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AMENDED ENVIRONMENTAL IMPACT ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR:

PROSPECTING RIGHT APPLICATION FOR THE PROSPECTING OF DIAMONDS (ALLUVIAL & GENERAL) NEAR PRIESKA ON PORTION 12, REMAINING EXTENT OF PORTION 29 (PORTION OF PORTION 13) AND PORTION 31 (PORTION OF PORTION 29) OF THE FARM READS DRIFT 74, REGISTRATION DIVISION; HERBERT. NORTHERN CAPE PROVINCE.

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DISCLAIMER

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PROJECT INFORMATION


Project Name: Application for an Environmental Authorisation for the proposed Prospecting Right application for the prospecting of Diamonds (Alluvial & General) near Prieska on a Portion 12, Remaining Extent of Portion 29 (portion of portion 13) and Portion 31 (portion of portion 29) of the farm Reads Drift 74, Registration Division; Herbert. Northern Cape Province.

Report Title: EIR & EMPr

Prepared By: Milnex CC Environmental Consultants

Date: October 2020

QUALITY CONTROL:

	Report Author:	Report Reviewer:
Name:	Mr. Danie Labuschagne	Lizanne Esterhuizen Honours Degree in Environmental Science
Signature:		

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As of 31/01/2020 Mr Danie Labuschagne is no longer working for Milnex CC. He compiled the primary reports (Scoping and EIR documents). Further amendments and reviews of the application and documents were done by Ms. Lizanne Esterhuizen

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.

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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.

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.

SCOPE OF ASSESSMENT AND CONTENT OF ENVIRONMENTAL IMPACT ASSESSMENT REPORTS

A. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of:

- i) The EAP who prepared the report
- ii) Expertise of the EAP

Name of Practitioner	Qualifications	Contact details
Ms. Percy Sehaole Pr.Sci.Nat	Master's Degree in Environmental Science (refer to Appendix 1)	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: percy@milnex-sa.co.za
Lizanne Esterhuizen	Honours Degree in Environmental Science (refer to Appendix 1)	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: lizanne@milnex-sa.co.za

Summary of the EAP's past experience. (Attach the EAP's curriculum vitae as **Appendix 2**)

Milnex CC was contracted by **Steinmann Groep (Pty) Ltd.** as the independent environmental consultant to undertake the Scoping and EIA process for the proposed Diamonds (Alluvial), Diamonds General and Diamonds (DIA), combined with a Waste License application near Prieska on a Portion 12, Remaining Extent of Portion 29 (portion of portion 13) and Portion 31 (portion of portion 29) of the farm Reads Drift 74, Registration Division; Herbert, Northern Cape Province. The farm Reads Drift 74 is located approximately 80km Northeast of Prieska in the Northern Cape Province. Milnex CC does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Milnex CC is a specialist environmental consultancy with extensive experience in the mining industry which provides a holistic environmental management service, including environmental assessment and planning to ensure compliance with relevant environmental legislation. Milnex CC benefits from the pooled resources, diverse skills and experience in the environmental and mining field held by its team that has been actively involved in undertaking environmental studies for a wide variety of mining related projects throughout South Africa. The Milnex CC team has considerable experience in environmental impact assessment and environmental management, especially in the mining industry.

Percy Sehaole & Lizanne Esterhuizen have experience consulting in the environmental field. Their key focus is on environmental assessment, advice and management and ensuring compliance to legislation and guidelines. They are currently involved in undertaking EIAs for several projects across the country (refer to **Appendix 2** for CV).

B. DESCRIPTION OF THE PROPERTY

Farm Name:	<ol style="list-style-type: none"> 1. Portion 12 of the farm Reads Drift 74 2. Remaining extent of portion 29 (portion of portion 13) of the farm Reads Drift 74 3. Portion 31 (portion of portion 29) of the farm Reads Drift 74
Application area (Ha)	2 459.4556 hectares
Magisterial district:	Pixley Ka Seme District Municipality
Distance and direction from nearest town	The farm Reads Drift 74 is located approximately 80km Northeast of Prieska in the Northern Cape Province.
21 digit Surveyor General Code for each farm portion	<ol style="list-style-type: none"> 1. C0320000000007400012 2. C0320000000007400000 3. C0320000000007400031

Minerals Applied for:	Diamonds Alluvial (DA) Diamonds General (D)
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iii. Farm co-ordinates

FID	X	Y	X2	Y2
0	23°23'17,532"E	29°11'40,070"S	23.3882	-29.19446377
1	23°24'47,817"E	29°10'22,285"S	23.41328	-29.17285702
2	23°26'5,601"E	29°11'5,344"S	23.43489	-29.1848179
3	23°27'41,443"E	29°10'44,509"S	23.46151	-29.17903038
4	23°28'7,834"E	29°12'12,017"S	23.46884	-29.20333798
5	23°28'23,113"E	29°13'15,911"S	23.47309	-29.22108638
6	23°27'48,388"E	29°13'18,689"S	23.46344	-29.22185805
7	23°27'48,388"E	29°13'18,689"S	23.46344	-29.22185805

C. LOCALITY MAP

(show nearest town, scale not smaller than 1:250000 attached as **Appendix 3**).

A Locality map is attached in **Appendix 3** and on figure 1 below.

