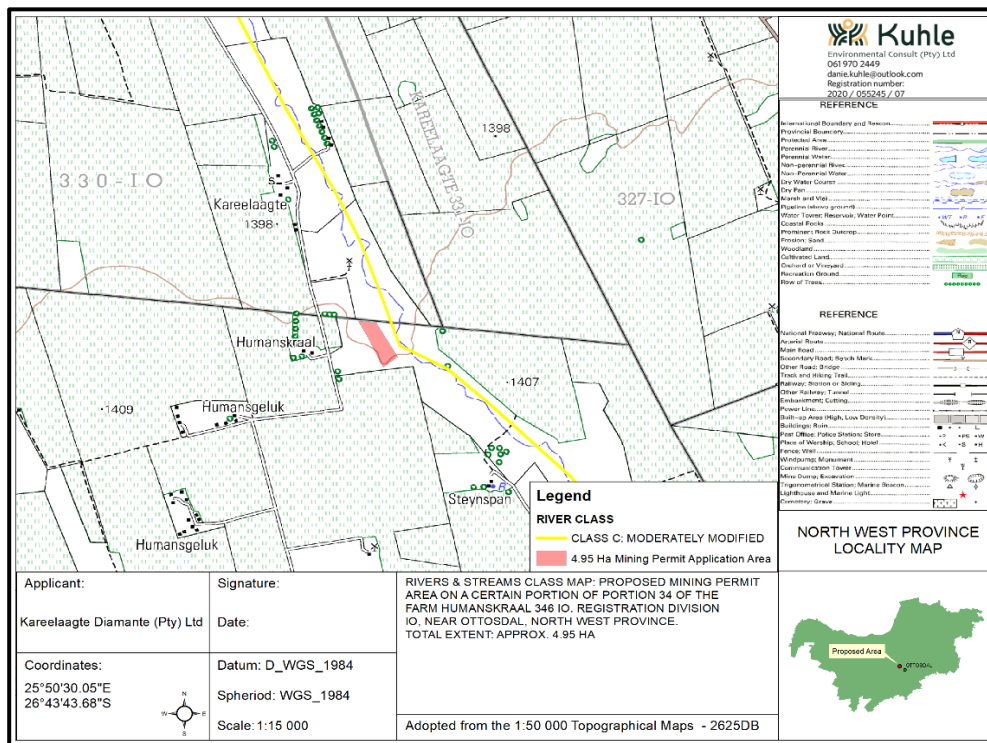


Figure 11: River Ecosystem Status

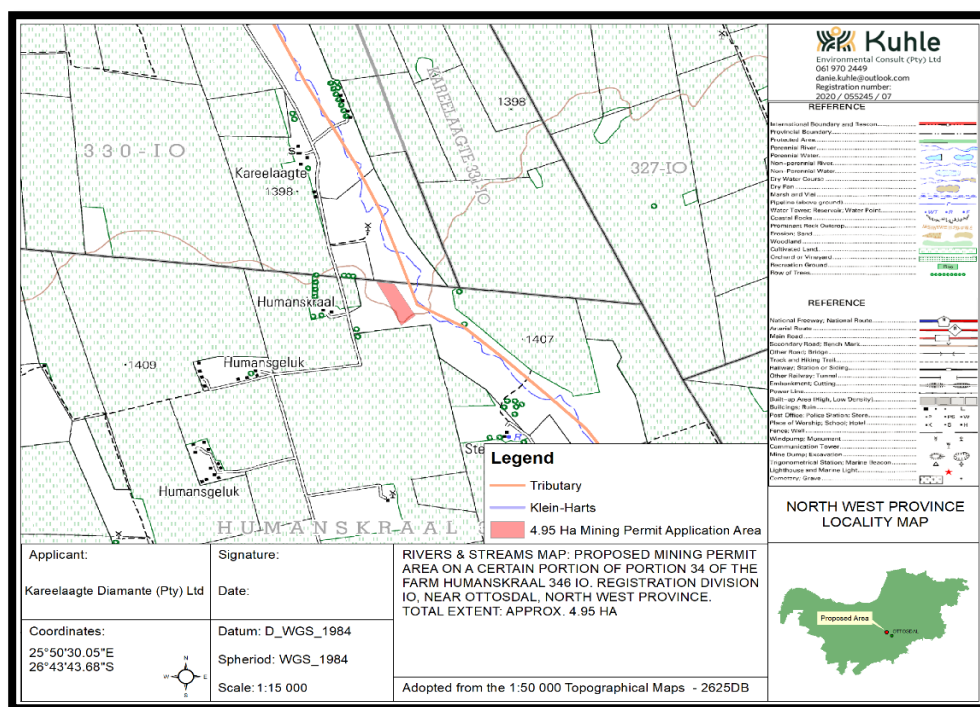


Figure 12: River and Streams Map

Kuhle Environmental Consult (Pty) Ltd : BAR025– Kareelaagte Diamante (Pty) Ltd.

D. Natural Vegetation and floristics

The proposed mining area is found within vegetation unit Gh 14, which is known as the Western Highveld Sandy Grassland. The Western Highveld Sandy Grassland is part of the Dry Highveld Grassland, which is a sub-bioregion of the Grassland Biome.

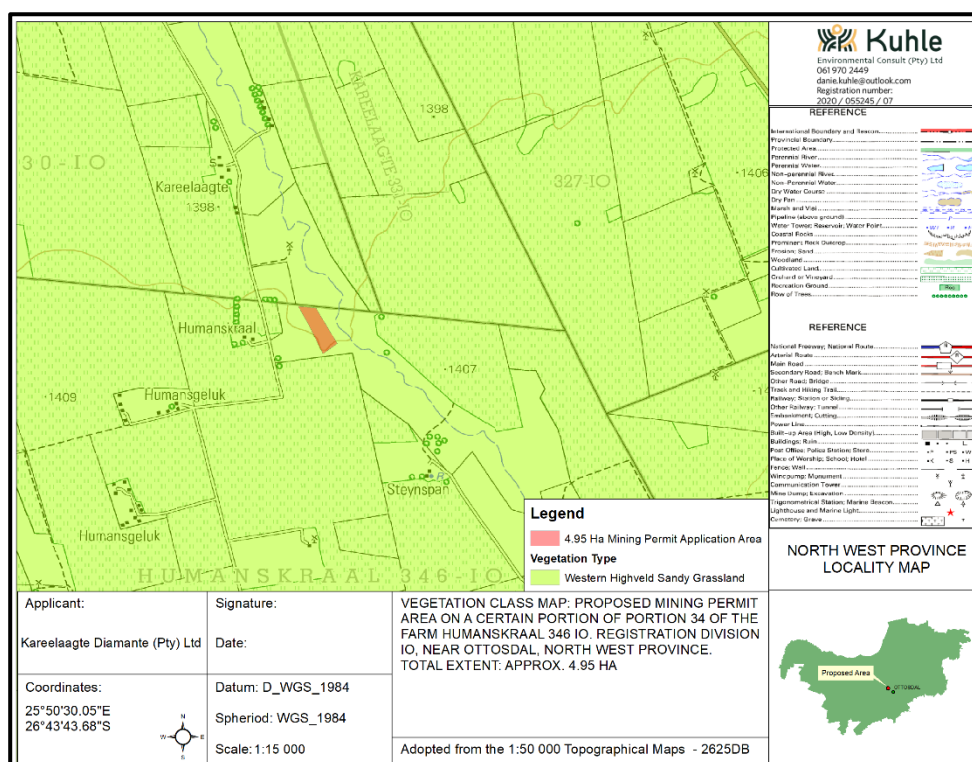
According to Mucina and Rutherford (2006:387), Western Highveld Sandy Grassland covers the North West Provinces, from Mafikeng to Schweizer-Reneke in the south and from Broedersput and Kameel in the west to Lichtenburg and Ottosdal in the east. This vegetation is situated at an altitude of 1280-1520m and the main area at 1340-1380 m. The area often has flat to gently undulating plains with short dry grassland, with some woody species occurring in bush clumps.

Mucina and Rutherford (2006:388) also state that the conservation is endangered with a target of 24%. Only a very small portion statutorily conserved (Barberspan Nature Reserve). More than 60% has been ploughed. Non-arable parts are on shallow Aeolian soils which become easily over-utilised through grazing. This vegetation type has very low erosion and about 95% of this land is suitable for cultivation. However, low rainfall makes it a high-risk area for agriculture. Therefore, the natural vegetation is often restricted to non-arable bush clumps, shallow soils, Aeolian sands and pans.

The above mentioned is supported by the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9). The survey had the following findings:

- The vegetation type Western Highveld Sandy Grassland (Gh 14), is listed as Critically Endangered according to the National List of Threatened Ecosystems (2011). However, at the site vegetation has been modified and exists mainly as cultivated areas or as isolated patches of disturbed grassland. There is little scope for successful restoration and conservation of the small partly isolated patch of the particular vegetation type at the site.
- Vegetation at the site is a mosaic of extensive cultivated areas as well as grassland patches with indigenous plant species. Strips of alien invasive trees are found at the site. Bush encroachment of indigenous shrubs and trees, *Asparagus laricin* and *Vachellia karroo* occur at some parts of the site.
- *Vachellia karroo* and *Searsia lancea* are conspicuous indigenous trees at the grassland at the site. Alien invasive or exotic tree species at the site include *Gleditsia triacanthos*, *Melia azedarach*, *Eucalyptus camaldulensis* and *Schinus molle*. Indigenous grass species include *Aristida congesta*, *Cynodon dactylon*, *Heteropogon contortus*, *Eragrostis lehmanniana*, *Eragrostis superba*, *Chloris virgata* and *Pogonarthria squarrosa*. The herbaceous shrub *Gomphocarpus fruticosus* occurs at many places, often hitherto disturbed areas, at the site. Dwarf shrub species at the site include *Pentzia globosa* and *Felicia muricata*. Indigenous forb species include *Gazania krebsiana*, *Bulbine narcissifolia*, *Berkheya onopordifolia*, *Geigeria ornativa* and *Senecio consanguineus*.
- A number of alien invasive weed species are present at previously cleared and hitherto cultivated areas. These alien invasive weeds include *Gomphrena celosioides*, *Argemone ochroleuca*, *Schkuhria pinnata*, *Tagetes minuta*, *Conyza bonariensis*, *Datura ferox*, *Datura stramonium*, *Xanthium spinosum*, *Bidens pilosa*, *Verbena bonariensis*, *Verbena aristigera* and *Alternanthera pungens*.
- Riparian vegetation at the in-channel dam consists mainly of grasses and sedges and at the groundwalls, *Vachellia karroo* and *Asparagus laricin*. Indigenous wetland grass species at the riparian zone include *Echinochloa holubii* and *Leptochloa fusca*. Sedge species such as *Eleocharis limosa*, *Schoenoplectus muriculatus* and *Cyperus denudatus* are present at the inlet and fringes of the dam. Alien invasive plant species such as *Oxalis corniculata*, *Rumex crispus* and *Cirsium vulgare* occur at the riparian zone.
- Rocky ridges are absent at the site.
- A non-perennial river is present at the northeastern part of the site and has been modified into an in-channel dam.
- Site is part of the Lower Vaal Water Management Area (WMA 10). The site is not part of a Freshwater Ecosystem Priority Area (FEPA) or wetland cluster (Nel *et al.*, 2011a, 2011b). The site is part of an Upstream Water Management Area which in means that the quality of water that is discharged in the system in particular should be of high standard.
- No Threatened or Near Threatened plant or animal species appear to be resident at the site. No other plant or animal species of particular conservation concern appear to be present at the site.

- There is little scope for most of the site to be part of a corridor of particular conservation importance, excluding the in-channel dam and non-perennial river at the northeastern part of the site. The non-perennial river which has been modified and functions as an in-channel dam, with its riparian zone and buffer zone, is a corridor of particular conservation concern in the larger area.
- Ecological sensitivity at the site low (at cultivated and hitherto cultivated fields) and medium (disturbed grassland) at the terrestrial areas and medium-high at the watercourse at the site. The non-perennial river (watercourse) at the site has been modified to an in-channel dam in the past and functions as such at present. The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area (Figure 4).
- A key issue at the site if the development is approved, is to apply a rehabilitation programme.
- Following the mitigations and rehabilitation process which will be upheld and planned footprint for development all the impact risks listed above are moderate or low.
- Continued monitoring and eradication of alien invasive plant species are imperative. It is in particular declared alien invasive species such as *Prosopis glandulosa* (Mesquite), *Melia azedarach* (Syringa) and alien invasive Australian *Acacia* species (Australian wattles) that should not be allowed to establish.



Protected Areas

A Protected Areas Map is attached in **Appendix 6** and on figure 14 below.

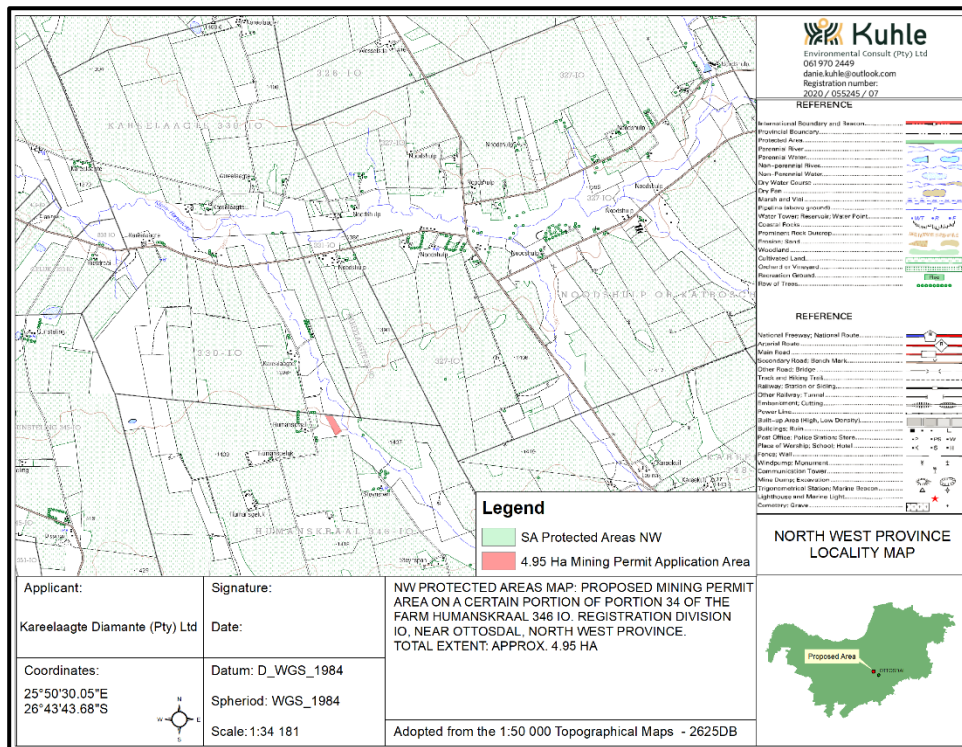


Figure 14: Protected Area Map

Protected tree species

Protected tree species trees may be found in the proposed area. Such trees are protected under the National Forests Act No. 84 of 1998 are listed in Table 4.9. In terms of a part of section 51(1) of Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.

In cases where the trees will need to be cut, disturbed, damaged or destroyed or possessed, collected, removed, transported, exported, purchased, sold or donated a flora permit will be applied for.

Critical Biodiversity Area

The NW: Biodiversity Plan of the Department of Rural, Environmental and Agriculture Development (READ)(now DEDECT) defines CBA and Ecological Support Areas as follows:

CBA are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses.

Ecological Support Areas (ESAs) are terrestrial and aquatic areas that are not essential for meeting biodiversity representation targets (thresholds), but which nevertheless play an important role in supporting the ecological functioning of CBA and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree or extent of the restriction on land use and resource use in these areas may be lower than that recommended for CBAs.

According to the data for CBAs, the proposed area falls within CBA 1.

A CBA Map is attached in **Appendix 6** and on figure 15 below.

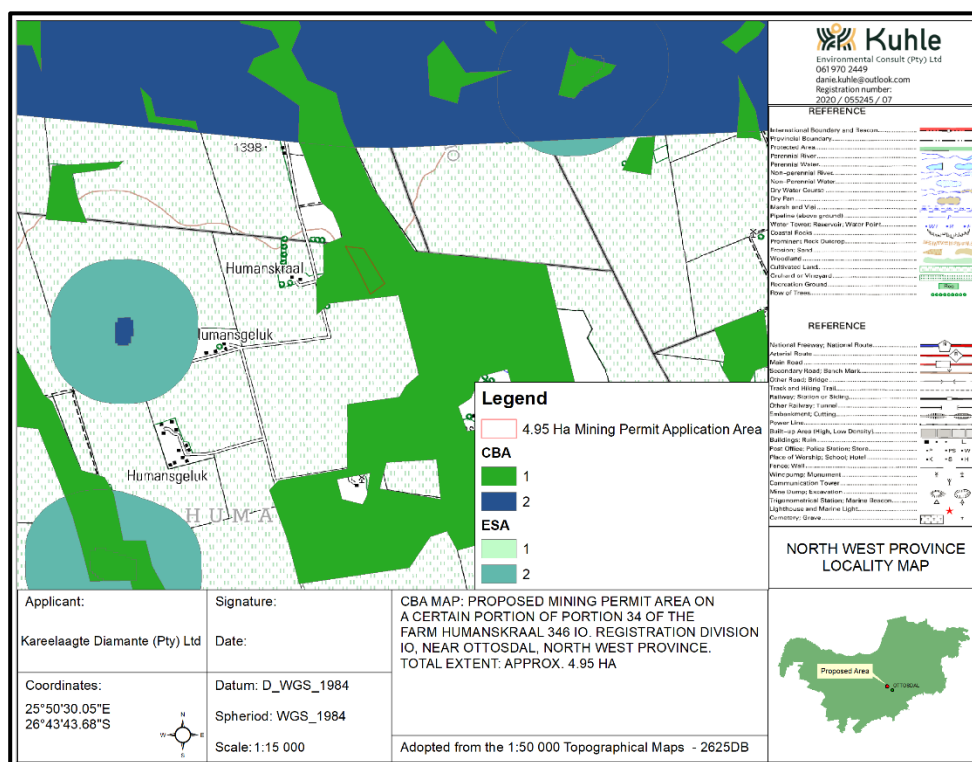


Figure 15: Critical Biodiversity Areas Map

Sensitive area for Mine

The Mining of Biodiversity Guidelines, biodiversity priority areas sensitive to the impacts of mining are categorized into four categories (please see the table 11 below).