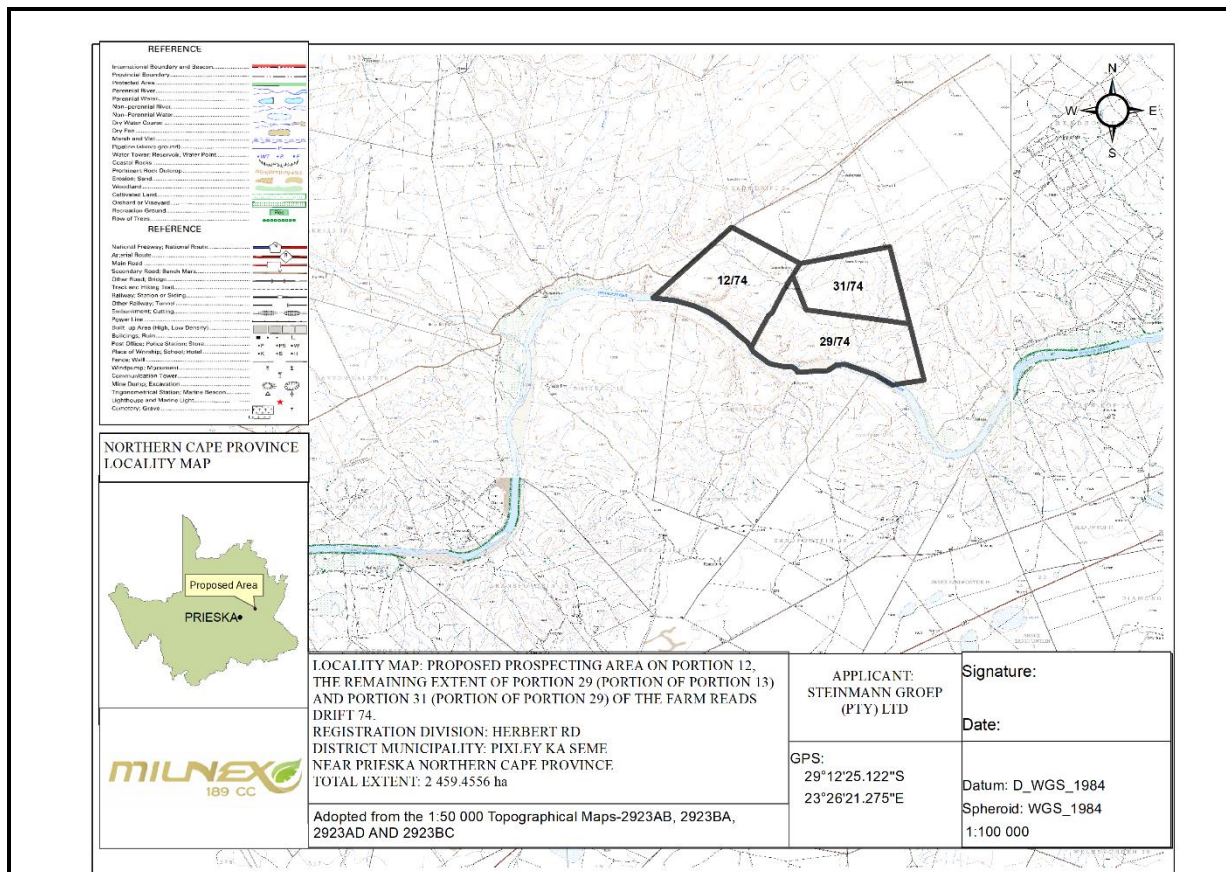


Figure 1: Locality Map

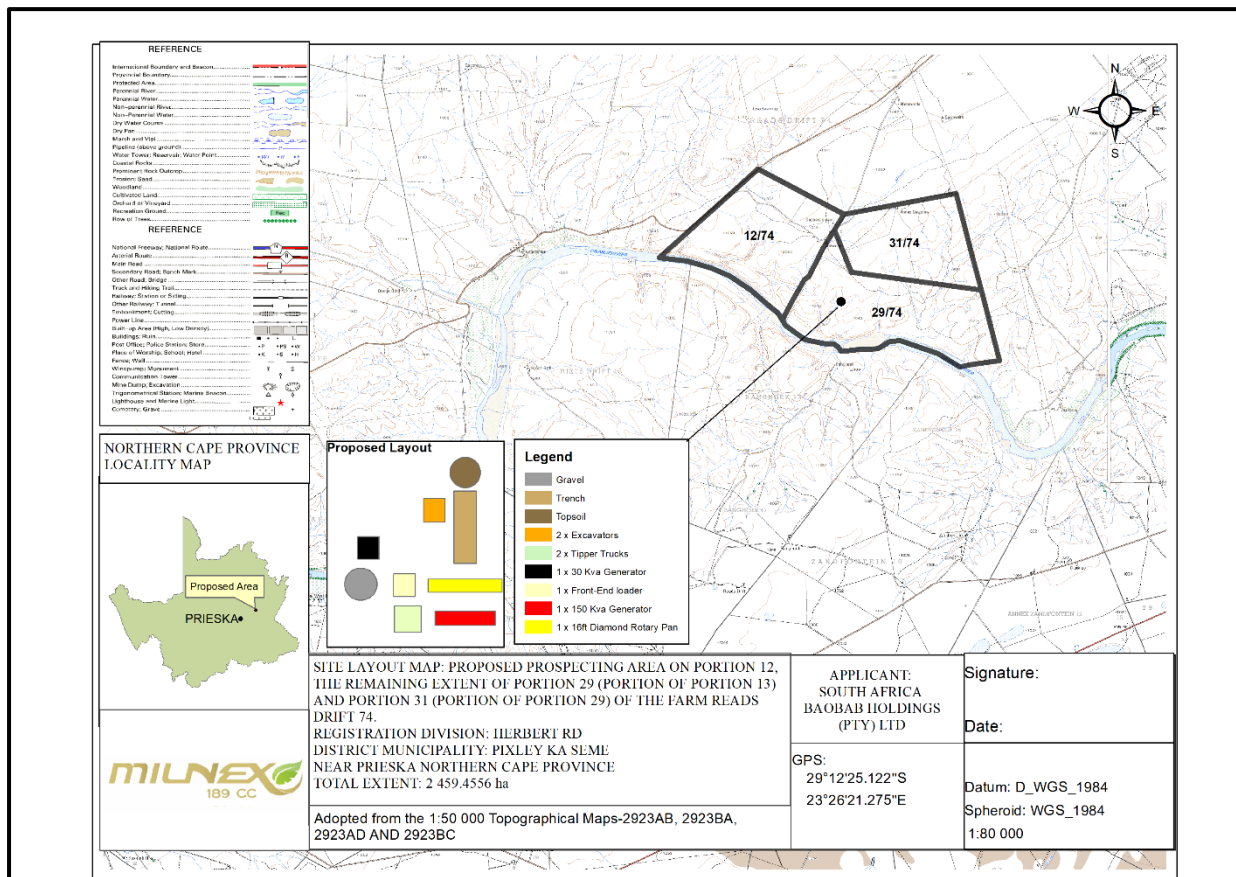


Figure 2: Site Plan

D. DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

i) LISTED AND SPECIFIED ACTIVITIES

<p>Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)</p>	<ol style="list-style-type: none"> Listing Notice GNR 325, Activity 15: "The clearance of an area of 20 hectares or more, of indigenous vegetation." Listing Notice GNR 324, Activity 12(g): "The clearance of an area of 300 square metres or more of indigenous vegetation: (ii) Within critical biodiversity areas identified in bioregional plans;" Listing Notice GNR 325, Activity 19: "The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [.] ; or (b) [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)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;
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	<p>4. Listing Notice GNR 327, Activity 20: “Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including—</p> <p>(a) associated infrastructure, structures and earthworks, directly related to prospecting 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)]</p> <p>(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; – Prospecting right with bulk samples for the mining of Diamond Alluvial (DA) and Diamonds General (D) including associated infrastructure, structure and earthworks.</p> <p>5. NEM:WA 59 of 2008</p> <p>Residue stockpiles or residue deposits</p> <p>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).</p>
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NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the Activity Ha or m ²	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GNR 324, GNR 325 or GNR 326)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act) (Mark with an X)
Prospecting: BULK SAMPLING: 2 459.4556 Ha – 3m x 3m x 4m (90 pits), 30m x 30m x 5m (32 trenches) Listing Notice GNR 325, Activity 19: "The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,]; or (b) [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)] the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing	2459.4556 hectares Total hectares to be disturbed	X	Listing Notice GNR 325, Activity 19:	-
Clearance of indigenous vegetation: BULK SAMPLING: 2 459.4556 Ha – 3m x 3m x 4m (90 pits), 30m x 30m x 5m (32 trenches) Listing Notice GNR 325, Activity 15: "The clearance of an area of 20 hectares or more, of indigenous vegetation." – Random indigenous vegetation clearance of over a 2 459.4556 hectares area	2459.4556 hectares Ha Total hectares to be disturbed Concurrent backfilling will take place in order to rehabilitate.	X	Listing Notice GNR 325, Activity 15	-
Clearance of indigenous vegetation: BULK SAMPLING: 13 908.17 Ha – 3m x 2m x 4m (95 pits), 30m x 30m x 5m (30 trenches)	2 459.4556 Ha Total hectares to be disturbed Concurrent backfilling will take place in order to rehabilitate.	X	Listing Notice GNR 324, Activity 12(g)(ii).	-

<p>Listing Notice GNR 324, Activity 12(g): The clearance of an area of 300 square metres or more of indigenous vegetation: (ii) Within critical biodiversity areas identified in bioregional plans;</p>				
<p>Prospecting Right: BULK SAMPLING: 2 459.4556 Ha – 3m x 3m x 4m (90 pits), 30m x 30m x 5m (32 trenches)</p> <p>16 feet washing pan with 190 080 tons to be washed, conveyors, screens, etc.</p> <p>Listing Notice GNR 327, Activity 20: “Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting 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 petroleum resource including winning, extraction, classifying, concentrating or water removal</p>	<p>2 459.4556 Ha Total hectares to be disturbed</p>	<p>X</p>	<p>Listing Notice GNR 327, Activity 20:</p>	
<p>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).</p>			<p>NEM:WA 59 of 2008 Category A: (15)</p>	

ii) **DESCRIPTION OF THE ASSOCIATED STRUCTURES AND INFRASTRUCTURE RELATED TO THE DEVELOPMENT**

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

Steinmann Groep (Pty) Ltd. has embarked on a process for applying for a prospecting right for the prospecting of Diamonds (Alluvial & General) on Portion 12, Remaining Extent of Portion 29 (portion of portion 13) and Portion 31 (portion of portion 29) of the farm Reads Drift 74, Registration Division; Herbert. Northern Cape Province. These farms are preferred due to the sites expected mineral resources. **Steinmann Groep (Pty) Ltd.** requires a prospecting right in terms of NEMA and the Mineral and Petroleum Resources Development Act to mine Diamonds (Alluvial & General) within the Siyancuma Local Municipality, Northern Cape Province (refer to a locality map attached in **Appendix 3**).

A DESCRIPTION OF HOW THE MINERAL RESOURCE AND MINERAL DISTRIBUTION OF THE PROSPECTING AREA WILL BE DETERMINED

Phase 1: Site Visit

The applicant will appoint Pierre de Jager as the project geologist to conduct the site visit. A formal site visit will be done within 90 days after the prospecting right has been executed. It is foreseen that more than one site visit will be conducted on the farms.

The purpose of the site visit is to assist the applicant to be familiar with the environment and with the assessment of the topography and the general geology before invasive prospecting activities. During this process the applicant will also review all documentation that has been received in relation to the geology of the area.

Phase 2: Desktop Studies

Desktop studies will be undertaken after a site investigation is done to determine the target areas including the identification of any infrastructure to be build and any potential problems that may need to be addressed.

This phase involves reviewing the literature surveys, interpretation of aerial photographs, satellite images and ground validation of targets. A preliminary analysis of the environment will be obtained which will improve the project's efficiency and cost by providing a clearer understanding of the challenges may be encountered. Compilation of the results of analysis will be done by the geologist after the finalization of the desktop studies.

Phase 3: Pitting

A trial pit / test pit or inspection pit investigation is a highly effective way of obtaining data on the sub surface soil and rock conditions which underlie a prospecting sight. It allows for the various soils and rock types to be locked, the soil to be sampled and a preliminary assessment to be made.

Pits will be dug, locked, sampled and backfilled. To dig the pits the applicant will make use of the systems of Pierre de Jager, the appointed project geologist.

The applicant shall at the end of the pitting process have locked the pits with the following information:

- A description of the soil and rock types from ground level to the base of the pits;
- Record of rock head depth and refusal depth, a list of where the samples will be taken, a record of where ground water seepage will be recorded;
- A general note of the geology and conditions in the vicinity of the test pits
- Pitting will be done within the period of 24 months once the prospecting right has been granted.

It is planned that **90 pits** will be dug (it may be less depending on the results) at an extent of **3m (length) x 3m (breadth) x 4m (depth)**.

- **(90 pits / 24 months) = 45 pits dug per year**

- **Total area to be disturbed per 24 months = 90 pits x (3m x 3m) / 10 000 = 0.081 Ha disturbed per year**
- **Total area disturbed for 12 months = 45 pits x (3m x 3m) / 10 000 = 0.0405 Ha disturbed for 12 months**

Phase 4: Trenches

The plant/ bulk sampling technique shall be that of a typical South African alluvial diamond mining operation. The method is a strip mining process with oversize material and tailings recovered from the plant will be used as backfill material prior to final rehabilitation. Gravels are excavated, loaded and transported to the treatment facility using dump trucks.

The bulk sampling operation will be conducted using a fleet of conventional open pit mining equipment comprising of dump trucks supported by appropriate excavators and front-end- loaders. All equipment is planned to be diesel driven.

Before excavation commences vegetation shall be cleared from the proposed bulk sampling block. These shall be done as per environmental regulations. Top soil will then be removed and stored separately for later used for rehabilitation.

The bulk samples will be made in the form of box cuts whereby the dimensions of these individual box cuts on average are to be **30m wide x 30m long x 5m deep**.

Gravel will be removed by excavators and will be loaded directly into dump trucks. Ore will be hauled to the screening plant. The material will be screened where after the screened material will be moved to the processing plant where the gravel will be processed. Concentrate will be moved to the sorting plant where the concentrate will be sorted. It is estimated that the bulk sampling will take approximately **24 months** consisting of about **32 trenches** to be excavated.

- **(32 trenches / 24 months) = 16 trenches dug per year**
- **Total area to be disturbed per year = 16 trenches x (30m x 30m) / 10 000 = 1.44Ha disturbed per year**

Total area to be disturbed per year = 1.44Ha + 0.0405Ha = 1.4805 disturbed per year

Phase 5: Consolidation and interpretation of results data

The prospecting activities will be conducted to determine an inferred diamond resource and an indicated diamond resource. An inferred diamond resource has a lower level of confidence than that applying to an indicated diamond resource. The inferred resource indication shall be where the geological and or grade continuity could not be confidently interpreted. It cannot be assumed that an inferred resource will necessarily be upgraded to an indicated resource. Such a resource is normally also not sufficient to enable an evaluation of economic viability.

To obtain an indicated resource the confidence level of information obtained from the prospecting will have to be sufficient for the information to be applied to mine design, mine planning to enable an evaluation of economic viability.

The project geologist, Pierre de Jager, will monitor the program and consolidate and process the data and amend the program depending on the results received after each phase of prospecting. The DMR will be updated of any amendments made. This will be a continuous process throughout the prospecting work program.

Each physical phase of prospecting shall be followed by desktop studies involving interpretation and modeling of all data gathered. These studies will determine the manner in which the work programme is to be proceeded with in terms of the activity, quantity, resources, expenditure and duration.

A GIS data base will be constructed capturing all the exploration data. All data shall be consolidated and processed to determine the diamond bearing resource on the property.

Water uses:

The main focus is the Orange River. Water uses under section 21 a-k of the NWA will be triggered, thus a Water Use Licence Application (WULA) will be needed. When needed WULA will be lodged with the department of Water & Sanitation (DWS).

The following water uses may be applicable:

1. Section 21 (a): taking water from a water resources
2. Section 21 (b): storing water
3. Section 21 (c): impeding and diverting the flow of water in a watercourse
4. Section 21 (g): disposing of waste in a manner which may detrimentally impact on a water Resources
5. Section 21 (i): altering the bed, banks, course or characteristics of the watercourse
6. Section 21(j): removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people

Table 1: Water Use Pan Size specifications for Alluvial Diamond Mining (DWS NC & FS, 2001).

Pan size	Water/hour (m ³)	Water/day(m ³)	Gravel/hour (tons)	Gravel/day (ton)
16	17	170	60	600

Since 1 x 16 feet washing pans will be used, the amount of water for the pans will be 17 000 L/hour from which 30% is re-used.

Wetlands buffer zones

In order to best conserve the wetland areas, no development would take place within wetland or wetland buffer zone except authorised by water use licence. A buffer zone should be determined by a registered specialist.

Ablution

Chemical toilets shall be used, no french drains and pits shall be permitted.

Storage of dangerous goods

During the prospecting activities, limited quantities of diesel and fuel, oil and lubricants will be stored on site. 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.

Prospecting activities and phases

Please find the Prospecting Work Programme attached as **Appendix 8**.

E. POLICY AND LEGISLATIVE CONTEXT

(a description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;)

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);	REFERENCE WHERE APPLIED
The Constitution of South Africa (Act No. 108 of 1996)	-
The National Environmental Management Act (Act No. 107 of 1998)	S24(1) of NEMA S28(1) of NEMA
The National Water Act (Act No. 36 of 1998)	S21 (a)(b) of 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)	-

Milnex CC: EIA365 –EIR & EMPr - Prospecting Right application for the prospecting of Diamonds (Alluvial & General) near Prieska on a Portion 12, Remaining Extent of Portion 29 (portion of portion 13) and Portion 31 (portion of portion 29) of the farm Reads Drift 74, Registration Division; Herbert. Northern Cape Province.

National Infrastructure Plan	-
Northern Cape Growth and Development Strategy	-
Pixley Ka Seme District Municipality Integrated Development Plan (IDP)	-
Siyancuma Local Municipality Integrated Development Plan (IDP) Review	-
National Forest Act (Act 84 of 1998) (NFA)	-
National Veld & Forest Fires Act (Act 101 of 1998)	-

Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY 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 Constitution is the supreme law of the Republic and all law and conduct must be consistent with the Constitution. The Chapter on the Bill of Rights contains a number of provisions, which are relevant to securing the protection of the environment. Section 24 states that “everyone has the right to (a) an environment that is not harmful to their health or well-being and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The Constitution therefore, compels government to give effect to the people’s environmental right and places government under a legal duty to act as a responsible custodian of the countries environment. It compels government to pass legislation and use other measures to protect the environment, to prevent pollution and ecological degradation, promote conservation and secure sustainable development.
The National Environmental Management Act (Act No. 107 of 1998)	S24(1) of NEMA S28(1) of NEMA	NEMA provides for co-operative governance by establishing principles and procedures for decision-makers on matters affecting the environment. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management. Some of the principles in the Act are accountability; affordability; cradle to grave management; equity; integration; open information; polluter pays; subsidiary; waste avoidance and minimisation; co-operative governance; sustainable development; and environmental protection and justice. The mandate for EIA lays with the National Environmental Management Act (107 of 1998) and the EIA Regulations No. 982, 983, 984, and 985 promulgated in terms of Section 24 of NEMA. The EIA Regulations determine that an Environmental Authorisation is required for certain listed activities, which might have a detrimental effect on the environment. This EIA was triggered by activity 21, 24(ii) and 27 listed in Regulation R983, which requires a ‘basic assessment process.’
The National Water Act (Act No. 36 of 1998)	S21	Sustainability and equity are identified as central guiding principles in the protection, use, development, conservation, management and control of water resources. The intention of the Act is to promote the equitable