Table 11: 4 Categories of biodiversity guidelines

Category	Category Description (DEA, DMR, Chamber of Mines, SAMBF & SANBI 2013)
A - Legally protected Areas	<p>Biodiversity Priority Areas:</p> <ul style="list-style-type: none"> Protected areas (including National Parks, Nature Reserves, World Heritage Sites, Protected Environments, Nature Reserves) Areas declared under Section 49 of the Mineral and Petroleum Resources Development Act (No. 28 of 2002) <p>Risks for Mining:</p> <ul style="list-style-type: none"> Mining Prohibited
B - Highest Biodiversity Importance Areas	<p>Biodiversity Priority Areas:</p> <ul style="list-style-type: none"> Critically endangered and endangered ecosystems

	<ul style="list-style-type: none"> • Critical Biodiversity Areas (or equivalent areas) from provincial spatial biodiversity plans • River and wetland Freshwater Ecosystem Priority Areas (FEPAs) and a 1km buffer around these FEPAs • Ramsar Sites <p>Risks for Mining:</p> <ul style="list-style-type: none"> • Highest Risk for Mining
C - High Biodiversity Importance Areas	<p>Biodiversity Priority Areas:</p> <ul style="list-style-type: none"> • Protected area buffers (including buffers around National Parks, World Heritage Sites* and Nature Reserves) • Transfrontier Conservation Areas (remaining areas outside of formally proclaimed protected areas) • Other identified priorities from provincial spatial biodiversity plans • High water yield areas • Coastal Protection Zone • Estuarine functional zone • Note that the status of buffer areas of World Heritage Sites is subject to a current intra-governmental process <p>Risks for Mining:</p> <ul style="list-style-type: none"> • High Risk for Mining
D - Moderate Biodiversity Importance Areas	<p>Biodiversity Priority Areas:</p> <ul style="list-style-type: none"> • Ecological support areas • Vulnerable ecosystems • Focus areas for protected area expansion (land-based and offshore protection) <p>Risks for Mining:</p> <ul style="list-style-type: none"> • Moderate Risk for Mining

The purpose of this Guideline provides explicit direction in terms of where mining-related impacts are legally prohibited, where biodiversity priority areas may present high risks for mining projects, and where biodiversity may limit the potential for mining. The Guideline distinguishes between four categories of biodiversity priority areas concerning their importance from a

E. Cultural and Heritage Environment

According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.

F. Socio-economic profile

Tswaing Local Municipality is part of Ngaka Modiri Molema District Municipality.

MDB code: NW382

Description: The Tswaing Local Municipality is a Category B municipality situated in the Ngaka Modiri Molema District in the North West Province. It is one of the five local municipalities in this district, making up almost a quarter of its geographical area.

Tswaing Local Municipality provides all the basic services in its area of jurisdiction except water and sanitation, which are provided by the Ngaka Modiri Molema District Municipality. The data from Global Insight Regional Explorer 593 indicates that there has been tremendous improvement in the allocation of services to the communities in the Tswaing Local Municipality, especially housing, water, electricity and sanitation.

Despite these positive results, the municipality still faces challenges with regards to backlogs in the provision of water, electricity, sanitation, roads and street lighting. The main reason for this is the increase in population in the past 10 years, partly due to evictions of people in the surrounding farms and partly because of the natural growth of the population.

Area: 5 875km²

Cities/Towns: Delareyville, Ottosdal, Sannieshof

Main Economic Sectors: Agriculture, small-scale mining

b) Description of the current land uses.

The land uses currently on this site and its surroundings include:

- Cultivation Areas
- Natural area
- Waterbodies.

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

The following infrastructure is found on and around the proposed 4.95ha:

- Cultivated fields
- Excavations
- Homestead with buildings and associated garden.
- Fences and buildings associated with farming infrastructure are also present.
- Numerous dirt roads and tracks are found at the site. Alien invasive plant species occur at many parts of the site

d) Environmental and current land use map.

(Show all environmental, and current land use features).

A Land Cover Map is attached in **Appendix 6** and on figure 17 below.

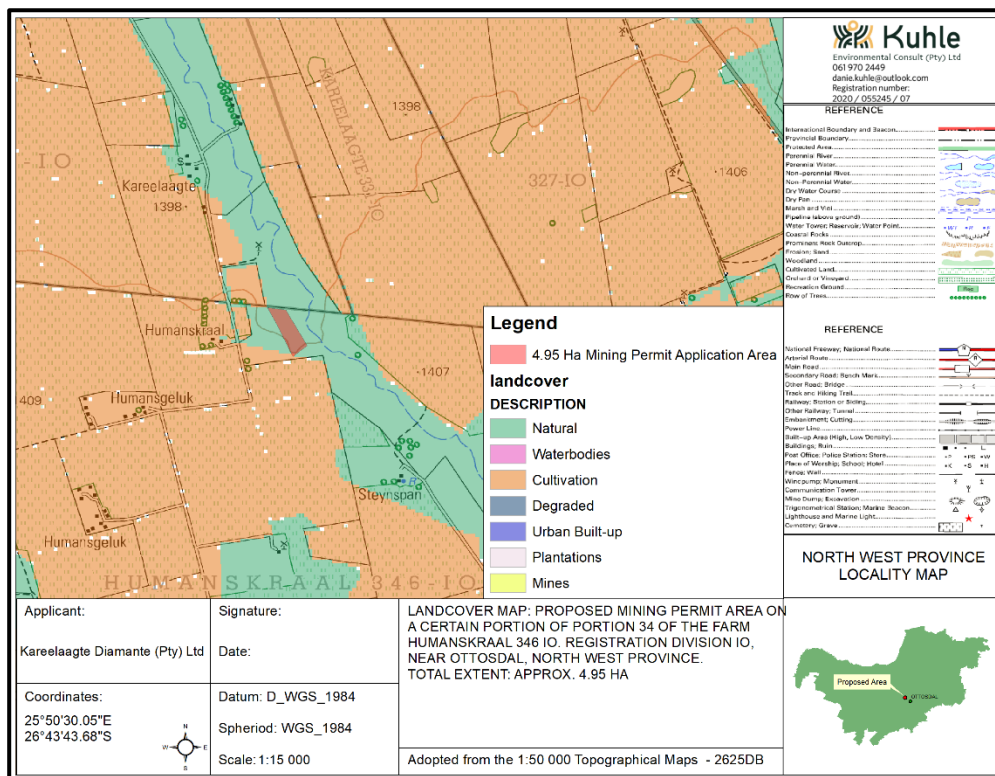


Figure 17: Land Cover Map

G. Topography

The topography of the area applied for is relatively flat.

- 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).

- (aa) can be reversed;
(bb) may cause irreplaceable loss of resources; and
(cc) can be avoided, managed or mitigated;

The significance of the potential impacts

The sections below present the outcome of the significance rating exercise. The outcome suggests that the proposed mining activities will have an impact on the natural vegetation and the agricultural activities, even if properly mitigated and managed.

Table 12: Significance of Potential Impacts and Mitigation

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T R E M E N T	D U R A B L E N O N	I N T E N S I T Y	P R O B A B I L I T Y			E X T R E M E N T	D U R A B L E N O N	I N T E N S I T Y	P R O B A B I L I T Y	
CONSTRUCTION PHASE											
Traffic Impacts											
<p>The movement of heavy vehicles during the clearance of vegetation and topsoil has the potential to damage local farm roads and create dust and safety impacts for other road users in the area.</p> <p>Traffic on the road is generally low, thus the impact would not be significant.</p>	2	3	2	3	<p>Negative Medium</p> <p>(-16)</p>	<p>The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation measures include:</p> <ul style="list-style-type: none">The contractor must ensure that damage caused by construction on the off gravel roads. The costs associated with the repair must be borne by the contractor;Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers;All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.Also refer to the EMPr. For mitigation measures related to traffic.However, notice of construction work should be placed with speed limit of 30 km/h	1	3	1	1	<p>Negative Low</p> <p>(-5)</p>
Soil Erosion and Surface runoff											
<p>Considering the slope angle, parental rock, depositional environment and grading of the upper soils inspected on site, an intermediate to high erodibility is assigned to the site;</p> <p>Loss of soil resources as a result of soil stripping of the construction footprint;</p> <p>Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination;</p> <p>Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources;</p> <p>Soil contamination as a result of uncontrolled sewage handing;</p>	2	3	3	4	<p>Negative High</p> <p>(-27)</p>	<ul style="list-style-type: none">Clearing activities and earth scraping should preferably be restricted to the dry season in order to prevent erosion and siltation.The dry months are also the period when the majority of species are either dormant or finished with their breeding activities.Future soil stockpiling areas must follow environmentally sensitive practices and be situated a sufficient distance away from drainage areas.The careful position of soil piles, and runoff control, during all phases of development, and planting of some vegetative cover after completion (indigenous groundcover, grasses etc.) will limit the extent of erosion occurring on the site. Sufficient measures must be implemented to prevent the possible contamination of the surface water and surrounding groundwater from runoff.The use of water on the site must be carefully monitored to ensure that erosion on slopes does not take place.Any erosion channels developed during the construction period shall be backfilled and compacted and the areas restored to a proper condition.All disturbed areas that will require rehabilitation must be mulched to encourage vegetation re-growthInstallation of silt fences and erosion berms as necessary to minimize erosion.Stabilisation of cleared areas to prevent and control erosion shall be actively managed. The method of stabilisation shall be determined in consultation with the ECO.	1	3	2	2	<p>Negative Low</p> <p>(-12)</p>

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y	
<p>Indirect impact on the loss of micro habitats following soil removal; and</p> <p>Erosion due to floods.</p> <p>This will result in grazing and cultivation potential being lost.</p>						<ul style="list-style-type: none"> Erosion control measures include use of sand bags, erosion berms and straw bales placed across overland stormwater flow to reduce runoff rate and sedimentation. Traffic and movement over stabilised areas shall be restricted and controlled, and damage to stabilised areas shall be repaired and maintained to the satisfaction of the ECO. Include periodical site inspection in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence any erosion on site or downstream – refer to the EMPr. 					
Waste management											
<p>Mixing of waste and uncontrolled disposal;</p> <p>Pollution and aesthetical impacts as a result of uncontrolled waste storage;</p> <p>Uncontrolled storage of waste leading to pollution;</p> <p>Impact on groundwater as a result of uncontrolled waste handling;</p> <p>Impact on surrounding environment as a result of sewage control and waste water generation; and</p> <p>Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal.</p>	2	3	3	3	<p>Negative High</p> <p>(-27)</p>	<ul style="list-style-type: none"> Portable sanitation facilities should be erected for construction personnel. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desired alternative to the surrounding vegetation). These facilities should also be monitored and serviced regularly so as to prevent contamination of the water resources. All solid waste generated during construction, other than natural materials such as soil and rock, shall be disposed of off-site to the landfill site. Separation and recycling of different waste materials is supported. Refuse collection and storage must be done in a way that will not cause a health nuisance. Construction personnel should be instructed not to dump any building materials on the untransformed vegetation around the site. All waste is to be disposed of at the local landfill site Waste Bins should be positioned around the site for use by construction personnel. These bins should be emptied and waste transported to the landfill site. Hazardous waste (Dead livestock) is not to be mixed or combined with general waste earmarked for disposal at the municipal landfill site. Under no circumstances is waste to be burnt or buried on site. <p>Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ul style="list-style-type: none"> The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative. Rubble or waste that could accompany the construction effort, if the development is approved, should be removed during and after construction. Measures should be taken to avoid any spills and infiltration of petroleum fuels or any chemical pollutants into the soil during construction phase. 	1	1	1	1	<p>Negative Low</p> <p>(-3)</p>
Fauna and Flora Impacts											

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I M P A C T S	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I M P A C T S	P R O B A B I L I T Y	
During the construction phase of the project there will be disturbance and destruction of habitats, faunal species and vegetation. Impacts on fauna species of conservation importance (including suitable habitat)	2	4	4	4	Negative Very High (-40)	<ul style="list-style-type: none">• Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind.• All AIS must be removed and should be replaced with indigenous vegetation.• No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site.• All informal fires on the property shall be prohibited specifically during the construction phase of the proposed development.• The applicant shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the construction sites as a result of their activities.• The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the construction activities must not be disturbed.• Reseed cleared areas to prevent soil erosion.• All construction areas must be demarcated prior construction to ensure that the footprint of impacts are limited organic materials are removed from the area to be cleared.• Fencing should not impact on indigenous plants.• All indigenous plant material removed from the cleared areas shall be stockpiled and mulching. All remaining vegetation shall be removed and disposed-off in a landfill site.• Rubble or waste that could accompany the construction effort, if the development is approved, should be removed during and after construction. Measures should be taken to avoid any spills and infiltration of petroleum fuels or any chemical pollutants into the soil during construction phase.• No domestic pets are permitted on site during construction.• Structures (e.g. gutters, drains, sumps, ditches) must be designed, as far as possible, so that they do not act as pitfall traps for small creatures, i.e. they should either have gently sloping edges or be adequately covered to prevent creatures from falling into them. <p>Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ul style="list-style-type: none">- The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.- Rubble or waste that could accompany the construction effort, if the development is approved, should be removed during and after construction. Measures should be taken to avoid any spills and infiltration of petroleum fuels or any chemical pollutants into the soil during construction phase.- If the development is approved, contractors must ensure that no animal species are disturbed, trapped, hunted or killed during the construction phase.	1	3	2	2	Negative Medium (-12)

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y	
						- Continued monitoring and eradication of alien invasive plant species are imperative. It is in particular declared alien invasive species such as Prosopis glandulosa (Mesquite), Melia azedarach (Syringa) and alien invasive Australian Acacia species (Australian wattles) that should not be allowed to establish.					
Noise Impacts											
During the construction phase there is likely to be an increase in noise pollution from construction vehicles and construction staff.	2	2	2	4	Negative Medium (-16)	<ul style="list-style-type: none"> All construction activities should be undertaken according to daylight working hours between the hours of 07:00 – 17:00 on weekdays and 7:30 – 13:00 on Saturdays. No construction activities may be undertaken on Sunday. Provide all equipment with standard silencers. Maintain silencer units in vehicles and equipment in good working order. All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. Construction staff working in area where the 8-hour ambient noise levels exceed 60 dBA must have the appropriate Personal Protective Equipment (PPE). All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). 	1	2	2	3	Negative Medium (-12)
Safety and security											
<p>Safety risk of contractors, due to increased construction activity;</p> <p>Health risks as a result of waste generation and storage; and</p> <p>Possible increase in criminal activity.</p>	2	2	2	2	Negative Medium (-12)	<ul style="list-style-type: none"> Clear sign boards should be erected at the entrance to the site to indicate that a construction area is being entered and safety precautions should be followed. Notification signs must be posted around the site warning residents and visitors about the hazards around the construction site. See waste management mitigations. The proponent of the development should appoint the services of a security company that will monitor the proposed development activity on a 24-hour 7-days per week basis. Any construction personnel found to be trespassing must be subjected to a disciplinary hearing. Kareelaagte Diamante (Pty) Ltd should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences; The construction area should be fenced off prior to the commencement of the construction phase. The movement of construction workers on the site should be confined to the fenced off area; Contractors appointed by Kareelaagte Diamante (Pty) Ltd should provide daily transport for low and semi-skilled workers to and from the site. This would reduce the potential risk of trespassing on the remainder of the farm and adjacent properties; Kareelaagte Diamante (Pty) Ltd should hold contractors liable for compensating farmers in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors and 	1	1	1	1	Negative Low (-3)

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y	
						neighbouring landowners. The agreement should also cover loses and costs associated with fires caused by construction workers or construction related activities (see below); <ul style="list-style-type: none"> The EMPr should outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested; Contractors appointed Kareelaagte Diamante (Pty) Ltd must ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms. Contractors appointed by Kareelaagte Diamante (Pty) Ltd must ensure that construction workers who are found guilty of trespassing, stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation; The housing of construction workers on the site should be strictly limited to security personnel (if any). 					
Air quality											
Impact on air quality as a result of the dust generation from cleared areas; Impact on air quality as a result of emissions from machinery and increased vehicle usage; Odour emissions	2	2	2	4	Medium High (-16)	<ul style="list-style-type: none"> The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h. Areas generating dust particles should be sprinkled with water to reduce dust blowing out over the area and should be enclosed where possible to mitigate effects of wind on them. The clearing of vegetation should be limited to the development area and should be undertaken prior to the commencement of construction activities. The Contractor shall be solely responsible for the control of dust arising from the Contractor's operations and for any costs against the applicant for damages resulting from the dust. The Contractor shall take all reasonable measures to minimise the generation of dust as a result of construction activities to the satisfaction of the ECO. This applies particularly to the dust which may affect owners and occupiers of the surrounding areas. Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present. See waste management mitigations. 	1	2	2	2	Negative low (-10)
Land Use and Land Capability Impacts											
Permanent loss of land use and land capability as a result of the clearance of land; and Sterilisation of land as a result of mining, soil pollution and erosion.	2	4	4	4	Negative Very High (-40)	<ul style="list-style-type: none"> See soil and vegetation mitigation measures. 	1	3	2	2	Negative Medium (-12)
Groundwater Impacts											

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y	
Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site; Impact on groundwater as a result of uncontrolled waste handling; and Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction vehicles on site.	2	3	3	3	Negative High (-24)	<ul style="list-style-type: none">Appropriate stormwater / surface water management measures must be put in place before construction commences and maintained throughout the lifetime of the development.An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the Construction Phase. These must be maintained in a satisfactory condition and a minimum of 100 m away from any water resources and outside of the 1:100-year floodline.Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines.Should any excavations require dewatering, this is to occur through an adequately designed silt trap prior to discharge. All silt traps are to be regularly monitored and maintained to ensure efficient and effective use.Line all potential contamination sources with an impermeable liner.Groundwater monitoring should be conducted quarterly.An annual compliance report should be compiled and submitted to the authorities for evaluation and comment. The monitoring network should be updated annually, and this report should be submitted annually. The site must develop a monitoring response protocol. This protocol will describe procedures if groundwater monitoring information indicates that action is required. <ul style="list-style-type: none">See soil and vegetation mitigation measures.	1	1	1	2	Negative Low (-4)
Surface Water Impacts											
Possible contamination of surface water resources as a result of contaminated runoff; Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal; Sedimentation of surface water resources as a result of runoff from cleared areas; Contamination of surface water resources as a result of uncontrolled waste handling and disposal; The development will increase storm water runoff resulting in erosion and possible sedimentation.	2	3	3	2	Negative High (-21)	<ul style="list-style-type: none">Appropriate stormwater / surface water management measures must be put in place before construction commences and maintained throughout the lifetime of the development.An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the Construction Phase. These must be maintained in a satisfactory condition and a minimum of 100 m away from any water resources and outside of the 1:100-year floodline.Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines.Should any excavations require dewatering, this is to occur through an adequately designed silt trap prior to discharge. All silt traps are to be regularly monitored and maintained to ensure efficient and effective use.Line all potential contamination sources with an impermeable liner.See soil and vegetation mitigation measures. Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:	1	1	1	2	Negative Low (-4)

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y	
						<p>- The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.</p> <p>- Rubble or waste that could accompany the construction effort, if the development is approved, should be removed during and after construction. Measures should be taken to avoid any spills and infiltration of petroleum fuels or any chemical pollutants into the soil during construction phase.</p> <p>- If the development is approved, contractors must ensure that no animal species are disturbed, trapped, hunted or killed during the construction phase.</p> <p>- Continued monitoring and eradication of alien invasive plant species are imperative. It is in particular declared alien invasive species such as Prosopis glandulosa (Mesquite), Melia azedarach (Syringa) and alien invasive Australian Acacia species (Australian wattles) that should not be allowed to establish.</p>					
Cultural and Heritage Impacts											
<p>According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.</p> <p>Destruction of cultural and heritage artefacts found underground; and</p> <p>Destruction of alternation of buildings older than 60 years.</p>	3	4	3	3	Negative High (-30)	<p>According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.</p> <ul style="list-style-type: none"> Should be clearly marked in order that they can be avoided during construction activities The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the ECO shall be notified as soon as possible. All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the ECO will advise the necessary actions to be taken. Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1). Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the ECO. 	1	4	1	1	Negative low (-6)