		<p>access to water and the sustainable use of water, redress past racial and gender discrimination, and facilitate economic and social development. The Act provides the rights of access to basic water supply and sanitation, and environmentally, it provides for the protection of aquatic and associated ecosystems, the reduction and prevention of pollution and degradation of water resources.</p> <p>As this Act is founded on the principle that National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, a person can only be entitled to use water if the use is permissible under the Act. Chapter 4 of the Act lays the basis for regulating water use.</p>
<p>Management: Air Quality Act (Act No. 39 of 2004)</p>	<p>S21</p>	<p>The object of this Act is to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air in the Republic; the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting justifiable economic and social development.</p> <p>Regulations No. R248 (of 31 March 2010) promulgated in terms of Section 21(1) (a) of the National Environmental Management Act: Air Quality Act (39 of 2004) determine that an Atmospheric Emission License (AEL) is required for certain listed activities, which result in atmospheric emissions which have or may have a detrimental effect on the environment. The Regulation also sets out the minimum emission standards for the listed activities. It is not envisaged that an Atmospheric Emission License will be required for the proposed development.</p>
<p>The National Heritage Resources Act (Act No. 25 of 1999)</p>		<p>The Act aims to introduce an integrated and interactive system for the management of the heritage resources, to promote good government at all levels, and empower civil society to nurture and conserve heritage resources so that they may be bequeathed to future generations and to lay down principles for governing heritage resources management throughout the Republic. It also aims to establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources, to set norms and maintain essential national standards and to protect heritage resources, to provide for the protection and management of conservation-worthy places and areas by local authorities, and to provide for matters connected therewith.</p> <p>The Act protects and manages certain categories of heritage resources in South Africa. For the purposes of the Heritage Resources Act, a "heritage resource" includes any place or object of cultural significance. In this regard the Act makes provision for a person undertaking an activity listed in Section 28 of the Act to notify the resources authority. The resources authority may request that a heritage impact assessment be conducted if there is reason to believe that heritage resources will be affected.</p>

<p>Conservation of Agricultural Resources Act (Act No. 85 of 1983)</p>		<p>The objective of the Act is to provide for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.</p> <p>Consent may be required from the Department of Agriculture in order to confirm that the proposed development is not located on high potential agricultural land.</p>
<p>Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)</p>		<p>The Minerals and Petroleum Resources Development Act identifies the state as the official custodian of South Africa's Mineral and Petroleum Resources. Therefore all activities relating to the reconnaissance, prospecting rights, mining rights, mining permits and retention permits are regulated by the State.</p> <p>A mining permit application has been lodge with the Department of Mineral Resources – Northern Cape Province</p>
<p>National Infrastructure Plan</p>		<p>The National Government adopted a National Infrastructure Plan in 2012. With the plan they aim to transform the South African economic landscape while simultaneously creating significant numbers of new jobs, and strengthening the delivery of basic services.</p> <p>Government will over the three years from 2013/14 invest R827 billion in building and upgrading existing infrastructure.</p> <p>These investments will improve access by South Africans to healthcare facilities, schools, water, sanitation, housing and electrification. On the other hand, investments in the construction of ports, roads, railway systems, electricity plants, hospitals, schools and dams will contribute to faster economic growth.</p> <p>This mining activity will indirectly contribute to the growing of the South African economy by supplying SANRAL with material to build and upgrade road infrastructure.</p>
<p>National Forest Act 84 of 1998</p>		<p>The protection, sustainable management and use of forests and trees within South Africa are provided for under the National Forests Act (Act 84 of 1998).</p> <p>Prohibition on destruction of trees in natural forests</p> <p>(1) No person may -</p> <p style="padding-left: 40px;">(a) cut, disturb, damage or destroy any indigenous tree in a natural forest; or</p>

		<p>(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-</p> <p>(i) a licence issued under subsection (4) or section 23; or</p> <p>(ii) an exemption from the provisions of this subsection published by the Minister in the <i>Gazette</i> on the advice of the Council.</p>
National Environmental Management: Protected Areas Act 57 of 2003		<p>This Act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. It also seeks to provide for the sustainable utilization of protected areas and to promote participation of local communities in the management of protected areas.</p>
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)		<p>Section 24S of NEMA deals with the management of residue stockpiles and residue deposits and provides that Residue stockpiles and residue deposits must be deposited and managed in accordance with the provisions of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), on any site demarcated for that purpose in the environmental management plan or environmental management programme in question</p> <p>The management of residue stockpiles and residue deposits must be done in accordance with any conditions set out and any identified measures in the environmental authorisation issued in terms of NEMA, an environmental management programme and a waste management licence issued in terms of NEMA (Regulation 3(2)).</p>
National Environmental Management: Waste Act, 2008 (Act No. 59 Of 2008) Regulations regarding the Planning & Management of Residue Stockpiles & Residue Deposits from a Prospecting, Mining, Exploration or Production Operation		<p>The purpose of these Regulations is to regulate the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation.</p>

F. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

(a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred [location] development footprint within the approved site as contemplated in the accepted scoping report;).

Prospecting rights and mining permits have been applied for all around the proposed site, and the outcome of that studies suggest the possibility of encountering further diamond deposits.

The Northern Cape Province is an important supplier of rough diamonds to the international market and is a large corner stone of the South African economy.

G. A MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT

(-within the approved site as contemplated in the accepted scoping report;)

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.

Location of the site

The location of the site is preferred due to the presence of shallow diamond. Access will be obtained from existing tar and gravel roads.

Preferred activity

The prospecting of Diamonds (Alluvial & General) is the optimum preferred activity for the site. The shallow diamond deposits makes the site ideal for alluvial diamond mining. The mine will provide significantly more job opportunities than what is providing currently.

H. A FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED DEVELOPMENT FOOTPRINT

(-within the approved site as contemplated in the accepted scoping report, including:)

i) Details of the development footprint alternatives considered;

• Consideration of alternatives

The DEAT 2006 guidelines on ‘assessment of alternatives and impacts’ proposes the consideration of four types of alternatives namely, the no-go, site, activity, and technology alternatives. It is however, important to note that the regulation and guidelines specifically state that only ‘feasible’ and ‘reasonable’ alternatives should be explored. It also recognizes that the consideration of alternatives is an iterative process of feedback between the developer, the EAP and Interested and affected parties, which in some instances culminates in a single preferred project proposal. The following sections explore each type of alternative in relation to the proposed activity.

• Location alternatives

This alternative asks the question, if there is not, from an environmental perspective, a more suitable location for the proposed activity. No other properties have been secured by **Steinmann Groep (Pty) Ltd.** near Prieska area to potentially mine Diamonds (Alluvial & General). Also, it is expected that the Diamonds (Alluvial & General) been deposited on this farm and therefore the applicant would like to commence with their prospecting activities.

Land capability is the combination of soil suitability and climate factors. The proposed development falls within Land in Class VII; which has very severe limitations that makes it unsuited to cultivation and that restrict its use largely to grazing, woodland or wildlife.

- Restrictions are more severe than those for Class 6 because of one or more continuing limitations that cannot be corrected, such as:
 - Very steep slopes.
 - Erosion.

- Shallow soil.
- Stones.
- Wet soil.
- Salts or sodicity.
- Unfavourable climate.
- Physical conditions are such that it is impractical to apply such pasture or range improvements as seeding, liming and fertilizing.
- Depending on soil characteristics and climate, land in Class 7 may be well or poorly suited to woodland. In unusual instances some occurrences may be used for special crops under unusual management practices. (AGIS, 2016)..