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I M P A C T S	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I M P A C T S	P R O B A B I L I T Y	
						<ul style="list-style-type: none"> In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures. 					
Climate Change											
Utilisation of non-renewable energy sources resulting in the increased project carbon footprint; and Change in land use to accommodate the development.	2	4	3	3	Negative High (-27)	<ul style="list-style-type: none"> See all mitigation measures. It is recommended that renewable energy options and/or alternative energy sources be listed as the preferred options. 	1	1	1	1	Negative Low (-3)
Visual Impacts											
Visual disturbance on adjacent land and road users as a result of the use of construction equipment, excavation and building material; Aesthetic impact as a result of litter dispersion and untidy housekeeping from contractors; and Visual impact as a result of the development (change of sense of place).	2	3	3	3	Negative High (-24)	<ul style="list-style-type: none"> See Air Quality to minimize dust. See Waste Management mitigations to limit untidy housekeeping. Introduce visual screening (e.g. plant trees and shrubs and earthen berms) if needed. 	1	3	1	1	Negative Low (-5)
OPERATIONAL PHASE											
Air Quality											
Impact on air quality as a result of increased mining activities; Impact on air quality as a result of emissions from machinery and increased vehicle usage; Odour emissions due to uncontrolled waste disposal; Impact on air quality as a result of exhaust emissions and dust generation.	2	2	2	4	Medium High (-16)	<ul style="list-style-type: none"> The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h. Areas generating dust particles should be sprinkled with water to reduce dust blowing out over the area and should be enclosed where possible to mitigate effects of wind on them. The clearing of vegetation should be limited to the development area and should be undertaken prior to the commencement of construction activities. Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present. See waste management mitigations. 	1	2	2	2	Negative Low (-10)
Climate Change											

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y	
Energy consumption. •Utilisation of non-renewable energy sources resulting in the increased project carbon footprint;	2	4	3	3	Negative High (-27)	<ul style="list-style-type: none">It is recommended that renewable energy options and/or alternative energy sources be listed as the preferred options.Quarterly water-monitoring tests should be conducted on the water quality.	1	1	1	1	Negative Low (-3)
Safety and security											
Health risks as a result of waste generation and storage; and Possible increase in criminal activity.	2	2	1	2	Negative Low (-6)	<ul style="list-style-type: none">See waste management mitigations.The proponent of the development should appoint the services of a security company that will monitor the proposed development activity on a 24-hour 7-days per week basis.	1	1	1	1	Negative Low (-3)
Traffic Impacts											
Increase in vehicular traffic.	2	3	2	3	Negative Medium (-16)	<ul style="list-style-type: none">The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation measures include:The contractor must ensure that damage caused by construction on the off gravel roads. The costs associated with the repair must be borne by the contractor;Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers;All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.Also refer to the EMPr. For mitigation measures related to traffic.However, notice of construction work should be placed with speed limit of 30 km/h	1	3	1	1	Negative Low (-5)
Solid Waste Management											
Approximately 15 Workers will be present on site from 7:00 – 17:00, Monday to Saturday. Sources of general waste will be waste food, packaging, paper, etc. General waste will be stored on the site and removed on a weekly basis by a contractor	2	2	2	2	Negative Medium (-12)	<ul style="list-style-type: none">Use an integrated waste management approach and ensure that all solid waste is disposed of / recycled legally. Encourage implementation of the waste hierarchy by reducing waste generated, re-using wherever possible, recycling recyclables, and disposing only as a final resort.Non-hazardous waste generated during operation, must be disposed-off site at the landfill site.No on-site dumping of any waste materials, vegetation, litter or refuse shall occur.Refuse collection and storage must be done in a way that will not cause a health nuisance.Bins should not be allowed to become overfull and shall be emptied at least once a week by the applicant.No hazardous chemical must be discarded in the sewage or storm water system.Proper storage of cleaning materials in a lockable, well ventilated building. <p>Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ul style="list-style-type: none">The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is	1	1	1	1	Negative low (-3)

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I M P A C T S	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I M P A C T S	P R O B A B I L I T Y	
						<p>advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.</p> <ul style="list-style-type: none"> - Rubble or waste that could accompany the construction effort, if the development is approved, should be removed during and after construction. Measures should be taken to avoid any spills and infiltration of petroleum fuels or any chemical pollutants into the soil during construction phase. 					
Soil Erosion and Surface runoff											
The largest risk factor for soil erosion will be during the operational phase when the mining activity ensues and soil is left bare until rehabilitation is initiated. Erosion will be localised within the site. This will ultimately lead to the irretrievable commitment of this resource. The measurable effect of reducing erosion by utilizing mitigation measures may reduce possible erosion significantly	2	3	3	4	Negative High (-27)	<ul style="list-style-type: none"> Implement stormwater management plan The storm water system, especially the discharge points, must be inspected and damaged areas must be repaired if required. Discharge points must be inspected for blockages of any kind; these must be removed timeously to ensure the efficient operation of the storm water management system. Storm water should be channelled to avoid ponding on-site. Any erosion channels developed during the operational period shall be backfilled and compacted and the areas restored to a proper condition. All disturbed areas that will require rehabilitation must be mulched to encourage vegetation re-growth. No unnecessary or un-permitted clearance of vegetation during the operational phase. 	1	3	2	2	Negative Medium (-12)
Fauna and Flora Impacts											
<p>During the operational phase of the project there will be disturbance and destruction of habitats, faunal species and vegetation.</p> <p>Impacts on fauna species of conservation importance (including suitable habitat)</p>	2	4	4	4	Negative very high (-40)	<ul style="list-style-type: none"> Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind. All AIS must be removed and should be replaced with indigenous vegetation. No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site. The applicant shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the mining sites as a result of their activities. Reseed cleared areas to prevent soil erosion. Fencing should not impact on indigenous plants. No unnecessary or un-permitted clearance of vegetation during the operational phase. 	1	3	2	2	Negative low (-12)

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y	
						<ul style="list-style-type: none"> All informal fires on the property shall be prohibited specifically during the construction phase of the proposed development. The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the mining activities must not be disturbed <p>Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ul style="list-style-type: none"> The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative. Rubble or waste that could accompany the construction effort, if the development is approved, should be removed during and after construction. Measures should be taken to avoid any spills and infiltration of petroleum fuels or any chemical pollutants into the soil during construction phase. If the development is approved, contractors must ensure that no animal species are disturbed, trapped, hunted or killed during the construction phase. Continued monitoring and eradication of alien invasive plant species are imperative. It is in particular declared alien invasive species such as Prosopis glandulosa (Mesquite), Melia azedarach (Syringa) and alien invasive Australian Acacia species (Australian wattles) that should not be allowed to establish. 					
Noise Impacts											
Mining activities will result in the generation of noise over a period of 3-5 years. Sources of noise are likely to include vehicles, the use of machinery such as backactors, crushers and screeners and people working on the site, as well as occasional blasting; but mining activities should be limited to normal working days and some Saturdays and hours (7:00 – 17:00).	2	2	2	4	Negative Medium (-16)	<ul style="list-style-type: none"> Loud noises are prohibited on Sunday. Internal road speed limits must be enforced with a speed limit of 30 km/h. All mining activities should be undertaken according to daylight working hours between the hours of 07:00 – 17:00 on weekdays and 7:30 – 13:00 on Saturdays. No mining activities may be undertaken on Sunday. Provide all equipment with standard silencers. Maintain silencer units in vehicles and equipment in good working order. All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. Mining staff working in area where the 8-hour ambient noise levels exceed 60 dBA must have the appropriate Personal Protective Equipment (PPE). All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). 	1	2	2	3	Negative Medium (-12)
Groundwater Impacts											

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	E X T R E M E	D U R A B L E	I N T E N S I T Y	P R O B A B I L I T Y			E X T R E M E	D U R A B L E	I N T E N S I T Y	P R O B A B I L I T Y	
<p>Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site;</p> <p>Impact on groundwater as a result of uncontrolled waste handling; and</p> <p>Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction vehicles on site.</p>	2	3	3	3	Negative High (-24)	<ul style="list-style-type: none"> Appropriate stormwater / surface water management measures must be put in place before mining commences and maintained throughout the lifetime of the development. An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the mining phase. These must be maintained in a satisfactory condition and a minimum of 100 m away from any water resources and outside of the 1:100-year flood line. Any contaminated water associated with mining activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines. Should any excavations require dewatering, this is to occur through an adequately designed silt trap prior to discharge. All silt traps are to be regularly monitored and maintained to ensure efficient and effective use. Line all potential contamination sources with an impermeable liner. Groundwater monitoring should be conducted quarterly. An annual compliance report should be compiled and submitted to the authorities for evaluation and comment. The monitoring network should be updated annually, and this report should be submitted annually. The site must develop a monitoring response protocol. This protocol will describe procedures if groundwater monitoring information indicates that action is required. 	1	1	1	2	Negative Low (-4)
Surface Water Impacts											
<p>Possible contamination of surface water resources as a result of contaminated runoff;</p> <p>Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal;</p> <p>Sedimentation of surface water resources as a result of runoff from cleared areas;</p> <p>Contamination of surface water resources as a result of uncontrolled waste handling and disposal;</p> <p>The development will increase storm water runoff resulting in erosion and possible sedimentation.</p>	2	3	3	3	Negative High (-24)	<ul style="list-style-type: none"> Appropriate stormwater / surface water management measures must be put in place before mining commences and maintained throughout the lifetime of the development. An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the mining phase. These must be maintained in a satisfactory condition and a minimum of 100 m away from any water resources and outside of the 1:100-year flood line. Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines. Should any excavations require dewatering, this is to occur through an adequately designed silt trap prior to discharge. All silt traps are to be regularly monitored and maintained to ensure efficient and effective use. Line all potential contamination sources with an impermeable liner. See soil and vegetation mitigation measures. <p>Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ul style="list-style-type: none"> The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is 	1	1	1	2	Negative Low (-4)

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I N T E N S I T Y	P R O B A B I L I T Y	
						<p>advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.</p> <ul style="list-style-type: none"> - Rubble or waste that could accompany the construction effort, if the development is approved, should be removed during and after construction. Measures should be taken to avoid any spills and infiltration of petroleum fuels or any chemical pollutants into the soil during construction phase. - If the development is approved, contractors must ensure that no animal species are disturbed, trapped, hunted or killed during the construction phase. - Continued monitoring and eradication of alien invasive plant species are imperative. It is in particular declared alien invasive species such as Prosopis glandulosa (Mesquite), Melia azedarach (Syringa) and alien invasive Australian Acacia species (Australian wattles) that should not be allowed to establish. 					
Cultural and Heritage Impacts											
<p>According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.</p> <p>Destruction of cultural and heritage artefacts found underground; and</p> <p>Destruction of alternation of buildings older than 60 years.</p>	3	4	3	3	Negative High (-30)	<ul style="list-style-type: none"> Should be clearly marked in order that they can be avoided during mining activities <p>According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.</p> <ul style="list-style-type: none"> The contractors and workers should be notified that archaeological sites might be exposed during the mining activities. Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the ECO shall be notified as soon as possible. All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the ECO will advise the necessary actions to be taken. Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or paleontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1). Known sites should be located and isolated, e.g. by fencing them off. All mining workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the ECO. In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures. 	1	4	1	1	Negative low (-6)

POTENTIAL ASPECT AND/OR IMPACT	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)
	E X T E N S I O N	D U R A T I O N	I M P A C T S	P R O B A B I L I T Y			E X T E N S I O N	D U R A T I O N	I M P A C T S	P R O B A B I L I T Y	
Visual Impacts											
Visual disturbance on adjacent land and road users as a result of the use of construction equipment, excavation and building material; Aesthetic impact as a result of litter dispersion and untidy housekeeping from contractors; and Visual impact as a result of the development (change of sense of place).	2	3	3	3	Negative High (-24)	<ul style="list-style-type: none">See Air Quality to minimize dust.See Waste Management mitigations to limit untidy housekeeping.Landscape the public open spaces and road verges with appropriate vegetation to soften the built form of the development.Introduce visual screening (e.g. plant trees and shrubs and earthen berms) if needed.Lighting must be kept to a minimum and restricted to low level, downward facing lights to reduce light spill.Lighting must be inward and downward pointing to reduce glare in surrounding areas.Security lighting should make use of down-lights to minimize light spill, and motion detectors where possible so that lighting at night is minimized.Mitigation of lighting impacts includes the pro-active design, planning and specification lighting for the facility by a lighting engineer.The area cleared during construction will be landscaped and vegetation establishment encouraged reducing landscape scarring.Rehabilitation of surrounding areas must take place with indigenous species.	1	3	1	1	Negative Low (-5)
DECOMMISSION											
Rehabilitation of the physical environment											
The physical environment will benefit from the closure of the mining area.	2	4	3	4	Negative High (-30)	<ul style="list-style-type: none">No mitigation measures required.Sloping of the edges.benches will be removed by creating sloped sides. For this reason, the topsoil and overburden will be backfilled to the opencast area and the area will be sloped as far as possible. Furthermore, as an opencast will be still left behind. The area will also be fenced to avoid any injuries to animals or humans.	2	4	3	2	Negative High (-24)
Loss of Employment											
Given the relatively large number of people employed during the operational phase, the decommissioning of the facility has the potential to have a negative social impact on the local community.	N A	N A	N A	N A		<ul style="list-style-type: none">The following mitigation measures are recommended:All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning;Kareelaagte Diamante (Pty) Ltd should establish an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas.	N A	N A	N A	N A	
						<ul style="list-style-type: none">					

- 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

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

- **Nature:** A brief written statement of the environmental aspect being impacted upon by a particular action or activity.
- **Extent:** The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;
- **Duration:** Indicates what the lifetime of the impact will be;
- **Intensity:** Describes whether an impact is destructive or benign
- **Probability:** Describes the likelihood of an impact actually occurring; and
- **Cumulative:** In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Impact Rating System

The impact assessment must take into account the nature, scale and duration of each identified impact on the environment, whether such impacts are positive or negative. Each of the identified impacts is also assessed according to each of the following project phases:

- Construction Phase
- Operational Phase
- Decommissioning Phase

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance should also be included. The rating system is applied to the potential impacts on the receiving environment and includes an objective evaluation of the mitigation of the impact. In assessing the significance of each impact the following criteria are used:

Table 13: Criteria of each significant impact

EXTENT			
National (4)	Regional (3)	Local (2)	Site (1)
The whole of South Africa	Provincial and parts of neighbouring provinces	Within a radius of 2 km of the construction site	Within the construction site
DURATION			
Permanent (4)	Long-term (3)	Medium-term (2)	Short-term (1)
Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	The impact will last for the period of the construction phase, where after it will be entirely negated	The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
INTENSITY			
Very High (4)	High (3)	Moderate (2)	Low (1)
Natural, cultural and social functions and processes are altered to extent that they permanently cease	Natural, cultural and social functions and processes are altered to extent that they temporarily cease	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected
PROBABILTY OF OCCURANCE			
Definite (4)	Highly Probable (3)	Possible (2)	Improbable (1)
Impact will certainly occur	Most likely that the impact will occur	The impact may occur	Likelihood of the impact materializing is very low

Table 14: Criteria for Rating of Classified Impacts

CRITERIA FOR THE RATING OF CLASSIFIED IMPACTS	
Low impact (3 -10 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact (11 -20 points)	Mitigation is possible with additional design and construction inputs.
High impact (21 -30 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high impact (31 - 48 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a “very high impact” is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.
It is important to note that the status of an impact is assigned based on the status quo – i.e. should the project not proceed. Therefore, not all negative impacts are equally significant.	
Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.	
The calculation of the significance of an impact uses the following formula: (Extent + duration + probability) x magnitude/intensity.	

- 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 main impacts associated with the proposed project include:

Socio – Economic Impacts

- The construction phase will result in additional temporary job opportunities;
- The proposed project will increase the local Gross Domestic Product (GDP) through the provision of employment and support to other businesses in the area;

- Auxiliary services required for the construction will be sourced from local businesses;
- Possible inflow of migrant workers;
- Nuisance to surrounding landowners as a result of noise, dust and emissions.

Soil Impacts

- Collapsible Soil
- A low to moderate soil compressibility is anticipated, probably secondary to the collapse potential.
- Considering the slope angle, parental rock, depositional environment and grading of the upper soils inspected on site, an intermediate to high erodibility is assigned to the site.
- Loss of soil resources as a result of soil stripping of the construction/mining footprint;
- Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination;
- Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources;
- Soil contamination as a result of uncontrolled sewage handling;
- Indirect impact on the loss of micro habitats following soil removal.
- Erosion due to floods;

Surface Water Impacts

- Possible contamination of surface water resources as a result of contaminated runoff;
- Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal;
- Sedimentation of surface water resources as a result of runoff from cleared areas;
- Inadequately designed greywater and wash water disposal systems could result in overflow (due to increase in wastewater volume) and the subsequent contamination of surface water;
- Contamination of surface water resources as a result of uncontrolled waste handling and disposal;
- The development will increase storm water runoff resulting in erosion and possible sedimentation.

Groundwater Impacts

- Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site;
- Impact on groundwater as a result of uncontrolled waste handling;
- Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction/mining vehicles on site;

It is advised that a Geohydrological Assessment should be conducted before any water uses are commenced with.

Air Quality Impacts

- Impact on air quality as a result of the dust generation from cleared areas and mining;
- Impact on air quality as a result of emissions from machinery and increased vehicle usage;
- Odour emissions; and
- Impact on air quality as a result of exhaust emissions and dust generation.

Noise Impacts

- Noise emissions as a result of machinery movement around the site; and
- Noise from increased traffic.

Land Use and Land Capability Impacts

- Permanent loss of land use and land capability as a result of the clearance of land;
- Sterilisation of land as a result of soil pollution and erosion.

Waste Impacts

- Mixing of waste and uncontrolled disposal;
- Pollution and aesthetical impacts as a result of uncontrolled waste storage;
- Uncontrolled storage of waste leading to pollution;
- Impact on groundwater as a result of uncontrolled waste handling;
- Impact on surrounding environment as a result of sewage control and waste water generation;
- Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal.

Cultural and Heritage Impacts

- Destruction of cultural and heritage artefacts found underground; and
- Destruction of alternation of buildings older than 60 years.

According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.

Visual Impacts

- Visual disturbance on adjacent land and road users as a result of the use of construction and mining equipment, excavation and building material;
- Aesthetic impact as a result of litter dispersion and untidy housekeeping from contractors; and
- Visual impact as a result of the development (change of sense of place).

Fauna and Flora Impacts

- Loss of habitat owing to the removal of vegetation at the proposed development;
- Loss of sensitive species (Threatened, Near-Threatened, Rare, Declining or Protected species) during the construction and mining phase;
- Loss of connectivity and conservation corridor networks in the landscape;
- Killing of vertebrate fauna during the construction and mining phase;
- An increased infestation of exotic or AIS owing to disturbance;
- Disturbance of faunal species, including those of adjacent landowners, as a result of noise generation;
- Potential to indirectly increase the risk of the spread of AIS vegetation;

- Potential impact on surrounding fauna and flora as a result of incorrect waste storage and handling; and
- Potential impact on surrounding biodiversity as a result of contaminated runoff;

Safety, Security and Health

- Increased economic activity may lead to the increase in crime;
- Safety risk of contractors, due to increased construction and mining activity;
- Health risks as a result of waste generation and storage;
- Possible increase in criminal activity.

Traffic

- Increase in traffic.

Climate Change

- Utilisation of non-renewable energy sources resulting in the increased project carbon footprint;
- Change in land use to accommodate the development.

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

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

Due to the scale of the project, significant environmental and social impacts associated with the proposed activity have been identified through the BAR process. Mitigation measures as set out in the Environmental Management Programme (EMPr) attached in Part B must be implemented in order to minimise any potential impacts.

ix) The outcome of the site selection matrix.

Matrix analysis

The analysis describes the relevant identified listed activities, the various aspects of the proposed development that apply to each of the listed activities, description of the identified environmental issues, description of the identified potential impacts, the significance and magnitude of the identified potential impacts, and the mitigation of each identified potential impact. The matrix analysis further brings attention to the areas of particular concern, which requires a more in-depth assessment. Each of the cells is evaluated individually in terms of the: nature of the impact, the duration of the impact and the significance of each impact – should no mitigation measures be implemented. This however is very important, since many of the identified impacts would not be able to be considered insignificant if proper mitigation measures were not to be implemented. The matrix also provides a sample indication of applicable mitigation measures.

The different impacts of the matrix specify the following:

The Stressor:	Indicates the aspect of the proposed activity, which initiates and cause impacts on elements of the environment.
The Receptor:	Identifies the recipient and the most important components of the environment that will be affected by the stressor.

The Impacts:	Gives an indication of the net result of the cause-effect between the beforementioned stressor and receptor.
The Mitigation:	Each of the identified impacts need to be mitigated to minimise the effect on the environment.

- x) If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such

The proposed site is being preferred due to its possibility of having Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) resources.

- i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site
(In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

A description of all environmental issues and risks that are identified during the environmental impact assessment process

The process for the identification of key issues

The methodology for the identification of key issues aims, as far as possible, to provide a user-friendly analysis of information to allow for easy interpretation.

Table 15: Process for the Identification of Key Issues

Process for the identification of key issues	
Checklist analysis:	The checklist contains a list of properly structured questions relating to the environmental parameters and specific human actions. These questions promote ordering thinking, data collection, presentation and alert against the omission of possible impacts.
Matrix analysis:	The matrix analysis method provides a complete indication of the interaction and relationship between the various proposed activities, development phases (construction, operational and decommissioning) and the impact thereof on the applicable environment. This method aims at providing a first-order cause and effect relationship between the environment and the proposed activity. The matrix is used to indicate the relationship between the various identified stressors and receptors which leads to specific impacts. The other purpose of the matrix is to indicate the various specialist studies that will accompany the Environmental Impact Report to address the potentially most significant impacts.

Checklist analysis

The site visit was conducted on 11/12/2020 (**Appendix 8**) to ensure that a proper analysis of the site-specific characteristics of the proposed application area takes place. The table below provides a proper checklist that was designed to stimulate thought regarding possible consequences of specific actions and so assist in scoping the key issues applicable to the proposed project. The checklist contains numerous structured questions relating to the environmental parameters and specific human actions. These questions promote ordering thinking, data collection, presentation and alert against the omission of possible impacts. The table highlights certain issues, which are further analysed in matrix format.

Table 16: Environmental Checklist

QUESTION	YES	NO	UN-SURE	DESCRIPTION
1. Are any of the below located on the proposed site?				
a. Any waterbodies: river, stream, dam or wetland?	X			One dam and a tributary. The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following: The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.
b. Any areas of conservation importance or any other open space areas?			X	Some parts of the application area fall within the CBA 1 areas. An Ecological Assessment will be conducted. Furthermore, the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following: - The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.

c. An area that is of heritage and/or cultural importance?			×	According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.
d. Any sites of geological significance?		×		None
e. Any areas that are of outstanding natural beauty?		×		None
f. Any signs of highly productive agricultural land?			×	The proposed development falls within Land in Class III (3) - Arable land moderate to severe limitations. Suitable for grazing with moderate potential for crop production.
g. Any floodplains?		×		None
h. Any indigenous forest of importance?	×			Not quite indigenous, but undisturbed natural vegetation does occur.
i. Any indigenous grassland?	×			The proposed mining area is found within vegetation unit Gh 14, which is known as the Western Highveld Sandy Grassland. The Western Highveld Sandy Grassland is part of the Dry Highveld Grassland, which is a sub-bioregion of the Grassland Biome.
j. Any important bird nesting sites?	×			No recorded bird nesting sites, but general bird sites are expected due to trees and rivers being present. An Ecological Assessment will be conducted.
k. Any occurrence of red data species?		×		None
l. Any tourist resort?		×		None.
2. Will the proposed development potentially result in?				
a. The removal of people?		×		None.
b. Any type of visual impact?	×			Yes, but not significantly.
c. Any kind of noise pollution?	×			Yes, due to the mining activities and movement of mining vehicles.
d. The construction of any type of access road?	×			Yes. Only a gravel road will be constructed.
e. Any risk to human or valuable ecosystems due to explosion/fire/discharge of waste into water or air?		×		None, if the mitigation measures are properly implemented.
f. The accumulation of a large workforce (>50 manual workers) into the site?		×		Approximately 20 Skilled & Unskilled people employment opportunities will be created during the construction and operational phase of the project.
g. The utilisation of high volumes of local raw materials such as water, wood etc.?	×			The application area will use 2 x 16 feet washing pans, the amount of water for the pans will be 34 000 L/hour from which 30% is re-used

h. In Job creation?	×			Approximately 20 Skilled & Unskilled people employment opportunities will be created during the construction and operational phase of the project.
i. High volume traffic generation?		×		None, the impact is expected to be low due to the project being small scale and basic.
j. Any type of soil erosion?	×			Yes. Erosion control measures will be required, especially when vegetation is removed and the soil is exposed.
k. The Installation of additional bulk telecommunication transmission lines or other relevant types of facilities?		×		None
l. Any type of air pollution?	×			Limited dust will be generated during the construction and operational phase. Also, emissions from vehicles.
3. Is the proposed development located near any of the below?				
a. Any waterbodies: river, stream, dam or wetland?	×			Tributaries are found around the site.
b. Any conservation or open space areas?		×		None.
c. Any area that is of heritage and/or cultural importance?		×		According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 10), no sites, features or objects of cultural significance were identified
d. Any sites that are of geological significance?		×		None
e. Any areas that are of outstanding natural beauty?		×		None.
f. Any highly productive agricultural land?		×		The surrounding areas fall within Land Class III (3) - Arable land moderate to severe limitations. Suitable for grazing with moderate potential for crop production).
g. Any tourist resort?		×		None.
h. Any formal or informal settlement?		×		None. Only farmhouses are found on-site and in the vicinity.

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

Cumulative impacts

Cumulative impacts are those impacts which when assessed in isolation may produce impacts that are environmentally acceptable but which when combined with other impacts, may become significant. The potential cumulative impacts that have been identified for the proposed development are as follows;

- Waste Management
 - Increase in Waste Generation. This was considered when determining the impact of the development. The impact was assessed as 'low' with the implementation of the mitigation measures during the construction phase with a short-term duration of the impact. However, during the operational phase the impact was rated as low due to its cumulative effect. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.
- Noise Management
 - Increase in noise pollution from construction vehicles and construction staff. This was considered when determining the impact of the development. The impact was still assessed as a 'low' with the implementation of the mitigation measures during the construction phase with a short-term duration of the impact. During the operational phase the impact was rated as low due to its cumulative effect. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.
- Air Quality
 - Emissions from vehicles and machinery can alter air quality. This was considered when determining the impact of the development. The impact was still assessed as 'low' with the implementation of the mitigation measures during the construction phase with a short-term duration of the impact. During the operational phase the impact was rated as low. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.
- Surface Water Impacts
 - Emissions from vehicles and machinery can alter air quality. This was considered when determining the impact of the development. The impact was still assessed as 'low' with the implementation of the mitigation measures during the construction phase with a short-term duration of the impact. During the operational phase the impact was rated as low. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.
- Soil and land capability
 - Loss of topsoil and land capability. The loss of land capability can be seen to be cumulative. The potential impact of the proposed mining on the vegetation would occur at the proposed site and the access routes used to get to these sites. The potential to impact is identified to be low, if mitigation measures are implemented. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.
- Loss of biodiversity
 - Impacts to biodiversity can be seen to be cumulative. The removal of vegetation and minimised animal life can occur and may potentially affect the surrounding biodiversity. The potential impact will potentially cease once the mining activities have been completed and the disturbed areas are successfully revegetated. These impacts have been rated as

having a low-medium significance, after mitigation have been implemented. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

- Water Quality and Quantity

– The consumption of groundwater and the pollution thereof can be seen as a cumulative impact as they impact the existing and future use of resources. The significance of the potential impact on the water quality and quantity is low after the implementation of the recommended mitigation measures. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

It is advised that a Geohydrological Assessment should be undertaken and a WULA should be applied for before mining is commences.

- Visual impact

The mining machinery and other visually prominent items on the site and loss of vegetation can have a cumulative impact and cause visual intrusion. By implementing mitigation measures the impact is identified as low. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

- Traffic Impact

- In terms of traffic disruption, increase in traffic volumes in the vicinity of the mining site can occur. Cumulative impacts have therefore been catered for by ensuring that construction vehicles make trips on/off site only when necessary, as well as other mitigation measures, these impacts can be mitigated to low levels of significance. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

A management plan will have to be enforced through the EMPr to ensure the proper mitigation of impacts.

Table 17: Summary of Cumulative impacts

ASPECTS OF THE DEVELOPMENT /ACTIVITY	IDENTIFIED POTENTIAL IMPACTS			SIGNIFICANCE AND MAGNITUDE OF POTENTIAL IMPACTS			MITIGATION OF POTENTIAL IMPACTS	SPECIALIST STUDIES / INFORMATION
	Receptors	Impact description		Minor	Major	Durati on	Possible Mitigation	
CONSTRUCTION PHASE								
<ul style="list-style-type: none">Removal of vegetationClearing of areas for infrastructureHardening of surface areasManagement of storm waterSite office, laydown and storage areasOperation of equipment and machineryVehicle activityDomestic and industrial wasteStorage of chemicals, mixes and fuelSpills and leaks	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	<ul style="list-style-type: none">Loss or fragmentation of habitat for faunal and floral speciesLoss of indigenous faunal and floral species diversity.Loss of faunal and floral species of conservation significanceDegradation and/or destruction of natural pans.			L	Yes	<p>The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ul style="list-style-type: none">The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.

		Air quality	<ul style="list-style-type: none"> Impact on air quality as a result of the dust generation from cleared areas; Impact on air quality as a result of emissions from machinery and increased vehicle usage; Odour emissions 		-	M	Yes	-
		Soil	<ul style="list-style-type: none"> Considering the slope angle, parental rock, depositional environment and grading of the upper soils inspected on site, an intermediate to high erodibility is assigned to the site; Loss of soil resources as a result of soil stripping of the construction footprint; Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination; Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources; Soil contamination as a result of uncontrolled sewage handling; Indirect impact on the loss of micro habitats following soil removal; and Erosion due to floods. This will result in grazing and cultivation potential being lost. 		-	L	Yes	-
		Geology	<ul style="list-style-type: none"> Hard/compact geology. Steep slopes or areas of unstable natural slopes. Areas subject to seismic activity. Areas subject to flooding. 		-	L	Yes	-
		Existing services infrastructure	<ul style="list-style-type: none"> Mixing of waste and uncontrolled disposal; Pollution and aesthetical impacts as a result of uncontrolled waste storage; Uncontrolled storage of waste leading to pollution; Impact on groundwater as a result of uncontrolled waste handling; Impact on surrounding environment as a result of sewage control and waste water generation; and Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal. Generation of waste that need to be accommodated at a licensed landfill site. Generation of sewage that need to be accommodated by the local sewage plant. Increase in construction vehicles on existing roads. 		-	S	Yes	-
		Ground water	<ul style="list-style-type: none"> Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site; Impact on groundwater as a result of uncontrolled waste handling; and Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage 		-	M	Yes	It is advised that a Geohydrological Assessment should be conducted before any water uses are commenced with.

			of heavy machinery and construction vehicles on site.					
		Surface water	<ul style="list-style-type: none">Increase in storm water run-off.Pollution of water sources due to soil erosion.Destruction of watercourses (pans/dams/streams).		-	M	Yes	-
	SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	<ul style="list-style-type: none">Job creation.Skills development.		+	S	N/A	-
		Visual landscape	<ul style="list-style-type: none">Visual disturbance on adjacent land and road users as a result of the use of construction equipment, excavation and building material;Aesthetic impact as a result of litter dispersion and untidy housekeeping from contractors; andVisual impact as a result of the development (change of sense of place).		-	S	Yes	-
		Traffic volumes	<ul style="list-style-type: none">The movement of heavy vehicles during the clearance of vegetation and topsoil has the potential to damage local farm roads and create dust and safety impacts for other road users in the area.Traffic on the road is generally low, thus the impact would not be significant.	-		M	Yes	-
		Health & Safety	<ul style="list-style-type: none">Air/dust pollution.Road safety.Health risks as a result of waste generation and storage; andPossible increase in criminal activity.		-	S	Yes	-
		Noise levels	<ul style="list-style-type: none">During the construction phase there is likely to be an increase in noise pollution from construction vehicles and construction staff.	-		M	Yes	-
			Tourism industry	<ul style="list-style-type: none">Noise.Dust.	-		S	Yes
	Heritage resources		<ul style="list-style-type: none">Destruction of cultural and heritage artefacts found underground; andDestruction of alternation of buildings older than 60 years.	-	N/A	N/A	N/A	According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.
OPERATIONAL PHASE								
<ul style="list-style-type: none">Removal of vegetationClearing of areas for miningHardening of surface areasManagement of storm water	BIOPHY SICAL ENVIRO NMENT	Fauna & Flora	<ul style="list-style-type: none">During the operational phase of the project there will be disturbance and destruction of habitats, faunal species and vegetation.		-	L	Yes	The Ecological Fauna and Flora Habitat Survey (2021) (Appendix

<ul style="list-style-type: none"> • Operation of equipment and machinery • Vehicle activity • Domestic and industrial waste • Storage of chemicals, mixes and fuel • Spills and leaks • Mining 			<ul style="list-style-type: none"> • Impacts on fauna species of conservation importance (including suitable habitat) 					<p>9) states the following:</p> <ul style="list-style-type: none"> - The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.
	Air quality		<ul style="list-style-type: none"> • Impact on air quality as a result of the dust generation from cleared areas; • Impact on air quality as a result of emissions from machinery and increased vehicle usage; • Odour emissions 		-	M	Yes	-
	Soil		<ul style="list-style-type: none"> • Considering the slope angle, parental rock, depositional environment and grading of the upper soils inspected on site, an intermediate to high erodibility is assigned to the site; • Loss of soil resources as a result of soil stripping of the mining footprint; • Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination; • Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources; 		-	L	Yes	-

			<ul style="list-style-type: none"> • Soil contamination as a result of uncontrolled sewage handing; • Indirect impact on the loss of micro habitats following soil removal; and • Erosion due to floods. • This will result in grazing and cultivation potential being lost. 					
		Geology	<ul style="list-style-type: none"> • Hard/compact geology. • Steep slopes or areas of unstable natural slopes. • Areas subject to seismic activity. • Areas subject to flooding. 		-	L	Yes	-
		Existing services infrastructure	<ul style="list-style-type: none"> • Mixing of waste and uncontrolled disposal; • Pollution and aesthetical impacts as a result of uncontrolled waste storage; • Uncontrolled storage of waste leading to pollution; • Impact on groundwater as a result of uncontrolled waste handling; • Impact on surrounding environment as a result of sewage control and waste water generation; and • Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal. • Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the local sewage plant. • Increase in construction vehicles on existing roads. 		-	S	Yes	-
		Ground water	<ul style="list-style-type: none"> • Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site; • Impact on groundwater as a result of uncontrolled waste handling; and • Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction vehicles on site. 		-	M	Yes	It is advised that a Geohydrological Assessment should be conducted before any water uses are commenced with.
		Surface water	<ul style="list-style-type: none"> • Possible contamination of surface water resources as a result of contaminated runoff; • Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal; • Sedimentation of surface water resources as a result of runoff from cleared areas; • Contamination of surface water resources as a result of uncontrolled waste handling and disposal; • The development will increase storm water runoff resulting in erosion and possible sedimentation. 		-	M	Yes	-
	SOCI AL/E CON OMI C ENVI RON	Local unemployment rate	<ul style="list-style-type: none"> • Job creation. • Skills development. 		+	L	N/A	-

		Visual landscape	<ul style="list-style-type: none"> Visual disturbance on adjacent land and road users as a result of the use of mining equipment, excavation and building material; Aesthetic impact as a result of litter dispersion and untidy housekeeping from contractors; and Visual impact as a result of the development (change of sense of place). 		-	S	Yes	-
		Traffic volumes	<ul style="list-style-type: none"> The movement of heavy vehicles during the clearance of vegetation and topsoil has the potential to damage local farm roads and create dust and safety impacts for other road users in the area. Increase in vehicular traffic 	-		M	Yes	-
		Health & Safety	<ul style="list-style-type: none"> Air/dust pollution. Road safety. Risks due to mining. Health risks as a result of waste generation and storage; and Possible increase in criminal activity. 		-	M	Yes	-
		Noise levels	<ul style="list-style-type: none"> During the construction phase there is likely to be an increase in noise pollution from mining vehicles and construction staff. 	-		M	Yes	-
		Tourism industry	<ul style="list-style-type: none"> Noise. Dust. Change in land-use/sense of place. 	-		S	Yes	-
		Heritage resources	<ul style="list-style-type: none"> Destruction of cultural and heritage artefacts found underground; and Destruction of alternation of buildings older than 60 years. 	-	N/A	N/A	N/A	According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.

(N/A) No impact (+) Positive Impact (-) Negative Impact (S) Short Term (M) Medium Term (L) Long Term

k) Summary of specialist reports.

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

No specialist studies were conducted.