Refer to Land capability map attached as **Appendix 5 & figure 3 below.**

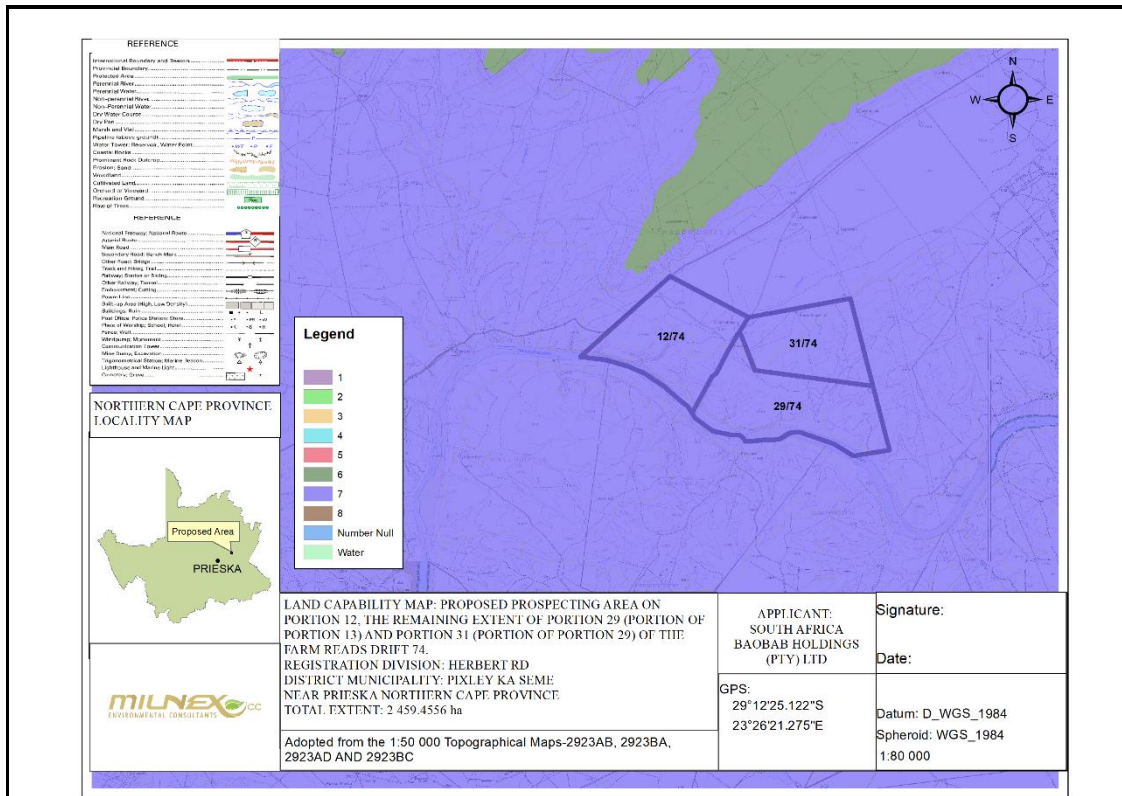


Figure 3: Land capability

● **Activity alternatives**

The environmental impact assessment process also needs to consider if the development of an alluvial diamond mine would be the most appropriate land use for the particular site.

Prospecting of other commodities –from the surface and desktop assessment indicates that there are no indications that there are other commodities to be mined on the site, except alluvial diamond.

● **Design and layout alternatives**

Design alternatives were considered throughout the planning and design phase (i.e. where is the diamond bearing gravel located?). In this regard discussions on the design were held between the EAP and the developer. The layout follows the limitations of the site and aspects such as, roads, site offices and workshop area as well as fencing– refer **Appendix 3**.

● **Operational alternatives**

Due to the nature of the prospecting activities, no permanent services in terms of water supply, electricity, or sewerage services are required.

The activities will commence with a site investigation and desktop studies, which will comprise of non-invasive techniques. This manner of survey will ensure that the applicant can clearly delineate areas which are suitable for further investigation and no unnecessary surface disturbance will be undertaken.

Based on the outcome of the desktop studies and site investigation, pits will be dug by an excavator for the purpose of soil sampling. If gravel is found, the applicant will determine the the composition and quality of the gravel.

The applicant will proceed with this way of prospecting by means of the open cast/trenching method, simultaneously or after pitting depending on the information obtained from the earlier work done. The trenches will be dug to remove and wash the gravel. It will be washed by a 10-18 feet washing pan to determine diamond proceeds per 100 tons of gravel.

All data will be consolidated and processed to determine the diamond bearing resources on the property. This will be a continuous process throughout the prospecting work programme.

No feasible alternatives to the pitting and trenching method currently exists. Impacts associated with the prospecting operations will be managed through the implementation of a management plan, developed as part of the application for authorisation.

- **No-go alternative**

This alternative considers the option of ‘do nothing’ and maintaining the status quo. The description provided in section H of this report could be considered the baseline conditions (status quo) to persist should the no-go alternative be preferred. The site is currently zoned for agricultural land uses. Should the proposed activity not proceed, the site will remain unchanged.

Technology alternatives

In terms of the technologies proposed, these have been chosen based on the long term success of their prospecting history. The prospecting activities proposed in the Prospecting Works Programme (**Appendix 9**) is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

The preferred technology for the proposed mining activity, will be to remove the diamond bearing gravel with an excavator, depositing it in the 10 – 18 feet rotary pan(s) to be washed and sorted. Please find the Prospecting Work Programme attached as **Appendix 9**.

Pros & Cons of the alternative **Dense Media Separation (DMS)**

Advantages	Disadvantages
DMS plants is used mostly for kimberlite deposits	10 times more expensive than Rotary pan
	Water consumption is high
	Operating costs are expensive

In a Dense Media Separation (DMS) plant, powdered ferrosilicon (an alloy of iron and silicone) is suspended in water to form a fluid near the density of diamond (3.52 g/cm³), to which the diamond bearing material is added to begin the separation process of the heavier minerals from the lighter material. Additional separation of the denser material occurs by centrifuge in “cyclones” that swirl the mixture at low and high speeds, forcing the diamonds and other dense minerals to the walls and then out the bottom of the cyclone. Waste water rises at the center of the cyclones and is sucked out and screened to remove waste particles. The DMS process results in a concentrate that generally weighs less than one percent of the original material fed into the plant at the beginning of the process.

Pros & Cons of the alternative **Rotary Pan Plants**

Advantages	Disadvantages
More cost effective	The industry perception that Rotary Pan Plants yield poorer diamond recoveries
Readily available	
Generate more work opportunities	
Consume less water	
Rotary Pan Plants are most often used when mining alluvial deposits	

In a Rotary Pan plant, crushed ore, when mining kimberlite, or alluvial gravel and soil is mixed with water to create a liquid slurry called “puddle” which has a density in the 1.3 to 1.5 g/cm³ range. The mix is stirred in the pan by angled rotating “teeth”. The heavier minerals, or “concentrate”, settle to the bottom and are pushed toward an extraction point, while lighter waste remains suspended and overflows out of the centre of the pan as a separate stream of material. The concentrate, representing just a small percentage of the original kimberlite ore or alluvial gravels, is drawn off for final recovery of the diamonds.

Both methods are in actual fact used for bulk material reduction and require a further process for the final diamond recovery however, for this project the Rotary Pan will be used.

When it comes to dust suppression two main methods were considered, namely molasses stillage and the wetting (water) of roads. The table below provides a short summary of the advantages and disadvantages of each.

Water	Molasses stillage
More cost effective	Much more expensive
Could lead to the depleting of water resources	Requires less water
No damage (only if used excessively)	The product may be toxic to aquatic organisms. (As this product could have physical effects on aquatic organisms for e.g. floating, osmotic damage)
No harm to humans or animals(Only a high quantity will have harm to humans or animals)	Not Hazardous or toxic. Could cause irritation to eyes, skin or when ingested and inhaled.
Non-flammable	Non-flammable
Eye-wash fountains not needed	Eye-wash fountains in the work place are strongly recommended
	Working procedures should be designed to minimize worker exposure to this product.
Basic storing methods	Storing methods are a bit more complicated. Should be stored in a plastic, plastic lined or stainless steel, tight closed containers between 5 and 40 degrees Centigrade.

Considering the above mentioned information, water will be used for dust suppression purposes.

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.

Advertisement and Notices

An advertisement was placed in English in the local newspaper (**Noordkaap**) on **3 April 2019** (see **Appendix 6**) notifying the public of the EIA process and requesting Interested and Affected Parties (I&APs) to register with, and submit their comments to Milnex CC. I&APs were given the opportunity to raise comments within 30 days of the advertisement.

Site notices

Site notices was placed (as anticipated on the coordinates below) on site in English on **9 April 2019** to inform surrounding communities and immediately adjacent landowners of the proposed development. I&APs will be given the opportunity to raise comments. Photographic evidence of the site notices will be included in **Appendix 6**. Below are the coordinates where the site notices will be placed.