Table 18: Summary of the key findings of the Environmental Impact Assessment

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Ecological Assessment	<p>According to the Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) the following findings were made:</p> <ul style="list-style-type: none"> The vegetation type Western Highveld Sandy Grassland (Gh 14), is listed as Critically Endangered according to the National List of Threatened Ecosystems (2011). However, at the site vegetation has been modified and exists mainly as cultivated areas or as isolated patches of disturbed grassland. There is little scope for successful restoration and conservation of the small partly isolated patch of the particular vegetation type at the site. Vegetation at the site is a mosaic of extensive cultivated areas as well as grassland patches with indigenous plant species. Strips of alien invasive trees are found at the site. Bush encroachment of indigenous shrubs and trees, <i>Asparagus laricinus</i> and <i>Vachellia karroo</i> occur at some parts of the site. <i>Vachellia karroo</i> and <i>Searsia lancea</i> are conspicuous indigenous trees at the grassland at the site. Alien invasive or exotic tree species at the site include <i>Gleditsia triacanthos</i>, <i>Melia azedarach</i>, <i>Eucalyptus camaldulensis</i> and 		

	<p><i>Schinus molle</i>. Indigenous grass species include <i>Aristida congesta</i>, <i>Cynodon dactylon</i>, <i>Heteropogon contortus</i>, <i>Eragrostis lehmanianna</i>, <i>Eragrostis superba</i>, <i>Chloris virgata</i> and <i>Pogonarthria squarrosa</i>. The herbaceous shrub <i>Gomphocarpus fruticosus</i> occurs at many places, often hitherto disturbed areas, at the site. Dwarf shrub species at the site include <i>Pentzia globosa</i> and <i>Felicia muricata</i>. Indigenous forb species include <i>Gazania krebsiana</i>, <i>Bulbine narcissifolia</i>, <i>Berkheya onopordifolia</i>, <i>Geigeria ornativa</i> and <i>Senecio consanguineus</i>.</p> <ul style="list-style-type: none"> • A number of alien invasive weed species are present at previously cleared and hitherto cultivated areas. These alien invasive weeds include <i>Gomphrena celosioides</i>, <i>Argemone ochroleuca</i>, <i>Schkuhria pinnata</i>, <i>Tagetes minuta</i>, <i>Conyza bonariensis</i>, <i>Datura ferox</i>, <i>Datura stramonium</i>, <i>Xanthium spinosum</i>, <i>Bidens pilosa</i>, <i>Verbena bonariensis</i>, <i>Verbena aristigera</i> and <i>Alternanthera pungens</i>. • Riparian vegetation at the in-channel dam consists mainly of grasses and sedges and at the groundwalls, <i>Vachellia karroo</i> and <i>Asparagus laricinus</i>. Indigenous wetland grass species at the riparian zone include <i>Echinochloa holubii</i> and <i>Leptochloa fusca</i>. Sedge species such as <i>Eleocharis limosa</i>, <i>Schoenoplectus muriculatus</i> and <i>Cyperus denudatus</i> are present at the inlet and fringes of the dam. Alien invasive plant species such as <i>Oxalis corniculata</i>, <i>Rumex crispus</i> and <i>Cirsium vulgare</i> occur at the riparian zone. • Rocky ridges are absent at the site. • A non-perennial river is present at the northeastern part of the site and has been modified into an in-channel dam. • Site is part of the Lower Vaal Water Management Area (WMA 10). The site is not part of a Freshwater Ecosystem Priority Area (FEPA) or wetland cluster (Nel <i>et al.</i>, 2011a, 2011b). The site is part of an Upstream Water Management Area which in means that the quality of water that is discharged in the system in particular should be of high standard. • No Threatened or Near Threatened plant or animal species appear to be resident at the site. No other plant or animal species of particular conservation concern appear to be present at the site. • There is little scope for most of the site to be part of a corridor of particular conservation importance, excluding the in-channel dam and non-perennial river at the northeastern part of the site. The non-perennial river which has been modified and functions as an in-channel dam, with 		
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	<p>its riparian zone and buffer zone, is a corridor of particular conservation concern in the larger area.</p> <ul style="list-style-type: none"> • Ecological sensitivity at the site low (at cultivated and hitherto cultivated fields) and medium (disturbed grassland) at the terrestrial areas and medium-high at the watercourse at the site. The non-perennial river (watercourse) at the site has been modified to an in-channel dam in the past and functions as such at present. The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area (Figure 4). • A key issue at the site if the development is approved, is to apply a rehabilitation programme. • Following the mitigations and rehabilitation process which will be upheld and planned footprint for development all the impact risks listed above are <u>moderate</u> or <u>low</u>. • Continued monitoring and eradication of alien invasive plant species are imperative. It is in particular declared alien invasive species such as <i>Prosopis glandulosa</i> (Mesquite), <i>Melia azedarach</i> (Syringa) and alien invasive Australian <i>Acacia</i> species (Australian wattles) that should not be allowed to establish. 		
Heritage Assessment	<p>According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified.</p> <p>“Legal requirements The legal requirements related to heritage specifically are specified in Section 3 of the Heritage Report.</p> <ul style="list-style-type: none"> • For this proposed project, the assessment has determined that no sites, features or objects of cultural heritage significance occur in the project area, therefore no permits are required from SAHRA or the PHRA. • If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits. <p>Reasoned opinion as to whether the proposed activity should be authorised:</p>		

	<ul style="list-style-type: none"> • From a heritage point of view, it is recommended that the Proposed Project be allowed to continue on acceptance of the mitigation measures presented above and the conditions proposed below. <p>Conditions for inclusion in the environmental authorisation:</p> <ul style="list-style-type: none"> • The Palaeontological Sensitivity Map (http://www.sahra.org.za/sahris/map/palaeo) indicate that project area has a low sensitivity of fossil remains to be found and therefore a palaeontological assessment is not required. However, a protocol for finds is required. • Should archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. The appropriate steps to take are indicated in Section 9 of the report, as well as in the Management Plan: Burial Grounds and Graves, with reference to general heritage sites, in the Addendum, Section 12.4 of the Heritage Report”. 		
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l) Environmental impact statement

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

This section summarises the assessment and conclusions drawn from the proposed small scale mining area. This section draws on the gathered information as part of the EIA process and the knowledge gained by the EAP during the course of the EIA process and presents an informed opinion on the environmental impacts associated with the proposed project. The following conclusions can be drawn for the proposed mining activity:

- **Potential impacts on biodiversity:**
According to the CBA Map, the proposed farm portion fall majorly within CBA1. The following main significant impacts were identified: Habitat loss, loss of indigenous species, Loss of sensitive species (Note no Threatened species). Fragmentation of landscape and loss of connectivity.
- **Potential impacts on land use:**
From agricultural (currently utilised for livestock grazing (natural)) to mining. Change of sense-of place
- **Positive impacts:**
The proposed development will have a socio-economic benefit to the area, through providing job opportunities to the local community of Ottosdal.
- **Potential impacts on land use:**
The farm is currently utilised for livestock grazing (natural) and crop cultivation by the landowner and the activity will have an impact on the land use.
- **Potential negative impacts:**
Impact such as noise, dust, soil degradation, storm water, traffic, health and safety have been Identified. The proposed development is expected to be of low-high impact, of medium terms and site specific. These identified impacts can be mitigated or negated through the strict implementation of mitigation measures, as provided for under Part B of this document.

Not all the possible negative impacts and risks, like vegetation clearance, that have been identified in this BA Report can be mitigated and managed by implementing the migratory measures as set out in the EMPr attached in Part B.

ii) Map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers

Refer to Locality Map attached in **Appendix 2**.

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

- Noise levels will increase
- Loss of fauna and flora through vegetation clearance
- Soil pollution through spillages and erosion.
- Potential surface and groundwater impacts through surface run-off and spillages.
- Increase in traffic.
- Dust levels will increase due to mining activities and the increase in the movement of vehicles.
- Increase in water consumption and possible depletion of groundwater resources.
- Visual impact due to the increase of dust.

Not all the possible negative impacts and risks, like vegetation clearance, that have been identified in this BA Report can be mitigated and managed by implementing the migratory measures as set out in the EMPr attached in Part B.

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

Management objectives and outcomes include:

- Kareelaagte Diamante (Pty) Ltd shall ensure that the proposed mining activity does not cause any type of pollution which can harm the environment or community.
- Kareelaagte Diamante (Pty) Ltd shall minimise waste production caused by its workers and the proposed activities.
- Kareelaagte Diamante (Pty) Ltd shall ensure that all the mining activities are conducted in such a manner that aims to reduce the following impacts: noise impact, litter, environmental degradation and health hazards i.e. injuries.
- Kareelaagte Diamante (Pty) Ltd shall ensure that the mine is kept neat and tidy during the waste handling activities in order to prevent type unsightliness and accidents.

Expected outcomes include:

- That the impacts, as a result of the mining activities, are low.
- Ensure compliance with the applicable legislative requirements.
- That the mine is neat and tidy and well managed.

n) Final Proposed Alternatives

No alternatives exist. The proposed area is preferred due to its possibility of having Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) resources

o) Description of any assumptions, uncertainties and gaps in knowledge (Which relate to the assessment and mitigation measures proposed)

All the data and information supplied by the applicant, Kareelaagte Diamante (Pty) Ltd, to Kuhle Environmental Consult (Pty) Ltd are assumed to be accurate and reflective of the current condition of the affected area. It is assumed that the baseline information scrutinised and used to explain the environmental profile is accurate. The uncertainties and gaps in results and knowledge are mostly due to the availability of information, time to gather the relevant information as well as the sometimes-subjective nature of the assessment methodology.

The applicant will comply with all legislation pertaining to the activities of the mine establishment and that all permits and licenses that may be required will be identified and applied for prior to commencement of construction activities.

The Stakeholder Engagement Process is deemed sufficiently effective in identifying the critical issues needing to be addressed in the BAR/EMPr by the EAP. The Stakeholder Engagement Process has sought to involve key stakeholders and individual landowners. Wherever possible the information requested and comments raised by Interested and Affected Parties (I&APs) has been sufficiently addressed and incorporated into the BAR for perusal and comment. A monitoring and evaluation system, including auditing, will be established and operationalized to track the implementation of the EMPr (**Part B**) ensuring that management measures are effective to avoid, minimize and mitigate impacts and that corrective action is being undertaken to address shortcomings and/or non-conformances.

Kareelaagte Diamante (Pty) Ltd will adopted a process of continual improvement when managing and mitigating negative environmental impacts arising from the project. The EMPr (**Part B**) will be used as the basis of environmental management and will regularly be improved and refined where applicable.

In terms of addressing the key issues identified, the EAP is satisfied that there is sufficient information for the competent authority to conduct the significance rating and to make an informed decision. If the authority feels that specialists' studies need to be conducted, such will be corresponded to Kareelaagte Diamante (Pty) Ltd.

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

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

Due to the small scale nature of this mine and the information contained in this report and its attached specialist studies, it is the opinion of the EAP that it may be considered to authorise the proposed development and its associated activities.

The proposed area is preferred since further Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) were identified.

The proposed mining area falls within an area known for several Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) occurrences, and a number of these have been utilized in the past.

Furthermore, the fact that the area will be rehabilitated back to the location's original state means that it is unlikely that the proposed activity will carry any great long-term negative impacts. With the condition that suggested mitigation measures are implemented.

The option of not approving the activities will result in a significant loss to valuable Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) being exploited. And all economic benefits will be lost.

ii) Conditions that must be included in the authorisation

- There should be strictly adhered to the mitigations set out in the EMPr.
- Monthly audits, on the compliance of the EMPr, should be conducted.
- No blasting shall take place.
- A Geohydrological Assessment should be conducted before any mining activities commences.
- A WULA should be applied for before any mining activities commences.
- Concurrent rehabilitation should take place as far as possible.
- The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.
- 15m should be kept from fences

q) Period for which the Environmental Authorisation is required.

For a minimum of 5 years.

r) Undertaking:

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

The undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Environmental Impact Assessment report and the EMPr report.

I, **Danie Labuschagne** (EAP) herewith confirms

- A. the correctness of the information provided in the reports ☒
- B. the inclusion of comments and inputs from stakeholders and I&APs ; ☒
- C. the inclusion of inputs and recommendations from the specialist reports where relevant; ☒and
- D. the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed; ☒



Signature of the environmental assessment practitioner:

Kuhle Environmental Consult (Pty) Ltd – Environmental Consultants

Name of company:

11/08/2021

Date:

s) Financial Provision:

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

CALCULATION OF THE QUANTUM							
Applicant: Evaluators:				Ref No.: Date:			
No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	1000	15,32	1	1	15320
2 (A)	Demolition of steel buildings and structures	m2	0	213,37	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	314,44	1	1	0
3	Rehabilitation of access roads	m2	800	38,18	1	1	30544
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	370,59	1	1	0
4 (B)	Demolition and rehabilitation of non-electrified railway lines	m	0	202,14	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	426,73	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,48	223698,97	0,52	1	55835,26291
7	Sealing of shafts adits and inclines	m3	0	114,54	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,1	149132,65	1	1	14913,265
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0,1	185742,01	1	1	18574,201
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	539482,85	1	1	0
9	Rehabilitation of subsided areas	ha	0,1	124876,13	1	1	12487,613
10	General surface rehabilitation	ha	0,1	118138,21	1	1	11813,821
11	River diversions	ha	0,1	118138,21	1	1	11813,821
12	Fencing	m	0	134,76	1	1	0
13	Water management	ha	0,1	44919,47	1	1	4491,947
14	2 to 3 years of maintenance and aftercare	ha	0,5	15721,82	1	1	7860,91
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
						Sub Total 1	183654,8409
1	Preliminary and General		22038,58091		weighting factor 2 1		22038,58091
2	Contingencies			18365,48409			18365,48409
						Subtotal 2	224058,91
						VAT (15%)	33608,84
						Grand Total	257668

i) Explain how the aforesaid amount was derived.

The Financial Provision cost estimate calculated above is aligned with the Guideline Document for the Evaluation of Quantum of Closure related Financial Provision Provided by a Mine, by the DMR (January, 2005). The amount total was calculated by a registered EAP from Kuhle Environmental Consult (Pty) Ltd.

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

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

Financial Guarantee

The applicable financial guarantee that is being required for rehabilitation, will be submitted by **Kareelaagte Diamante (Pty) Ltd.**

Rehabilitation Fund

Provision for rehabilitation during closure will be provided for by **Kareelaagte Diamante (Pty) Ltd.**

t) Specific Information required by the competent Authority

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

- 1) **Impact on the socio-economic conditions of any directly affected person.** (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) mining 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 **Appendix 2.19.1** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

The following impacts may be regarded as community impacts:

- Noise levels will increase
- Loss of fauna and flora through vegetation clearance
- Soil pollution through spillages and erosion.
- Potential surface and groundwater impacts through surface run-off and spillages.
- Increase in traffic.
- Dust levels will increase due to mining activities and the increase in the movement of vehicles.
- Increase in water consumption and possible depletion of groundwater resources.
- Visual impact due to the increase of dust.

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

According to the Phase 1: Heritage Assessment conducted by Mr Van Schalkwyk (2021) (Appendix 9), no sites, features or objects of cultural significance were identified

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

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

As mentioned throughout the document, the mining of Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) are one of the optimal preferred activities for the proposed site and the other is livestock grazing. Surrounding the proposed area there are numerous legal and illegal mining activities taking place.

The applicant believes that Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) are present on the proposed mining area. The mine will provide additional job opportunities to the surrounding community of Ottosdal.

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Draft environmental management programme.

a) Details of the EAP

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

Name of Practitioner	Danie Labuschagne
Contact details	Cell No.: (061) 970 2449 Email address: danie.kuhle@outlook.com
Name of Practitioner	Miané Swanepoel
Contact details	Email address: miane.kuhle@outlook.com

ii) Expertise of the EAP

Name of Practitioner	Danie Labuschagne
Qualifications	Master's Degree in Geography and Environmental Management. EAPASA: 2019/1122 Pr. Sci.Nat: 117285
Name of Practitioner	Miané Swanepoel
Qualifications	Completing Master's in Environmental Health

b) Description of the Aspects of the Activity

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

It can be confirmed that the requirements to describe the various aspects of the proposed mining activity that are required by the EMP, is already included in Part A, section 1(h) of this BA Report.

c) Composite Map

(Provide a map (**Attached as an Appendix 2**) 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)

Find the Locality Map, attached as **Appendix 2**.

d) Description of Impact Management Objectives Including Management Statements

- i) **Determination of closure objectives.** (ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

The Kareelaagte mine closure objectives will ensure that the remaining post-closure impacts are reduced and are acceptable to the parties involved.

These closure objectives can/will only be achieved if the following is implemented:

- Decommissioning and removal of all mining-related infrastructure, foundations and concrete from the site.
- Metal, electrical installations or equipment that are part of reclaimable structures will be sold for scrap and also for re-use.
- All unvegetated disturbed areas within the site will be re-vegetated with species that are indigenous and ecologically adapted species which are specific to the area as soon as mining activity ceases.
- The growth and establishment of vegetation and stability thereof will be recorded, as well as erosion and drainage. If any adverse trends are identified, implementation of corrective measures will take place.
- Recording of vegetation will consider the infestation of AIS and also the perpetual ground cover.
- Efficient and cost-effective closure is attained with the lowest level of socioeconomic changes.
- The invasion of AIS into the area will aid as an indication if the vegetation is of a stable, self-sustaining nature with little chance of retrogressing to an extent where water pollution and erosion can occur.
- Perturbation of final landforms must not occur for these landforms must be resilient and self-sustaining to forestall ongoing and further interventions by **Kareelaagte Diamante (Pty) Ltd.**
- The residual impacts must be acceptable with minimal deterioration over time.
- The outcome of rehabilitation of the mine site would be productive systems, where this site can sustain either livestock and/or wildlife.
- The quality of the environment and human quality of life, which includes general health and safety requirements, would not be imperilled.

The above goal is supported by more specific objectives which are described in the table 19 below.

Table 19: Specific Closure Objectives

Specific Closure Objective	Description of each objective
The initial planning and development	<ul style="list-style-type: none"> • This will provide an all-inclusive direction and guidance for successful closure planning and aid in the implementation of measures for progressive closure over the mine lifetime.
Stability of the physical Environment	<ul style="list-style-type: none"> • This will ensure the stability of the surface infrastructure and mining residue. Furthermore, taking into account any disturbances that are present when plant decommissioning occurs. This will ensure that removal and/or stabilisation will occur in such a manner that no compromise to post-closure land use will occur and will be long-term sustainable landforms. • All surface infrastructure with no beneficial post-closure use will be removed and disposed of. • The remaining earth causeways, trenches, etc. will be shaped and vegetated aid in stabilising slopes and integrating it with the surrounding topography.
The quality of the environment	<ul style="list-style-type: none"> • To ensure that there are no local environmental quality adversely affected by the possible physical effects, which arise from the mining operations and the post-closure mining site. The following aspects must be avoided or limited during the mining operations. <ul style="list-style-type: none"> ○ Dust fall-out areas surrounding the mining area. ○ Limiting the potential for dust generation on the rehabilitated mining site that could cause nuisance and/or health effects to surrounding landowners; ○ Wash-off and/or mobilisation of chemically contaminated soils and sediments from the mining area that could affect the local aquatic health and other water users. ○ Possible shallow contamination of groundwater can affect the quality of the local water resources.

The health and safety aspects	<ul style="list-style-type: none"> • With an increase prevalence of the points could result in adverse effects that could not be readily addressed and/or mitigated once the mine has closed. • Also, by limiting the possible adverse water quality and quantity effects arising from the rehabilitated mining site can ensure that the long term beneficial use of local resources are not compromised • In addition by conducting soil clean-up and remediation it can ensure that the planned land use can be implemented and maintained
The capability of the land and land-use	<ul style="list-style-type: none"> • To limit the possible health and safety threats to humans and animals due to the hazardous terrain by <ul style="list-style-type: none"> ◦ Demonstrating through upfront soil testing that any resultant inorganic and organic pollutants are present on the site. ◦ Removal of potential contaminants such as hydrocarbons and chemicals off-site. ◦ Shaping of causeways and opencast area to ensure safe slopes and integration of these causeways into surrounding topography. ◦ Ultimately, ensuring that the quality of the environment as reflected above is achieved.
The aesthetic quality of the mining area	<ul style="list-style-type: none"> • To ensure that the specific land's capability and to achieve and support the planned land use can be achieved by: <ul style="list-style-type: none"> ◦ Clean-up and reclamation of contaminated soil areas to not compromise the above land use planning set aside for implementation purposes ◦ To ensure that the entire rehabilitated mining site is free draining. ◦ Transporting all mining-related surface infrastructure to third party companies for beneficial use after closure.
The viability of the Landscape	<ul style="list-style-type: none"> • To ensure that the rehabilitated mining site will display, at a minimum, an acceptable aesthetic aspect that would not accommodate the planned land use depart from: <ul style="list-style-type: none"> ◦ A mining area that is suitably cleared up with no waste piles present. ◦ Rehabilitated mining area that is free of any draining and disrupted areas that are properly vegetated. ◦ Rehabilitated mining residues that are properly landscaped, and combined with the surrounding environment as far as possible. ◦ The terrain and hardstand areas are shaped and rehabilitated in such a way that it roughly imitates that of the local natural surface topography.

The quality of Biodiversity	<ul style="list-style-type: none"> • Where appropriate, the encouragement of the re-establishment of native vegetation on the rehabilitated mine site such the terrestrial biodiversity is to a large extent re-instated over time, by: <ul style="list-style-type: none"> ○ Stabilising disturbed areas to prevent erosion in the short- to medium term until a suitable vegetation cover has established; and ○ Establishing viable self-sustaining vegetation populations of local fauna, as far as possible.
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ii) Volumes and rate of water use required for the operation.

Water uses under the NWA: section 21 a-k of might be triggered, thus a Water Use Licence Application (WULA) might be lodged with the Department of Water & Sanitation (DWS) when needed.

These uses include:

- Borehole abstraction
- Water Use Pan Size specifications for Alluvial Diamond Mining (DWS NC & FS, 2001):
 - Pan size: 16 ft x 2 pans
 - Water/hour (m³): 17 x 2 = 34
 - Water/day(m³): 170 x 2 = 340
 - Gravel/hour (tons): 60 x 2 = 120
 - Gravel/day (ton): 600 x 2 = 1200
- Storage of water that was abstracted from the borehole
- Storage of tailings / “porrel”

Also, a Geohydrological Assessment should be conducted before any of the above water uses are commenced with.

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

Water uses under section 21 a-k of the NWA will be triggered; thus a Water Use Licence Application (WULA) will be lodged with the department of Water & Sanitation (DWS).

iv) Impacts to be mitigated in their respective phases

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

Table 20: Impacts to be Mitigated in their Respective Phases

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>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.)</p>	<p>(of operation in which activity will take place.</p> <p>State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).</p>	<p>(volumes, tonnages and hectares or m²)</p>	<p>(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)</p>	<p>(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)</p>	<p>Describe the time period when the measures in the environmental management program must be implemented Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-</p> <p>.. Upon cessation of the individual activity</p> <p>Or.</p> <p>Upon the cessation of mining, bulk sampling or Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) mining as the case may be.</p>
Vegetation Clearance	Construction and Operation Phase- This includes Drilling, Trenching, pitting and Opencast mining)	The application area of 4.95 Ha – However, the applicant will only clear the areas where mining takes place.	<ol style="list-style-type: none"> 1. Site clearing must take place in a phased manner, as and when required. To ensure that areas aren't disturbed unnecessarily. 2. Areas which are not planned to be mined within two months must not be cleared, this will reduce erosion risks. 3. The area which will be cleared must be demarcated/mapped visibly and this 	<p>Compliance with Duty of Care as detailed within NEMA.</p> <p>Meet Rehabilitation standards and objectives</p>	Duration as stipulated within the MP.

			<p>footprint strictly maintained. Also, this information must be clearly communicated to all employees.</p> <ol style="list-style-type: none"> Spoil that is removed from the mining area must be moved to an approved spoil or licensed landfill site. Silt fences and erosion control measures must be implemented where areas are prone to erosion. <p>The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ol style="list-style-type: none"> -The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative. 		
Access Roads	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	????	<ol style="list-style-type: none"> The landowner and contractor shall be consulted when planning of the access routes to the site for construction/mining purposes takes place. All the agreements reached shall be documented and records shall be kept. The Contractor shall be responsible to clearly mark all the access roads. 	<p>Compliance with Duty of Care as detailed within NEMA.</p> <p>Meet Rehabilitation standards and objectives</p>	Duration as stipulated within the MP.

			<ol style="list-style-type: none"> 3. Roads that may not be used by mining vehicles shall be marked with a "NO ENTRY FOR MINING VEHICLES" sign. 4. Construction phase and operational phase routes required must be clearly defined. 5. To reduce dust and nuisance, dust suppression measures should be implemented – like damping down of the un-tarred roads. To minimise erosion or undue surface damage. 6. The surfaces compacted during the construction/operational phases shall be deep ripped to loosen up the compacted layers and to allow re-grading to even running levels. 7. Dust suppression measures, such as wetting of gravel roads on a regular basis, must be implemented for heavy vehicles. Also, vehicles used to transport the gravel are fitted with tarpaulins or covers; 8. All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits. 		
Area where the mining of Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) occur.	Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	The application area of 4.95 Ha – However, the applicant will only clear the areas where mining takes place.	<ol style="list-style-type: none"> 1. The contractor is responsible to determine the average depth of topsoil (If topsoil exists), prior to the commencement of earthworks. This should then be agreed with the ECO. The full depth of topsoil, as agreed upon, shall be stripped from the affected areas s prior to the commencement of major earthworks. This should include the building 	<p>Compliance with Duty of Care as detailed within NEMA.</p> <p>Meet Rehabilitation standards and objectives</p>	Duration as stipulated within the MP.

			<p>footprints, working areas and storage areas. Topsoil shall be re-used where possible in order to promote the rehabilitation of disturbed areas.</p> <ol style="list-style-type: none"> 2. Topsoil and subsoil or any other material, shall not be mixed during stripping. 3. The topsoil must be preserved on site in and around the pit/trench/open cast area. 4. Subsoil and overburden removed from the mining area should be stockpiled separately to be returned for backfilling in the correct soil horizon order upon completion of the mining activities. 5. Stockpiles should be covered either by vegetation or geofabric, when exposed to windy conditions or heavy rainfall. 6. Berms, trenches or low brick walls may also be used to further protect the stockpiles. 7. Weed and alien vegetation growth shall not be allowed on stockpiles 8. Where contamination of soil is expected, a soil analysis must be done by an accredited laboratory prior to disposal of soil. This will determine the appropriate disposal route to be taken. After dumping, proof from a registered waste landfill site should be attained and submitted to the project manager and ECO. 9. The impact on the geology will be permanent. There is no mitigation measure. 		
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			<p>10. The mining activities must adhere to the applicable noise regulations and limit noise within the standard working hours in order to reduce disturbance of dwellings/communities of the surrounding area.</p> <p>11. Mining equipment, pans, workshops and other noisy fixed facilities should be located well away from the identified noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed to the system.</p> <p>12. Heavy vehicles, including transportation trucks, should be routed away from noise sensitive areas, where possible.</p> <p>13. The operating hours of operations that are very noisy should be combined so that they occur where possible at the same time in order to reduce noise.</p> <p>14. Mine workers to wear necessary ear protection gear.</p> <p>15. Noise from labourers must be controlled.</p> <p>16. Noise suppression measures must be implemented to all mining equipment. Equipment must be serviced regularly and kept in good working order and where appropriate fitted with the necessary silencers. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or equipment from site.</p>		
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		<p>17. It is the contractor's responsibility to discourage labourers from loitering in the area and causing noise disturbance. Where and if possible, labourers shall be transported to and from the mining site.</p> <p>18. Implementation of enclosure and cladding of processing plants.</p> <p>The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ul style="list-style-type: none"> - The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative. 		
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e) Impact Management Outcomes

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

Table 21: 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. <ul style="list-style-type: none"> • 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.
Clearance of vegetation for site preparation	There will be disturbance and destruction of habitats, faunal species and vegetation. Impacts on fauna species of conservation importance (including suitable habitat)	Fauna and Flora Impacts Soil Impacts	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	<ol style="list-style-type: none"> 1. Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind. 2. All AIS must be removed and should be replaced with indigenous vegetation. 3. No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site. 	<p>Minimisation of impacts to acceptable limits.</p> <p>Rehabilitation standards and objectives.</p>

				<ol style="list-style-type: none"> 4. The applicant shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the mining sites as a result of their activities. 5. Reseed cleared areas to prevent soil erosion. 6. Fencing should not impact on indigenous plants. 7. No unnecessary or un-permitted clearance of vegetation during the operational phase. 8. All informal fires on the property shall be prohibited specifically during the construction phase of the proposed development. 9. The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the mining activities must not be disturbed 10. Vegetation removal must be limited to the mining area. 11. Exotic and invasive plant species should not be allowed to establish, if the development is approved. 12. There should be a preconstruction walk-through of the development footprint/project site in order to locate individuals of plant SCC. A search and rescue exercise must be done to locate and relocate any protected species to a suitable and 	
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				<p>similar habitat where these plants can grow without any disturbance;</p> <p>13. In case Camel Thorn or Shepherd's trees are found permits must be obtained from DAFF to remove these individuals. The contractor must apply for these permits in a phased manner as mining proceeds.</p> <p>14. All damaged areas shall be rehabilitated upon completion of the contract.</p> <p>15. Re-vegetation of the mining site is aimed to return the vegetation to the natural vegetative conditions prevailing prior to construction (As far as possible).</p> <p>16. All natural areas impacted during the construction/operational phase must be rehabilitated with locally indigenous grasses typical of the representative botanical unit.</p> <p>17. Rehabilitation must take place in a phased approach as soon as possible.</p> <p>18. Rehabilitation process must make use of species indigenous to the mining area. It is allowed to use seeds from surrounding seed banks for re-seeding.</p> <p>19. Rehabilitation must take place in such a manner that no erosion is caused by surface run-off.</p>	
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				<p>20. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged.</p> <p>21. Vegetation not interfering with construction/mining operations shall be left undisturbed and indicated in the mine plan.</p> <p>22. The mining area must be well delineated and no construction/operational activities must be allowed to commence outside of this defined boundary.</p> <p>23. The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the mining activities must not be disturbed.</p> <p>24. The site office and laydown areas must be clearly defined and no encroachment must occur beyond demarcated areas.</p> <p>25. Strict and regular audits should take place to ensure containment of the defined mining and laydown areas.</p> <p>26. Soils must be kept free of petrochemical solutions that may be kept on site during the construction/operational phase. Spillage can result in sterilisation of land as a result of mining, soil pollution and erosion..</p> <p>27. No animals should be intentionally killed or destroyed and poaching and hunting</p>	
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				<p>should not be permitted on the site.</p> <p>28. No firewood to be collected. All informal fires on the property shall be prohibited specifically during the construction phase of the proposed development.</p> <p>29. Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind.</p> <p>30. All AIS must be removed and should be replaced with indigenous vegetation.</p> <p>31. Alien vegetation on the site will need to be controlled.</p> <p>32. The contractor and applicant shall be responsible for implementing a programme that will promote weed control (particularly in disturbed areas); and grassing of any remaining stockpiles to prevent weed invasion.</p> <p>33. Weed control measures must be applied to eradicate any noxious weeds (category 1a & 1b species) on disturbed areas.</p> <p>34. Herbicide use shall only be allowed according to a qualified specialist.</p> <p>35. The use of pesticides shall only be allowed according to a qualified specialist.</p> <p>36. Rehabilitation to be undertaken as soon as possible after the mining activities have been completed.</p>	
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				<p>37. No trapping or snaring to fauna during the construction/operational phase is to be allowed.</p> <p>38. No faunal species must be disturbed, trapped, hunted or killed during the construction/operational phase.</p> <p>39. Any fauna threatened by the construction and operation activities should be removed to safety by the ECO or appropriately qualified environmental officer.</p> <p>40. The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h to avoid collisions with susceptible species such as snakes and tortoises.</p> <p>41. If trenches need to be dug for electrical cabling or other purposes, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.</p> <p>The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ul style="list-style-type: none"> - The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the 	
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				watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.	
Mining Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite)- excavations	<p>Loss of soil resources as a result of soil stripping of the construction footprint;</p> <p>Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination;</p> <p>Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources;</p> <p>Soil contamination as a result of uncontrolled sewage handling;</p> <p>Indirect impact on the loss of micro habitats following soil removal; and</p> <p>Erosion due to floods.</p> <p>This will result in grazing and cultivation potential being lost.</p>	<p>Soil Erosion and Surface runoff</p> <p>Flora</p>	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	<ol style="list-style-type: none"> 1. The contractor is responsible to determine the average depth of topsoil (If topsoil exists), prior to the commencement of earthworks. This should then be agreed with the ECO. The full depth of topsoil, as agreed upon, shall be stripped from the affected areas s prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil shall be re-used where possible in order to promote the rehabilitation of disturbed areas. 2. Topsoil and subsoil or any other material, shall not be mixed during stripping. 3. The topsoil must be preserved on site in and around the pit/trench/open cast area 4. Subsoil and overburden removed from the mining area should be stockpiled separately to be returned for backfilling in the correct soil horizon order upon completion of the mining activities. 	<p>Minimisation of impacts to acceptable limits.</p> <p>Rehabilitation standards and objectives.</p>

				<p>5. Stockpiles should be covered either by vegetation or geofabric, when exposed to windy conditions or heavy rainfall.</p> <p>6. Berms, trenches or low brick walls may also be used to further protect the stockpiles.</p> <p>7. Weed and alien vegetation growth shall not be allowed on stockpiles</p> <p>8. Where contamination of soil is expected, a soil analysis must be done by an accredited laboratory prior to disposal of soil. This will determine the appropriate disposal route to be taken. After dumping, proof from a registered waste landfill site should be attained and submitted to the project manager and ECO.</p> <p>Records should be kept for each area where soil is disturbed during the construction/operational phase. These records should be included in environmental performance assessment reports, and should include the following:</p> <p>9. GPS coordinates of each disturbed area.</p> <p>10. The date when topsoil stripping took place.</p> <p>11. GPS coordinates of where the topsoil is stockpiled.</p> <p>12. The date of cessation of the construction/operational</p>	
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				<p>activities at the particular mining site.</p> <p>13. Photographs of the area upon cessation of the construction/operational activities at the particular mining site.</p> <p>14. Date and depth of re-spreading of topsoil.</p> <p>15. Photographs of the area on completion of the rehabilitation phase and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time.</p> <p>16. Clearing activities and earth scraping should preferably be restricted to the dry season in order to prevent erosion and siltation.</p> <p>17. The dry months are also the period when the majority of species are either dormant or finished with their breeding activities.</p> <p>18. Future soil stockpiling areas must follow environmentally sensitive practices and be situated a sufficient distance away from drainage areas.</p> <p>19. The careful position of soil piles, and runoff control, during all phases of development, and planting of some vegetative cover</p>	
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				<p>after completion (indigenous groundcover, grasses etc.) will limit the extent of erosion occurring on the site. Sufficient measures must be implemented to prevent the possible contamination of the surface water and surrounding groundwater from runoff.</p> <p>20. The use of water on the site must be carefully monitored to ensure that erosion on slopes does not take place.</p> <p>21. Any erosion channels developed during the construction period shall be backfilled and compacted and the areas restored to a proper condition.</p> <p>22. All disturbed areas that will require rehabilitation must be mulched to encourage vegetation re-growth</p> <p>23. Installation of silt fences and erosion berms as necessary to minimize erosion.</p> <p>24. Stabilisation of cleared areas to prevent and control erosion shall be actively managed. The method of stabilisation shall be determined in consultation with the ECO.</p> <p>25. Erosion control measures include use of sand bags, erosion berms and straw bales placed across overland stormwater flow to</p>	
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				<p>reduce runoff rate and sedimentation.</p> <p>26. Traffic and movement over stabilised areas shall be restricted and controlled, and damage to stabilised areas shall be repaired and maintained to the satisfaction of the ECO.</p> <p>27. Include periodical site inspection in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence any erosion on site or downstream – refer to the EMPr.</p> <p>28. Stockpiles not used in three (3) months after stripping must be seeded or backfilled to prevent dust and erosion.</p> <p>The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <p>- The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.</p>	
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Excavations	Impact on air quality as a result of increased mining activities; Impact on air quality as a result of emissions from machinery and increased vehicle usage; Odour emissions due to uncontrolled waste disposal; Impact on air quality as a result of exhaust emissions and dust generation.	Air	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	<ol style="list-style-type: none"> 1. Un-surfaced and un-vegetated areas should be wheel washing and damping down of. 2. The clearing of vegetation should be limited to the development area and should be undertaken prior to the commencement of construction activities. 3. Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present. 4. Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust blowing out over the area. 5. The appointed contractor shall be responsible for dust control on site to ensure no nuisance is caused to the surrounding communities. 6. The Contractor shall take all reasonable measures to minimise the generation of dust as a result of construction activities to the satisfaction of the ECO. This applies particularly to the dust which may affect owners and occupiers of the surrounding areas 7. The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h. 8. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor and ECO. 	Minimisation of impacts to acceptable limits
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				<p>9. Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled.</p> <p>10. Vehicles should be serviced regularly in order to limit gaseous emissions.</p> <p>11. Chemical toilets on site should be regularly serviced to avoid potential odours.</p> <p>12. The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks.</p> <p>13. All informal fires on the property shall be prohibited specifically during the construction/operational phase of the proposed development.</p> <p>14. The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process, which is done by a qualified professional specializing in firefighting.</p> <p>The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <p>- The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones</p>	
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				with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.	
	Destruction of cultural and heritage artefacts found underground; and Destruction of alternation of buildings older than 60 years.	Cultural and Heritage Impacts	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	<ol style="list-style-type: none"> 1. Should be clearly marked in order that they can be avoided during construction activities 2. The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. 3. Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the ECO shall be notified as soon as possible. 4. All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the ECO will advise the necessary actions to be taken. 5. Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and 	Minimisation of impacts to acceptable limits

				<p>6. Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).</p> <p>7. Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the ECO.</p> <p>8. In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.</p>	
Construction Vehicles, Machinery	During the construction phase there is likely to be an increase in noise pollution from construction vehicles and construction staff.	Noise	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	The mining activities must adhere to the applicable noise regulations and limit noise within the standard working hours in order to reduce disturbance of dwellings/communities of the surrounding area.	Minimisation of impacts to acceptable limits