Figure 4: Site notice co-ordinates

Direct notification and circulation of Scoping Report to identified I&APs

Identified I&APs, including key stakeholders representing various sectors, are directly informed of the proposed development and the availability of the Scoping Report via registered post on **14 March 2019** and were requested to submit comments by **15 April 2019**. A copy of the report is also available at the Milnex offices in Schweizer-Reneke, 4 Botha Street, Schweizer-Reneke and Potchefstroom (Waterberry Street, Waterberry Square, 1st floor, Office 5B, Potchefstroom), between 7:30AM and 5PM, Monday to Friday. For a complete list of stakeholder details and for proof of registered post see **Appendix 6**. The consultees included:

- The Northern Cape Department of Environmental Affairs and Nature Conservation (DENC)
- DMR Department of Mineral Resources, Northern Cape. (DMR)
- The Department of Water & Sanitation (DWS)
- NC Department of Agriculture, Forestry and Fisheries (DAFF)
- Northern Cape Department of Agriculture, Land Reform & Rural Development
- Department of Roads and Public Works (DRPW)
- Northern Cape Department of Rural Development & Land Reform
- The Municipal Manager at the Siyancuma Local Municipality
- The Local Councilor at the Siyancuma Local Municipality
- Pixley Ka Seme District Municipality
- WESSA (National Office)

Direct notification of surrounding landowners and occupiers

Written notices and the availability of the Scoping Report are also provided to all surrounding land owners and occupiers on **14 March 2019**. The surrounding land owners were given the opportunity to raise comments by **15 April 2019**. For a list of surrounding land owners see **Appendix 6**.

2. Consultation

The Public Meeting is scheduled for **9 April 2019 at 13:00pm–14:00pm** 40km on the Mazelsfontein gravel road, heading towards Prieska approximately 40km from Vaal Oranje in Douglas, alongside the road. The coordinates and directions (figure1) of the public meeting follows below.

Coordinates

29°10'45.34"S, 23°24'21.36"E

Directions to Public Meeting

- 40km on the Mazelsfontein gravel road heading towards Prieska approximately 40km from Vaal Oranje in Douglas.

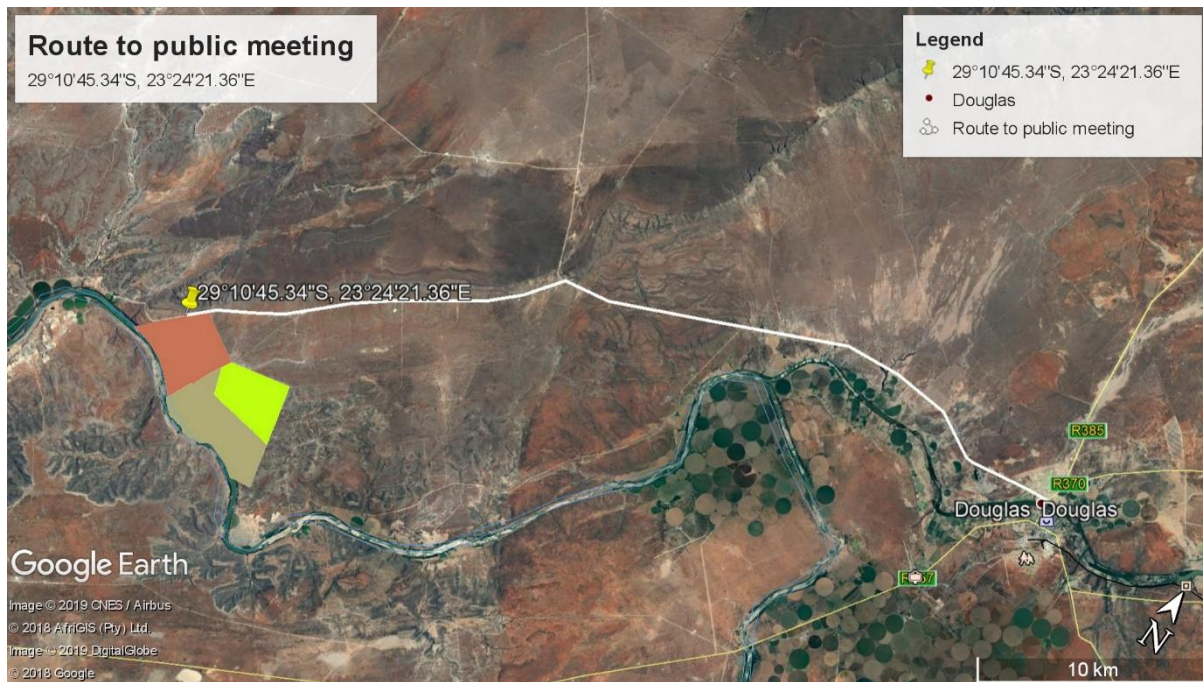


Figure 5: Directions to the public meeting

The public meeting is an opportunity to share information regarding the proposed development and provide I&APs with an opportunity to raise any issues and provide comments. The following key stakeholders and surrounding landowners were also directly informed of the public meeting via registered post **14 March 2019**:

Table 1: List of Stakeholders, Landowners, & surrounding landowners

Please see Appendix 6(i): I&APs list.

Public meeting:

NB: The interested and affected parties were given an opportunity to register via site notice, press advert and letters and no one registered.

The Public Meeting is scheduled for 9 April 2019 at 13:00pm–14:00pm 40km on the Mazelsfontein gravel road, heading towards Prieska approximately 40km from Vaal Oranje in Douglas, alongside the road at the coordinates named previously.

Only Mr. Sibanyoni from Milnex CC attended the meeting.

Issues Raised by Interested and Affected Parties

Comments received during this period are attached as comment & response report as well as populated in the table of summary of issues raised.

Direct notification and circulation of EIR & EMPr to identified I&APs

Identified I&APs, including key stakeholders representing various sectors, are directly informed of the proposed development and the availability of the EIR & EMPr via registered post on **10 June 2019** and were requested to submit comments by **12 July 2019**. A copy of the report is also available at the Milnex offices in Schweizer-Reneke, 4 Botha Street, Schweizer-Reneke and Potchefstroom (Waterberry Street, Waterberry Square, 1st floor, Office 5B, Potchefstroom), between 7:30AM and 5PM, Monday to Friday. For a complete list of stakeholder details and for proof of registered post see **Appendix 6**.

Direct notification of amendment of EIR&EMPr to stakeholders and registered I&APs and requesting comments.

Emails were sent to the below stakeholders on the **4th of December 2019** and **7th of February 2020**, respectively to request them to comment on the amended EIR&EMPr. The applicant is also the landowner of the proposed portions the application was submitted on and the identified surrounding landowners did not register as I&APs.

- Northern Cape Department of Environmental Affairs and Nature Conservation (DENC)
- Department of Mineral Resources and Energy, Northern Cape. (DMRE)
- Department of Water & Sanitation (DWS)
- Department of Agriculture, Forestry and Fisheries, Northern Cape (DAFF)
- Department of Rural Development & Land Reform, Northern Cape
- Siyancuma Local Municipality
- Pixley Ka Seme District Municipality
- WESSA (National Office)

Please see **Appendix 6(ii) and 6(iii)** for the above mentioned emails.

Issues Raised by Interested and Affected Parties

Comments received during this period are attached as comment & response report as well as populated in the table of summary of issues raised.

iii) Summary of Issues Raised by I&APs

(and an indication of the manner in which the issues were incorporated, or the reasons for not including them;)

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

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 where incorporated
List the names of persons consulted in this column, & Mark with an X where those who must be consulted were in fact consulted.				
Organisation	Contact person			
Landowner				
Reads Drift 12/74, 31/74, 29/74	Steinmann Groep Pty Ltd	No comments received	The applicant is the surface owner.	
Surrounding Landowners				
Reads Drift 38/74	Hendrik Petrus Nel	No comments received		
Reads Drift 13/74	Johan Cloete Familietrust Jenean May Cloete	No comments received		
Reads Drift 14/74	Alexander Frederick Swiegers	No comments received		
Reads Drift 2/74	Daniel Jacobus Fourie	No comments received		
Reads Drift 18/74	Oranjesig Boerdery Pty Ltd	No comments received		
Banghoek RE/17	Ockert Duvenhage Van Heerden	No comments received		
Zandfontein RE/16	Eaglewhizz 19 Pty Ltd	No comments received		
Riets Drift RE/18	Drieriviere Trust Barend van den Berg	No comments received		