	<p>Mining activities will result in the generation of noise over a period of 3-5 years. Sources of noise are likely to include vehicles, the use of machinery such as backactors, crushers and screeners and people working on the site; but mining activities should be limited to normal working days and some Saturdays and hours (7:00 – 17:00).</p>			<p>2.Mining equipment, pans, workshops and other noisy fixed facilities should be located well away from the identified noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed to the system.</p> <p>3.Heavy vehicles, including transportation trucks, should be routed away from noise sensitive areas, where possible.</p> <p>4.The operating hours of operations that are very noisy should be combined so that they occur where possible at the same time in order to reduce noise.</p> <p>5. Mine workers to wear necessary ear protection gear.</p> <p>6.Noise from labourers must be controlled.</p> <p>7.Noise suppression measures must be implemented to all mining equipment. Equipment must be serviced regularly and kept in good working order and where appropriate fitted with the necessary silencers. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or equipment from site.</p> <p>8. It is the contractor's responsibility to discourage labourers from loitering in the area and causing noise disturbance. Where and if possible, labourers shall be transported to and from the mining site.</p> <p>9. Implementation of enclosure and cladding of processing plants.</p>	
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Waste management	<ul style="list-style-type: none"> • Mixing of waste and uncontrolled disposal; • Pollution and aesthetical impacts as a result of uncontrolled waste storage; • Uncontrolled storage of waste leading to pollution; • Impact on groundwater as a result of uncontrolled waste handling; • Impact on surrounding environment as a result of sewage control and waste water generation; and • Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal. • Approximately 15 Workers will be present on site from 7:00 – 17:00, Monday to Saturday. Sources of general waste will be waste food, packaging, paper, etc. General waste will be stored on the site and removed on a weekly basis by a contractor 	Pollution	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	<ol style="list-style-type: none"> 1. Portable sanitation facilities should be erected for construction personnel. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desired alternative to the surrounding vegetation). These facilities should also be monitored and serviced regularly so as to prevent contamination of the water resources. 2. All solid waste generated during construction, other than natural materials such as soil and rock, shall be disposed of off-site to the landfill site. 3. Separation and recycling of different waste materials is supported. 4. Refuse collection and storage must be done in a way that will not cause a health nuisance. 5. Construction personnel should be instructed not to dump any building materials on the untransformed vegetation around the site. 6. All waste is to be disposed of at the local landfill site 7. Waste Bins should be positioned around the site for use by construction personnel. These bins should be emptied and waste transported to the landfill site. 	Minimisation of impacts to acceptable limits
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				<p>8. Hazardous waste (Dead livestock) is not to be mixed or combined with general waste earmarked for disposal at the municipal landfill site.</p> <p>9. Under no circumstances is waste to be burnt or buried on site.</p> <p>10. All hazardous waste materials must be carefully stored as advised by the ECO.</p> <p>11. Hazardous waste should then be disposed at a licensed landfill site, where practical. Incineration may be used where relevant.</p> <p>12. Contaminants to be stored safely in a bunded area to avoid spillage.</p> <p>13. Mining equipment shall be properly maintained and serviced to keep oil leaks in check.</p> <p>14. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during the construction/operational phase.</p> <p>15. Hazardous spills shall immediately be cleaned up and all the identified affected areas rehabilitated.</p> <p>16. Portable sanitation facilities should be erected for construction/operational personnel.</p> <p>17. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desired alternative to the surrounding vegetation).</p> <p>18. These facilities should also be monitored and serviced regularly so</p>	
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				<p>as to prevent contamination of the water resources.</p> <p>19. No indiscriminate sanitary activities on site shall be allowed.</p> <p>20. Portable sanitation facilities shall be serviced regularly and the ECO shall inspect toilets regularly.</p> <p>21. Toilets should be no closer than 50m or above the 1:100 year flood line from any natural or manmade water bodies or drainage lines or alternatively located in a place approved of by the Engineer.</p> <p>22. The use of open areas, neighbours fences or the surrounding bushes as a toilet facility is prohibited.</p> <p>23. The construction of "Long Drop" toilets is forbidden, but rather toilets connected to the sewage treatment plant.</p> <p>24. Potable water shall be provided for all construction/operational staff.</p> <p>25. Depending on the nature, severity and extent of the hazardous spill, the contaminated soil must be either excavated or treated on-site as advised by the ECO or specialist.</p> <p>26. Excavation of contaminated soil must be supervised by the ECO or specialist. Appropriate tools/machinery shall be used to move contaminated soil to storage containers. Soil shall be stored until treated or disposed of at a licensed hazardous landfill site.</p>	
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				<p>27. The ECO or specialist must determine the precise treatment/handling method of the contaminated soil.</p> <p>28. If a hazardous spill occurs on an impermeable layered surface, such as cement or concrete, the spill must be contained using an oil absorbent material.</p> <p>29. Where and if necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure. These machines should then be fixed as quickly as possible.</p> <p>30. Remediation materials used for petrochemical spills must be used according to product specifications and guidance by the ECO or specialist.</p> <p>31. The contaminated remediation materials should then be removed carefully from the area of the spill to prevent further contamination, and should then be stored in adequate containers until appropriate disposal.</p> <p>32. It is advised that Storm water cut-off trenches should be dug around the various excavation areas and the proposed new tailings facility/porrel dam area.</p> <p>33. These cut-off trenches will then allow clean storm water to convey around the various excavation areas and the proposed new tailings facility/porrel dam area.</p> <p>34. It is advised that the proposed cut-off trenches should be dug to a max. depth of 250mm with gentle slopes.</p>	
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				<p>The banks and beds of the trenches should be compacted with rocks to ensure that no erosion or sedimentation are caused by the proposed cut-off trenches.</p> <p>35. It is advised that a storm water discharge point (“Outlet Structure”) should be constructed at the base of each cut-off trenches. This will ensure that the water conveyed by the storm water cut-off trenches are discharged gently into the surrounding natural veld without causing any surface erosion. Any sedimentation flowing out of these discharge structures will be trapped by the silt fences, which should be installed at the base (“downstream” side) of each discharge point.</p> <p>36. The before mentioned trapped silt should be used for rehabilitation purposes.</p> <p>37. It is advised that silt fences (silt trap fences) should be installed on the “downstream” side of the excavation working areas and tailings facility / porrel dam. These fences will be used to trap any sedimentation and erosion that might be caused by the “dirty” water flowing over the mining site.</p> <p>38. The silt fences may consist of a permeable geotextile 70cm high and will be tucked into a 15cm deep anchor trench at the base. This will prevent the bottom of the fence from kicking out in a high flow situation. The fences will be supported with</p>	
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				<p>stakes/poles (mainly steel rods) at 1.5m centres.</p> <p>39. The proposed silt fences should be erected in such a way that they are at a soft angle to the direction of flow. There should also be a second silt fence installed in the areas where a higher flowrate is expected</p> <p>40. It is advised that an additional silt fence should be installed at the base ("downstream" side) of the proposed new tailings facility / porrel dam area. This will ensure that any sedimentation resulting from the construction, maintenance or operating of the new proposed tailings facility / porrel dam are trapped before it can reach any of the other areas of the proposed mining site.</p> <p>41. The proposed tailings facility /porrel dam should have an Emergency Spill-Way Channel that will allow the upper layers of water within the dam to flow over the dam wall in a controlled manner during a severe rainfall event. Additional silt fences should therefore be installed at the base ("downstream" side) of each proposed Emergency Spill-Way Channel. The water discharging from the Emergency Spill-Way Channel will therefore flow directly into the silt fences located at the base of the spill-way channel. These silt fences will then ensure that water can flow through the geotextile material while</p>	
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				trapping any sedimentation within the water behind.	
Water Use and Quality	<ul style="list-style-type: none"> • Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site; • Impact on groundwater as a result of uncontrolled waste handling; and • Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction/operation vehicles on site. • Possible contamination of surface water resources as a result of contaminated runoff; • Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal; • Sedimentation of surface water resources as a result of runoff from cleared areas; • Contamination of surface water resources as a result of uncontrolled waste handling and disposal; • The development will increase storm water runoff 	Groundwater & Surface Water Impacts	(construction and operation phase)	<ol style="list-style-type: none"> 1. A specialist should develop a sustainable water supply management plan to minimise the impact on natural systems through managing water use, and avoiding depletion of aquifers and minimising the impacts on surrounding water users. 2. It is advised that any water must be reused, recycled or treated where possible. 3. The quality and quantity of effluent streams discharged to the environment, including stormwater, should be managed and treated to meet the applicable environmental effluent discharge guidelines and regulations. 4. Discharge to surface water should not result in contamination. 5. Efficient oil and grease traps or sumps should be installed and maintained at refueling facilities, workshops, fuel storage depots, and containment areas and spill kits should be available with emergency response plans. 6. The site must be managed in such a way that no pollution of drains, downstream watercourses or groundwater occur due to suspended solids and silt or chemical pollutants. 7. Installation of silt fences and erosion berms as necessary to prevent any soil entering the stormwater drains. 	

	resulting in erosion and possible sedimentation.			8. Temporary control measures include use of sand bags, erosion berms and straw bales placed across overland stormwater flow to reduce runoff rate and sedimentation. 9. Promote a water saving mind set with construction/operational phase workers in order to guarantee less water wastage. 10. Hazardous substances must be stored at least 40m from any water bodies on site to avoid pollution. 11. The installation of the stormwater system must take place as soon as possible to prevent the possible contamination of the surface water and surrounding groundwater from runoff. 12. Earth, stone and rubble is to be properly disposed of, or utilized on site so as not to obstruct natural water path ways over the site. i.e. these materials must not be placed in stormwater channels, drainage lines or rivers. 13. Drainage systems should be checked quarterly. 14. If a batching plant is necessary, run-off should be managed effectively to avoid contamination of other areas of the site. Untreated runoff from the batch plant must not be allowed to get into the storm water system or nearby streams, rivers or erosion channels or dongas. 15. Any contaminated water associated with construction activities must be	
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				<p>contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines</p> <p>16. Process solution storage ponds and other impoundments designed to hold non fresh water or non-treated process effluents should be lined with an impermeable liner and be equipped with sufficient wells to enable monitoring of water quality and quantity.</p> <p>17. Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers).</p> <p>18. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.</p> <p>19. Concrete contaminated water must not enter soil or any natural drainage system as this disturbs the natural acidity of the soil and affects plant growth.</p> <p>20. Food preparation areas should be provided with adequate washing facilities and food refuse should be stored in sealed refuse bins which should be removed from site on a regular basis.</p> <p>21. The Contractor should take steps to ensure that littering by construction/mining workers does</p>	
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				<p>not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines.</p> <p>22. No washing or servicing of vehicles on site.</p> <p>The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <p>- The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.</p>	
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E. Impact Management Actions

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

Table 22: Impact Management Actions

ACTIVITY Whether listed or not listed.	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 program 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 Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In	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)
(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.).				

			Kimberlite) mining as the case may be.	
Clearance of vegetation	There will be disturbance and destruction of habitats, faunal species and vegetation. Impacts on fauna species of conservation importance (including suitable habitat)	<ol style="list-style-type: none"> 1. Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind. 2. All AIS must be removed and should be replaced with indigenous vegetation. 3. No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site. 4. The applicant shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the mining sites as a result of their activities. 5. Reseed cleared areas to prevent soil erosion. 6. Fencing should not impact on indigenous plants. 7. No unnecessary or un-permitted clearance of vegetation during the operational phase. 8. All informal fires on the property shall be prohibited specifically during the construction phase of the proposed development. 9. The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the mining activities must not be disturbed 10. Vegetation removal must be limited to the mining area. 11. Exotic and invasive plant species should not be allowed to establish, if the development is approved. 	Duration as stipulated within the MP.	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.

		<p>12. There should be a preconstruction walk-through of the development footprint/project site in order to locate individuals of plant species of conservation concern (SCC). A search and rescue exercise must be done to locate and relocate any protected species to a suitable and similar habitat where these plants can grow without any disturbance;</p> <p>13. In case Camel Thorn or Shepherd's trees are found permits must be obtained from DAFF to remove these individuals. The contractor must apply for these permits in a phased manner as mining proceeds.</p> <p>14. All damaged areas shall be rehabilitated upon completion of the contract.</p> <p>15. Re-vegetation of the mining site is aimed to return the vegetation to the natural vegetative conditions prevailing prior to construction (As far as possible).</p> <p>16. All natural areas impacted during the construction/operational phase must be rehabilitated with locally indigenous grasses typical of the representative botanical unit.</p> <p>17. Rehabilitation must take place in a phased approach as soon as possible.</p> <p>18. Rehabilitation process must make use of species indigenous to the mining area. It is allowed to use seeds from surrounding seed banks for re-seeding.</p> <p>19. Rehabilitation must take place in such a manner that no erosion is caused by surface run-off.</p> <p>20. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged.</p>		
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		<p>21. Vegetation not interfering with construction/mining operations shall be left undisturbed and indicated in the mine plan.</p> <p>22. The mining area must be well delineated and no construction/operational activities must be allowed to commence outside of this defined boundary.</p> <p>23. The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the mining activities must not be disturbed.</p> <p>24. The site office and laydown areas must be clearly defined and no encroachment must occur beyond demarcated areas.</p> <p>25. Strict and regular audits should take place to ensure containment of the defined mining and laydown areas.</p> <p>26. Soils must be kept free of petrochemical solutions that may be kept on site during the construction/operational phase. Spillage can result in sterilisation of land as a result of mining, soil pollution and erosion..</p> <p>27. No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site.</p> <p>28. No firewood to be collected. All informal fires on the property shall be prohibited specifically during the construction phase of the proposed development.</p> <p>29. Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind.</p> <p>30. All AIS must be removed and should be replaced with indigenous vegetation.</p> <p>31. Alien vegetation on the site will need to be controlled.</p>		
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		<p>32. The contractor and applicant shall be responsible for implementing a programme that will promote weed control (particularly in disturbed areas); and grassing of any remaining stockpiles to prevent weed invasion.</p> <p>33. Weed control measures must be applied to eradicate any noxious weeds (category 1a & 1b species) on disturbed areas.</p> <p>34. Herbicide use shall only be allowed according to a qualified specialist.</p> <p>35. The use of pesticides shall only be allowed according to a qualified specialist.</p> <p>36. Rehabilitation to be undertaken as soon as possible after the mining activities have been completed</p> <p>37. No trapping or snaring to fauna during the construction/operational phase is to be allowed.</p> <p>38. No faunal species must be disturbed, trapped, hunted or killed during the construction/operational phase.</p> <p>39. Any fauna threatened by the construction and operation activities should be removed to safety by the ECO or appropriately qualified environmental officer.</p> <p>40. The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h to avoid collisions with susceptible species such as snakes and tortoises.</p> <p>41. If trenches need to be dug for electrical cabling or other purposes, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.</p>		
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		<p>The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <ul style="list-style-type: none"> - The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative. 		
<p>Mining of Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) excavations</p>	<p>Loss of soil resources as a result of soil stripping of the construction footprint; Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination; Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources; Soil contamination as a result of uncontrolled sewage handling; Indirect impact on the loss of micro habitats following soil removal; and Erosion due to floods. This will result in grazing and cultivation potential being lost.</p>	<ul style="list-style-type: none"> • The contractor is responsible to determine the average depth of topsoil (If topsoil exists), prior to the commencement of earthworks. This should then be agreed with the ECO. The full depth of topsoil, as agreed upon, shall be stripped from the affected areas s prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil shall be re-used where possible in order to promote the rehabilitation of disturbed areas. • Topsoil and subsoil or any other material, shall not be mixed during stripping. • The topsoil must be preserved on site in and around the pit/trench/open cast area • Subsoil and overburden removed from the mining area should be stockpiled separately to be returned for backfilling in the correct soil horizon order upon completion of the mining activities. Diamond, Diamond (Alluvial), Diamond (General) and Diamond (In Kimberlite) Stockpiles should be covered 	<p>Duration of operation</p>	<p>The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.</p>

		<p>either by vegetation or geofabric, when exposed to windy conditions or heavy rainfall.</p> <ul style="list-style-type: none"> • Berms, trenches or low brick walls may also be used to further protect the stockpiles. • Weed and alien vegetation growth shall not be allowed on stockpiles • Where contamination of soil is expected, a soil analysis must be done by an accredited laboratory prior to disposal of soil. This will determine the appropriate disposal route to be taken. After dumping, proof from a registered waste landfill site should be attained and submitted to the project manager and ECO. <p>Records should be kept for each area where soil is disturbed during the construction/operational phase. These records should be included in environmental performance assessment reports, and should include the following:</p> <ul style="list-style-type: none"> • GPS coordinates of each disturbed area. • The date when topsoil stripping took place. • GPS coordinates of where the topsoil is stockpiled. • The date of cessation of the construction/operational activities at the particular mining site. • Photographs of the area upon cessation of the construction/operational activities at the particular mining site. • Date and depth of re-spreading of topsoil. • Photographs of the area on completion of the rehabilitation phase and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. 		
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		<ul style="list-style-type: none"> • Clearing activities and earth scraping should preferably be restricted to the dry season in order to prevent erosion and siltation. • The dry months are also the period when the majority of species are either dormant or finished with their breeding activities. • Future soil stockpiling areas must follow environmentally sensitive practices and be situated a sufficient distance away from drainage areas. • The careful position of soil piles, and runoff control, during all phases of development, and planting of some vegetative cover after completion (indigenous groundcover, grasses etc.) will limit the extent of erosion occurring on the site. Sufficient measures must be implemented to prevent the possible contamination of the surface water and surrounding groundwater from runoff. • The use of water on the site must be carefully monitored to ensure that erosion on slopes does not take place. • Any erosion channels developed during the construction period shall be backfilled and compacted and the areas restored to a proper condition. • All disturbed areas that will require rehabilitation must be mulched to encourage vegetation re-growth • Installation of silt fences and erosion berms as necessary to minimize erosion. • Stabilisation of cleared areas to prevent and control erosion shall be actively managed. 		
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		<p>The method of stabilisation shall be determined in consultation with the ECO.</p> <ul style="list-style-type: none"> • Erosion control measures include use of sand bags, erosion berms and straw bales placed across overland stormwater flow to reduce runoff rate and sedimentation. • Traffic and movement over stabilised areas shall be restricted and controlled, and damage to stabilised areas shall be repaired and maintained to the satisfaction of the ECO. • Include periodical site inspection in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence any erosion on site or downstream – refer to the EMPr. • Stockpiles not used in three (3) months after stripping must be seeded or backfilled to prevent dust and erosion. 		
.	<p>Impact on air quality as a result of increased mining activities; Impact on air quality as a result of emissions from machinery and increased vehicle usage; Odour emissions due to uncontrolled waste disposal; Impact on air quality as a result of exhaust emissions and dust generation.</p>	<ol style="list-style-type: none"> 2. Un-surfaced and un-vegetated areas should be wheel washing and damping down of. 3. The clearing of vegetation should be limited to the development area and should be undertaken prior to the commencement of construction activities. 4. Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present. 5. Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust blowing out over the area. 6. The appointed contractor shall be responsible for dust control on site to ensure no nuisance is caused to the surrounding communities. 7. The Contractor shall take all reasonable measures to minimise the generation of dust as 	Duration of operation	<p>The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.</p>

		<p>a result of construction activities to the satisfaction of the ECO. This applies particularly to the dust which may affect owners and occupiers of the surrounding areas</p> <ol style="list-style-type: none"> 8. The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h. 9. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor and ECO. 10. Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled. 11. Vehicles should be serviced regularly in order to limit gaseous emissions. 12. Chemical toilets on site should be regularly serviced to avoid potential odours. 13. The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks. 14. All informal fires on the property shall be prohibited specifically during the construction/operational phase of the proposed development. 15. The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process, which is done by a qualified professional specializing in firefighting. 		
	<p>During the construction phase there is likely to be an increase in noise pollution from construction vehicles and construction staff.</p> <p>Mining activities will result in the generation of noise over a</p>	<ol style="list-style-type: none"> 1. The mining activities must adhere to the applicable noise regulations and limit noise within the standard working hours in order to reduce disturbance of dwellings/communities of the surrounding area. 2. Mining equipment, pans, workshops and other noisy fixed facilities should be located 	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and

	<p>period of 3-5 years. Sources of noise are likely to include vehicles, the use of machinery such as backactors, crushers and screeners and people working on the site, as well as occasional blasting; but mining activities should be limited to normal working days and some Saturdays and hours (7:00 – 17:00).</p>	<p>well away from the identified noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed to the system.</p> <ol style="list-style-type: none"> Heavy vehicles, including transportation trucks, should be routed away from noise sensitive areas, where possible. The operating hours of operations that are very noisy should be combined so that they occur where possible at the same time in order to reduce noise. Mine workers to wear necessary ear protection gear. Noise from labourers must be controlled. Noise suppression measures must be implemented to all mining equipment. Equipment must be serviced regularly and kept in good working order and where appropriate fitted with the necessary silencers. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or equipment from site. It is the contractor's responsibility to discourage labourers from loitering in the area and causing noise disturbance. Where and if possible, labourers shall be transported to and from the mining site. Implementation of enclosure and cladding of processing plants. 		<p>Duty of Care as prescribed by NEMA.</p>
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	<p>Destruction of cultural and heritage artefacts found underground; and</p> <p>Destruction of alteration of buildings older than 60 years.</p>	<ol style="list-style-type: none"> 3) Should be clearly marked in order that they can be avoided during construction activities 4) The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. 5) Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the ECO shall be notified as soon as possible. 6) All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the ECO will advise the necessary actions to be taken. 7) Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and 8) Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1). 9) Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the ECO. 	Duration of operation	<p>The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.</p>
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		10) In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.		
Waste Management	<ul style="list-style-type: none"> • Mixing of waste and uncontrolled disposal; • Pollution and aesthetical impacts as a result of uncontrolled waste storage; • Uncontrolled storage of waste leading to pollution; • Impact on groundwater as a result of uncontrolled waste handling; • Impact on surrounding environment as a result of sewage control and waste water generation; and • Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal. 	<ol style="list-style-type: none"> 1. Portable sanitation facilities should be erected for construction personnel. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desired alternative to the surrounding vegetation). These facilities should also be monitored and serviced regularly so as to prevent contamination of the water resources. 2. All solid waste generated during construction, other than natural materials such as soil and rock, shall be disposed of off-site to the landfill site. 3. Separation and recycling of different waste materials is supported. 	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.