The Municipality in which jurisdiction the development is located				
Siyancuma Local Municipality	Municipal Manager: Mr M Fillis (Acting)	No comments received	In an email dated 04/12/2019, the following was stated: "Good day, Please note that the results of the Heritage Impact Assessment and Watercourse Delineation & Ecological Impact Assessment Report were incorporated in the Final EIR. Please find the link below to the amended document and its Appendixes. https://www.dropbox.com/sh/elmpim61n7wyar7/AABZf68hCvDIqeH8_zkO_jo6a?dl=0 Kind regards"	
		No comments received	Email sent 07/02/2020 states the following: Please note that the results of the Floodline Assessment Report and Baseline Hydrogeological Investigation were incorporated in the Final EIR&EMPr. Attached are the EIR&EMPr document and the two studies mentioned above. Please send us comments on or before 08 March 2020.	
		No comments received	Please see the email below sent to you on the 7 th of February 2020. If you did not received the email below or the documents attached thereto, please follow the WeTransfer link for the mentioned documents: https://we.tl/t-D2UaSuIC9x Note that the link is only available for 7days to download the documents.	
Municipal councillor of the ward in which the site is located				
Siyancuma Local Municipality	Ward 6 Councillor	No comments received		
Organs of state having jurisdiction				
Northern Cape Department of Environmental Affairs and Nature Conservation (DENC)	Mrs. Doreen Werth	No comments received	In an email dated 04/12/2019, the following was stated: "Good day, Please note that the results of the Heritage Impact Assessment and Watercourse Delineation & Ecological	

			<p><i>Impact Assessment Report were incorporated in the Final EIR.</i></p> <p><i>Please find the link below to the amended document and its Appendixes.</i></p> <p>https://www.dropbox.com/sh/elmpim61n7wyar7/AABZf68hCvDlqeH8_zkO_jo6a?dl=0</p> <p><i>Kind regards”</i></p>	
		No comments received	<p>Email sent 07/02/2020 states the following:</p> <p><i>Please note that the results of the Floodline Assessment Report and Baseline Hydrogeological Investigation were incorporated in the Final EIR&EMPr.</i></p> <p><i>Attached are the EIR&EMPr document and the two studies mentioned above.</i></p> <p><i>Please send us comments on or before 08 March 2020.</i></p>	
		No comments received	<p>Please see the email below sent to you on the 7th of February 2020.</p> <p>If you did not received the email below or the documents attached thereto, please follow the WeTransfer link for the mentioned documents:</p> <p>https://we.tl/t-D2UaSuIC9x</p> <p>Note that the link is only available for 7days to download the documents.</p>	
DMR Department of Mineral Resources, Northern Cape. (DMR)	Patricia Makhuvele	In a letter dated 04/04/2019, the Department acknowledges the application for an environmental authorization lodged.		
	Tumelo Sedupane	In a letter dated 23/05/2019, the Department accepted the application submitted for the prospecting of Diamond (Alluvial).	<p>In an email dated 24/05/2019, the EAP had an enquiry regarding the letter dated 23/05/2019:</p> <p><i>“It came to my attention that the letter only refers to “Diamonds (alluvial)” and not “Diamonds (alluvial and general)”, as applied for?”</i></p> <p><i>Will you please amend the letter?”</i></p>	
	Patricia Makhuvele	<p>In a letter dated 10/10/2019, the Department provided comments on the submitted EIR.</p> <p>In summary:</p> <ul style="list-style-type: none"> -Requested proof of consultation with SAHRA -Requested a Heritage Impact Assessment -Requested a Biodiversity Study 	<p>In a letter dated 04/11/2019, Mr. Labuschagne responded to the Department’s letter dated 10/10/2019.</p>	

		-Proof of consultation with DWS -Confirm hectares to be disturbed -Clarify the quantum calculation		
			Email sent 12/11/2019 follows up if DMR received the email sent on 04/11/2019	
			Letter dated 27/11/2019 states the following: <i>Please find the requested Heritage Impact Assessment attached as Annexure “A” and watercourse Delineation and Ecological Impact Assessment Report as Annexure “B”.</i> <i>We trust that you find the above in order and that you will kindly resume with assessing the application together with the submitted information thus far. If there are any uncertainties or additional information required, please feel free to contact the undersigned.</i>	
		No comments received	In an email dated 04/12/2019, the following was stated: “Good day, Please note that the results of the Heritage Impact Assessment and Watercourse Delineation & Ecological Impact Assessment Report were incorporated in the Final EIR. Please find the link below to the amended document and its Appendixes. https://www.dropbox.com/sh/elmpim61n7wyar7/AABZf68hCvDIqeH8_zkO_jo6a?dl=0 Kind regards”	
		Letter dated 31/01/2020 states the department request additional information: 3) Submit comments received from state departments, SAHRA together with HIA report, since Milnex were still waiting for the final report and further consultation and their comments the time you submitted the response of the later date 10 October 2020. 4) submit proof of public Participation of all the studies you conducted for at least 30days since it comprises of new material.	Letter dated 05/02/2020 responds to DMR letter dated 31/01/2020.	

		<p>5) Submit proof of consultation and comments for Biodiversity study conducted and sent to DEA specific unit of Biodiversity for their comments.</p> <p>6) Submit ground and surface water report since it was requested to from part of the EIA report.</p> <p>7) the application together with the EIA report does not include the Listed activity 12(g) of GNR324 of 2014 EIA regulation as amended.</p> <p>8) the proposed financial provision for the rehabilitation was assessed and not accepted.</p> <p>9) you are therefore requested to address this on/or before 24th of February 2020.</p>		
		<p>Email received 06/02/2020 states the following: Acknowledge of the email below</p> <p>The two copies of the amended EIA & EMPR must incorporate all the previous information which was reviewed and found to be of standard to inform the decision and incorporated document, Please note that any specialist study which contain new material must be subjected to public participation</p> <p>Sine what we have discussed is only exclusion you can just amend and send to this office but if you are adding any information which was not forming part of the EIA&EMPR you need to subject it to PPP</p> <p>The time frame for submission of the amended is on or before the 09 March 2020</p>	<p>Email sent 06/02/2020 states the following: <i>We refer to your meeting with Japie Loubser yesterday regarding the historic mining areas and the submission of 2 x amended EIR&EMPr to include the information as discussed. Please note we will also include the surface and ground water reports as mentioned in the DMR letter date 31/01/2020 into the amended EIR&EMPr. In the DMR letter it also states we are requested to address all the comments on/or before the 24th of February 2020. We addressed the comments in a letter dated 5 February 2020 which was couriered to your office yesterday.</i></p> <p><i>We would like to ask if we may submit the 2 x amended EIR&EMPr documents only on the 26th of February 2020? The reason being we will only receive the necessary information on the 21st of February 2020, this give us too little time to incorporate the information into the documents and to print 2 x copies of the EIR&EMPr and Appendixes for submission.</i></p>	
			<p>Email sent 07/02/2020 states the following: Noted with thanks, we will submit the amended EIR&EMPr on 09 March 2020.</p>	
<p>The Department of Water & Sanitation (DWS)</p>	<p>Cloetes</p>	<p>No comments received</p>	<p>In an email dated 04/12/2019, the following was stated: "Good day,</p>	

			<p>Please note that the results of the Heritage Impact Assessment and Watercourse Delineation & Ecological Impact Assessment Report were incorporated in the Final EIR.</p> <p>Please find the link below to the amended document and its Appendixes.</p> <p>https://www.dropbox.com/sh/elmpim61n7wyar7/AABZf68hCvDlqeH8_zkO_jo6a?dl=0</p> <p>Kind regards”</p>	
		No comments received	<p>Email sent 07/02/2020 states the following:</p> <p>Please note that the results of the Floodline Assessment Report and Baseline Hydrogeological Investigation were incorporated in the Final EIR&EMPr.</p> <p>Attached are the EIR&EMPr document and the two studies mentioned above.</p> <p>Please send us comments on or before 08 March 2020.</p>	
		No comments received	<p>Please see the email below sent to you on the 7th of February 2020.</p> <p>If you did not received the email below or the documents attached thereto, please follow the WeTransfer link for the mentioned documents:</p> <p>https://we.tl/t-D2UaSuIC9x</p> <p>Note that the link is only available for 7days to download the documents.</p>	
	To whom it may concern	No comments received		
NC Department of Agriculture, Forestry and Fisheries (DAFF)	Chief forester Mrs J. Mans	No comments received	<p>In an email dated 04/12/2019, the following was stated:</p> <p>“Good day,</p> <p>Please note that the results of the Heritage Impact Assessment and Watercourse Delineation & Ecological Impact Assessment Report were incorporated in the Final EIR.</p> <p>Please find the link below to the amended document and its Appendixes.</p>	