	<ul style="list-style-type: none"> Approximately 15 Workers will be present on site from 7:00 – 17:00, Monday to Saturday. Sources of general waste will be waste food, packaging, paper, etc. General waste will be stored on the site and removed on a weekly basis by a contractor 	<ol style="list-style-type: none"> Refuse collection and storage must be done in a way that will not cause a health nuisance. Construction personnel should be instructed not to dump any building materials on the untransformed vegetation around the site. All waste is to be disposed of at the local landfill site Waste Bins should be positioned around the site for use by construction personnel. These bins should be emptied and waste transported to the landfill site. Hazardous waste (Dead livestock) is not to be mixed or combined with general waste earmarked for disposal at the municipal landfill site. Under no circumstances is waste to be burnt or buried on site. All hazardous waste materials must be carefully stored as advised by the ECO. Hazardous waste should then be disposed at a licensed landfill site, where practical. Incineration may be used where relevant. Contaminants to be stored safely in a bunded area to avoid spillage. Mining equipment shall be properly maintained and serviced to keep oil leaks in check. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during the construction/operational phase. 		
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		<p>15. Hazardous spills shall immediately be cleaned up and all the identified affected areas rehabilitated.</p> <p>16. Portable sanitation facilities should be erected for construction/operational personnel.</p> <p>17. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desired alternative to the surrounding vegetation).</p> <p>18. These facilities should also be monitored and serviced regularly so as to prevent contamination of the water resources.</p> <p>19. No indiscriminate sanitary activities on site shall be allowed.</p> <p>20. Portable sanitation facilities shall be serviced regularly and the ECO shall inspect toilets regularly.</p> <p>21. Toilets should be no closer than 50m or above the 1:100 year flood line from any natural or manmade water bodies or drainage lines or alternatively located in a place approved of by the Engineer.</p> <p>22. The use of open areas, neighbours fences or the surrounding bushes as a toilet facility is prohibited.</p> <p>23. The construction of “Long Drop” toilets is forbidden, but rather toilets connected to the sewage treatment plant.</p> <p>24. Potable water shall be provided for all construction/operational staff.</p> <p>25. Depending on the nature, severity and extent of the hazardous spill, the contaminated soil must be either excavated or treated on-site as advised by the ECO or specialist.</p>		
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		<p>26. Excavation of contaminated soil must be supervised by the ECO or specialist. Appropriate tools/machinery shall be used to move contaminated soil to storage containers. Soil shall be stored until treated or disposed of at a licensed hazardous landfill site.</p> <p>27. The ECO or specialist must determine the precise treatment/handling method of the contaminated soil.</p> <p>28. If a hazardous spill occurs on an impermeable layered surface, such as cement or concrete, the spill must be contained using an oil absorbent material.</p> <p>29. Where and if necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure. These machines should then be fixed as quickly as possible.</p> <p>30. Remediation materials used for petrochemical spills must be used according to product specifications and guidance by the ECO or specialist.</p> <p>31. The contaminated remediation materials should then be removed carefully from the area of the spill to prevent further contamination, and should then be stored in adequate containers until appropriate disposal.</p> <p>32. It is advised that Storm water cut-off trenches should be dug around the various excavation areas and the proposed new tailings facility/porrel dam area.</p> <p>33. These cut-off trenches will then allow clean storm water to convey around the various excavation areas and the proposed new tailings facility/porrel dam area.</p>		
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		<p>34. It is advised that the proposed cut-off trenches should be dug to a max. depth of 250mm with gentle slopes. The banks and beds of the trenches should be compacted with rocks to ensure that no erosion or sedimentation are caused by the proposed cut-off trenches.</p> <p>35. It is advised that a storm water discharge point ("Outlet Structure") should be constructed at the base of each cut-off trenches. This will ensure that the water conveyed by the storm water cut-off trenches are discharged gently into the surrounding natural veld without causing any surface erosion. Any sedimentation flowing out of these discharge structures will be trapped by the silt fences, which should be installed at the base ("downstream" side) of each discharge point.</p> <p>36. The before mentioned trapped silt should be used for rehabilitation purposes.</p> <p>37. It is advised that silt fences (silt trap fences) should be installed on the "downstream" side of the excavation working areas and tailings facility / porrel dam. These fences will be used to trap any sedimentation and erosion that might be caused by the "dirty" water flowing over the mining site.</p> <p>38. The silt fences may consist of a permeable geotextile 70cm high and will be tucked into a 15cm deep anchor trench at the base. This will prevent the bottom of the fence from kicking out in a high flow situation. The fences will be supported with stakes/poles (mainly steel rods) at 1.5m centres.</p>		
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		<p>39. The proposed silt fences should be erected in such a way that they are at a soft angle to the direction of flow. There should also be a second silt fence installed in the areas where a higher flowrate is expected</p> <p>40. It is advised that an additional silt fence should be installed at the base (“downstream” side) of the proposed new tailings facility / porrel dam area. This will ensure that any sedimentation resulting from the construction, maintenance or operating of the new proposed tailings facility / porrel dam are trapped before it can reach any of the other areas of the proposed mining site.</p> <p>41. The proposed tailings facility /porrel dam should have an Emergency Spill-Way Channel that will allow the upper layers of water within the dam to flow over the dam wall in a controlled manner during a severe rainfall event. Additional silt fences should therefore be installed at the base (“downstream” side) of each proposed Emergency Spill-Way Channel. The water discharging from the Emergency Spill-Way Channel will therefore flow directly into the silt fences located at the base of the spill-way channel. These silt fences will then ensure that water can flow through the geotextile material while trapping any sedimentation within the water behind.</p>		
Water Use and Quality	<ul style="list-style-type: none"> Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site; 	<p>1. A specialist should develop a sustainable water supply management plan to minimise the impact on natural systems through managing water use, and avoiding depletion of aquifers and minimising the impacts on surrounding water users.</p>		

	<ul style="list-style-type: none"> • Impact on groundwater as a result of uncontrolled waste handling; and • Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction/operation vehicles on site. • Possible contamination of surface water resources as a result of contaminated runoff; • Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal; • Sedimentation of surface water resources as a result of runoff from cleared areas; • Contamination of surface water resources as a result of uncontrolled waste handling and disposal; • The development will increase storm water runoff resulting in erosion and possible sedimentation. 	<ol style="list-style-type: none"> 2. It is advised that any water must be reused, recycled or treated where possible. 3. The quality and quantity of effluent streams discharged to the environment, including stormwater, should be managed and treated to meet the applicable environmental effluent discharge guidelines and regulations. 4. Discharge to surface water should not result in contamination. 5. Efficient oil and grease traps or sumps should be installed and maintained at refueling facilities, workshops, fuel storage depots, and containment areas and spill kits should be available with emergency response plans. 6. The site must be managed in such a way that no pollution of drains, downstream watercourses or groundwater occur due to suspended solids and silt or chemical pollutants. 7. Installation of silt fences and erosion berms as necessary to prevent any soil entering the stormwater drains. 8. Temporary control measures include use of sand bags, erosion berms and straw bales placed across overland stormwater flow to reduce runoff rate and sedimentation. 9. Promote a water saving mind set with construction/operational phase workers in order to guarantee less water wastage. 10. Hazardous substances must be stored at least 40m from any water bodies on site to avoid pollution. 11. The installation of the stormwater system must take place as soon as possible to prevent the possible contamination of the 		
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		<p>surface water and surrounding groundwater from runoff.</p> <p>12. Earth, stone and rubble is to be properly disposed of, or utilized on site so as not to obstruct natural water path ways over the site. i.e. these materials must not be placed in stormwater channels, drainage lines or rivers.</p> <p>13. Drainage systems should be checked quarterly.</p> <p>14. If a batching plant is necessary, run-off should be managed effectively to avoid contamination of other areas of the site. Untreated runoff from the batch plant must not be allowed to get into the storm water system or nearby streams, rivers or erosion channels or dongas.</p> <p>15. Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines</p> <p>16. Process solution storage ponds and other impoundments designed to hold non fresh water or non-treated process effluents should be lined with an impermeable liner and be equipped with sufficient wells to enable monitoring of water quality and quantity.</p> <p>17. Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers).</p> <p>18. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.</p>		
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		<p>19. Concrete contaminated water must not enter soil or any natural drainage system as this disturbs the natural acidity of the soil and affects plant growth.</p> <p>20. Food preparation areas should be provided with adequate washing facilities and food refuse should be stored in sealed refuse bins which should be removed from site on a regular basis.</p> <p>21. The Contractor should take steps to ensure that littering by construction/mining workers does not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines.</p> <p>22. No vehicles shall be washed or serviced on site.</p> <p>The Ecological Fauna and Flora Habitat Survey (2021) (Appendix 9) states the following:</p> <p>- The in-channel dam and non-perennial river at the site is of medium-high sensitivity because of their importance for waterbirds and as a conservation corridor in the larger area. Therefore, it is advised that the watercourse and in-channel dam should be avoided and that the riparian zones with a 30 m bufferzone are excluded from the development where practical. Where not practical to conserve the non-perennial river and in-channel dam owing to the proposed development, rehabilitation of this area is imperative.</p>		
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g) Financial Provision

i. 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.

As seen in Section “d”

The Kareelaagte mine closure objectives will aim to ensure that the remaining post-closure impacts are reduced and are acceptable to the parties involved.

These closure objectives will only be achieved if the following is implemented:

- Decommissioning and removal of all mining-related infrastructure, foundations and concrete from the site.
- Metal, electrical installations or equipment that are part of reclaimable structures will be sold for scrap and also for re-use.
- All unvegetated disturbed areas within the site will be re-vegetated with species that are indigenous and ecologically adapted species which are specific to the area as soon as mining activity ceases.
- The growth and establishment of vegetation and stability thereof will be recorded, as well as erosion and drainage. If any adverse trends are identified, implementation of corrective measures will take place.
- Recording of vegetation will consider the infestation of AIS and also the perpetual ground cover.
- The invasion of AIS into the area will aid as an indication if the vegetation is of a stable, self-sustaining nature with little chance of retrogressing to an extent where water pollution and erosion can occur.
- Perturbation of final landforms must not occur for these landforms must be resilient and self-sustaining to forestall ongoing and further interventions by **Kareelaagte Diamante (Pty) Ltd.**
- The residual impacts must be acceptable with minimal deterioration over time.
- The outcome of rehabilitation of the mine site would be productive systems, where this site can sustain either livestock and/or wildlife.
- The quality of the environment and human quality of life, which includes general health and safety requirements, would not be imperilled.
- Efficient and cost-effective closure is attained with the lowest level of socioeconomic changes.

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

This can be confirmed as it was communicated through the public participation process.

(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 Rehabilitation & Closure Plan is attached as **Appendix 7.**

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

The rehabilitation plan is specifically designed to ensure that every closure objective is achieved.

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

CALCULATION OF THE QUANTUM

Applicant:
Evaluators:

Ref No.:
Date:

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	1000	15,32	1	1	15320
2 (A)	Demolition of steel buildings and structures	m2	0	213,37	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	314,44	1	1	0
3	Rehabilitation of access roads	m2	800	38,18	1	1	30544
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	370,59	1	1	0
4 (B)	Demolition and rehabilitation of non-electrified railway lines	m	0	202,14	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	426,73	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,48	223698,97	0,52	1	55835,26291
7	Sealing of shafts adits and inclines	m3	0	114,54	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,1	149132,65	1	1	14913,265
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0,1	185742,01	1	1	18574,201
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	539482,85	1	1	0
9	Rehabilitation of subsided areas	ha	0,1	124876,13	1	1	12487,613
10	General surface rehabilitation	ha	0,1	118138,21	1	1	11813,821
11	River diversions	ha	0,1	118138,21	1	1	11813,821
12	Fencing	m	0	134,76	1	1	0
13	Water management	ha	0,1	44919,47	1	1	4491,947
14	2 to 3 years of maintenance and aftercare	ha	0,5	15721,82	1	1	7860,91
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		183654,8409
1	Preliminary and General		22038,58091		weighting factor 2		22038,58091
					1		
2	Contingencies		18365,48409				18365,48409
					Subtotal 2		224058,91
					VAT (15%)		33608,84
					Grand Total		257668

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

Rehabilitation's financial guarantee required for the land disturbed by **Kareelaagte Diamante (Pty) Ltd**, is submitted in conjunction with the application for the MP. In addition provision for rehabilitation during closure through a rehabilitation trust will be established by **Kareelaagte Diamante (Pty) Ltd**

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

- h) Monitoring of Impact Management Actions
- i) Monitoring and reporting frequency
- j) Responsible persons
- k) Time period for implementing impact management actions
- l) Mechanism for monitoring compliance

Table 23: Mechanisms for Monitoring Compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Vegetation Clearance	<ul style="list-style-type: none"> Disruption of habitats 	<ul style="list-style-type: none"> Perform regular internal and external audits. 	<ul style="list-style-type: none"> Qualified environmental auditor Environmental Manager Environmental Control Officer 	<ul style="list-style-type: none"> Monitoring of mining operations should be done frequently At least every 6 months internal audits should be performed. On an annual basis external audits by a suitably qualified auditor should be performed If required, reports should be made available to the competent authority.
Excavations	<ul style="list-style-type: none"> Topsoil loss Erosion Air Pollution Dust Pollution Noise Pollution Potential cultural-, heritage artefacts and fossils harm 	<ul style="list-style-type: none"> Perform regular internal and external audits. 	<ul style="list-style-type: none"> Qualified environmental auditor Environmental Manager Environmental Control Officer 	<ul style="list-style-type: none"> Monitoring of mining operations should be done frequently . At least every 6 months internal audits should be performed. On an annual basis external audits by a suitably qualified auditor should be performed.

				<ul style="list-style-type: none"> - If required, reports should be made available to the competent authority.
Waste management	<ul style="list-style-type: none"> • Pollution 	<ul style="list-style-type: none"> • Perform regular internal and external audits. 	<ul style="list-style-type: none"> • Qualified environmental auditor • Environmental Manager • Environmental Control Officer 	<ul style="list-style-type: none"> - Monitoring of mining operations should be done frequently. - At least every 6 months internal audits should be performed. - On an annual basis external audits by a suitably qualified auditor should be performed. - If required, reports should be made available to the competent authority.
Water quality and use	<ul style="list-style-type: none"> • Water Pollution 	<ul style="list-style-type: none"> • Perform regular internal and external audits. 	<ul style="list-style-type: none"> • Qualified environmental auditor • Environmental Manager • Environmental Control Officer 	<ul style="list-style-type: none"> - Monitoring of mining operations should be done frequently. - At least every 6 months internal audits should be performed. - On an annual basis external audits by a suitably qualified auditor should be performed. - If required, reports should be made available to the competent authority.

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

A qualified environmental auditor should perform an external audit annually. In addition, monthly audit reports will be composed (by the ECO) and submitted to the applicant and DMR.

n) Environmental Awareness Plan

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

Kareelaagte Diamante (Pty) Ltd, the applicant, is committed to advance and implement sustainability throughout their operations.

Together with this commitment the applicant will put forward an Environmental Awareness Plan, which will aid in employees awareness of the potential impacts of the environment which can result from performing their daily jobs. Including, how these potential risks can be reduced through effective training.

This training will include:

- Induction training (full-time staff and all contractors)
- In-house training sessions (relevant employees)
- On the job training regarding the various environmental issues identified.
- Training and skills development through the aid of environmental awareness courses.

The above mentioned will be a focus point of the Environmental Communication Strategy that will be implemented. This will ensure environmental awareness of all personnel and bring under attention what environmental aspects require attention during their day to do work, task and operations.

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

Kareelaagte Diamante (Pty) Ltd will appoint an ECO that will compile and implement an incident reporting and reporting procedure to identify possible risks throughout the various phases of the project.. In addition to this, the ECO will also implement actions to avoid or reduce environmental impacts.

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

The Competent Authority has of yet not detailed any specific information requirements.

2. 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 Environmental Impact Assessment report and the EMPr report.

I, **Danie Labuschagne** (EAP) herewith confirms

B. the correctness of the information provided in the reports ☒

C. the inclusion of comments and inputs from stakeholders and I&APs ; ☒

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- D. the inclusion of inputs and recommendations from the specialist reports where relevant; ☒
and
- E. the acceptability of the project in relation to the finding of the assessment and level of mitigation
proposed; ☒



Signature of the environmental assessment practitioner:

Kuhle Environmental Consult (Pty) Ltd - Environmental Consultants

Name of company:

11/08/2021

Date:

-END-