			https://www.dropbox.com/sh/elmpim61n7wyar7/AABZf68hCvDlqeH8_zkO_jo6a?dl=0 Kind regards”	
		Email received 04/12/2019 states the following: <i>Dear Mr. Labuschagne</i> <i>The e-mail below refers. When I click on the link it stated that the file is no longer available. Which project is this? May you please send me the Ecological Impact Assessment Report? I can get up to 5 MB per e-mail.</i>	Email sent 04/12/2019 with Watercourse Delineation and Ecological Impact Assessment Report, attached.	
		No comments received	Email sent 07/02/2020 states the following: <i>Please note that the results of the Floodline Assessment Report and Baseline Hydrogeological Investigation were incorporated in the Final EIR&EMPr.</i> <i>Attached are the EIR&EMPr document and the two studies mentioned above.</i> <i>Please send us comments on or before 08 March 2020.</i>	
		No comments received	Please see the email below sent to you on the 7 th of February 2020. If you did not received the email below or the documents attached thereto, please follow the WeTransfer link for the mentioned documents: https://we.tl/t-D2UaSuIC9x Note that the link is only available for 7days to download the documents.	
Northern Cape Department of Agriculture, Land Reform & Rural Development	Mr. W.J.J. de Bruyn	No comments received		
NC Department of Agriculture, Forestry and Fisheries (DAFF)	Mr. Harm Vorster	No comments received		
Department of Roads and Public Works (DRPW)	HOD: Ms. Ruth Palm Mr Tshiamo Pitso	No comments received		
Northern Cape Department of Rural Development & Land Reform,	Nqabisa Mkalipi & Pabalelo Mokale	In a letter dated 10/04/2019, the Department confirms that no claims appear on their database in respect of the Property.	In an email dated 05/04/2019, is proof of lodging a land claims enquiry	
	Nqabisa Mkalipi	No comments received	In an email dated 04/12/2019, the following was stated:	

			<p>“Good day, Please note that the results of the Heritage Impact Assessment and Watercourse Delineation & Ecological Impact Assessment Report were incorporated in the Final EIR. Please find the link below to the amended document and its Appendixes. https://www.dropbox.com/sh/elmpim61n7wyar7/AABZf68hCvDIqeH8_zkO_jo6a?dl=0 Kind regards”</p>	
		No comments received	<p>Email sent 07/02/2020 states the following: Please note that the results of the Floodline Assessment Report and Baseline Hydrogeological Investigation were incorporated in the Final EIR&EMPr. Attached are the EIR&EMPr document and the two studies mentioned above. Please send us comments on or before 08 March 2020.</p>	
		No comments received	<p>Please see the email below sent to you on the 7th of February 2020. If you did not received the email below or the documents attached thereto, please follow the WeTransfer link for the mentioned documents: https://we.tl/t-D2UaSuIC9x Note that the link is only available for 7days to download the documents.</p>	
Other–				
Pixley Ka Seme District Municipality	Municipal Manager: Mr Rodney Pieterse	No comments received	<p>Email sent 07/02/2020 states the following: Please note that the results of the Floodline Assessment Report and Baseline Hydrogeological Investigation were incorporated in the Final EIR&EMPr. Attached are the EIR&EMPr document and the two studies mentioned above. Please send us comments on or before 08 March 2020.</p>	
		No comments received	<p>Please see the email below sent to you on the 7th of February 2020.</p>	

			<p>If you did not received the email below or the documents attached thereto, please follow the WeTransfer link for the mentioned documents: https://we.tl/t-D2UaSuIC9x Note that the link is only available for 7days to download the documents.</p>	
WESSA (National Office)	alisonk@wessa.co.za	No comments received	<p>In an email dated 04/12/2019, the following was stated: “Good day, Please note that the results of the Heritage Impact Assessment and Watercourse Delineation & Ecological Impact Assessment Report were incorporated in the Final EIR. Please find the link below to the amended document and its Appendixes. https://www.dropbox.com/sh/elmpim61n7wyar7/AABZf68hCvDlqeH8_zkO_jo6a?dl=0 Kind regards”</p>	
		No comments received	<p>Email sent 07/02/2020 states the following: Please note that the results of the Floodline Assessment Report and Baseline Hydrogeological Investigation were incorporated in the Final EIR&EMPr. Attached are the EIR&EMPr document and the two studies mentioned above. Please send us comments on or before 08 March 2020.</p>	
		No comments received	<p>Please see the email below sent to you on the 7th of February 2020. If you did not received the email below or the documents attached thereto, please follow the WeTransfer link for the mentioned documents: https://we.tl/t-D2UaSuIC9x Note that the link is only available for 7days to download the documents.</p>	
South African Heritage Resources Agency (SAHRA)		No comments received	<p>Proof HIA was uploaded onto SAHRA for comments.</p>	

iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

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).

Geology and Soils

Griqualand West Sequence

- **Campbell Rand subgroup**

The Campbell Rand Subgroup of the Ghaap Group is a very thick (1.6 - 2.5 km) carbonate platform succession of dolostones, dolomitic limestones and cherts with minor tuffs and siliciclastic rocks that was deposited on the shallow submerged shelf of the Kaapvaal Craton roughly 2.6 to 2.5 Ga. It rests conformably on the Vryburg Siltstone Formation. It is subdivided into the lower Schmidtsdrif and the upper Ghaap Plateau Dolomite Formations, each consisting of three members.

The entire Schmidtsdrif Formation has been interpreted by Visser and Grobler (1972) as representing intertidal to subtidal flats with some off-shore, lagoonal and supratidal influence. Depositional cycles reflecting sea level changes, are represented here, including stromatolitic limestones and dolomites, oolites, oncolites, laminated calcilitites, cherts and marls, with subordinate siliclastics (shales, siltstones) and minor tuffs. Due to their solubility and low resistance to weathering, exposure levels of these rocks are often very low. The outcrop area of chert - rich sub units is often largely covered in downwasted, siliceous rock rubble. The extensive diamondiferous gravels of the Lower Vaal, Harts, and Middle Orange River ("MOR") valleys are associated with remnants of outwash deposits formed during the retreat of the ancient Ghaap (Kaa) Valley glacial system and subsequent reworking and alluvial deposition by major rivers.

Studies have shown that majority of the alluvial diamonds in gravel deposits along all the terraces along the Orange River are derived from two distinct gravel horizons. These comprise an upper deflation deposit (Rooikoppie) and an underlying (Primary fluvial-alluvial) gravel unit.

Primary fluvial-alluvial gravel deposits

The primary palaeo-fluvial succession comprises various proportions of gravel, sand and silt, typically with a basal gravel unit of up to 2m in thickness and an overlying finer-grained unit of up to 6m (the so-called "middlings" gravels). The poorly sorted gravels vary from pebble to cobble gravels, generally with a fair percentage of boulders (rarely +1m diameter). Interbedded sandy or granule beds and lenses occur frequently in more sandy, matrix supported gravel successions.

Deflation of 'Rooikoppie' deposits

These deposits represent derived gravel and consist mainly of well-rounded and polished siliceous pebbles and reddish coloured sand. The clastic material is believed to originate the fluvial alluvial gravel units and consists of its most resistant components, in particular chert, agate, jasper, quartzite and vein quartz. Due to the decomposition and winnowing of the less resistant clastic and matrix material there has been a substantial concentration of the more durable components in the original gravel, including diamonds.

Ecological habitat and landscape features

The proposed area falls within vegetation unit NKu 3, SVk 6 and AZa 4 which is known as the Northern Upper Karoo, Schmidtsdrif Thornveld and Upper Gariep Alluvial Vegetation.

The Northern Upper Karoo is part of the Upper Karoo Bioregion, which is a sub-bioregion for the Nama-Karoo Biome. The Schmidtsdrift thornveld is part of the Eastern Kalahari Bushveld, which is a sub-bioregion for the Savanna Biome and the Upper Gariep Alluvial Vegetation is part of the Alluvial Vegetation Bioregion which is a sub-bioregion for the Inland Azonal Vegetation.

Northern Upper Karoo

According to Mucina and Rutherford (2006:340), the Northern Upper Karoo vegetation covers the Northern Cape and Free State Provinces which include the Northern regions of the Upper Karoo plateau from Prieska, Vosburg and Carnarvon in the west to Philipstown, Petrusville and Petrusburg in the east. Bordered in the north by Niekerkshoop, Douglas and Petrusburg and in the south by Carnarvon, Pampoenpoort and De Aar. A few Patches occur in Griqualand West. It is situated on an altitude of 1000m – 1500m.

The shrubland area is dominated by dwarf karoo shrubs, grasses and *Anacia mellifera* subsp. detinens and some other low trees (especially on sandy soils in the northern parts and vicinity of the Orange River). Flat to gently sloping, with isolated hills of Upper Karoo Hardeveld in the south and Vaalbos Rocky Shrubland in the northeast and with many interspersed pans.

Schmidtsdrift Thornveld

According to Mucina and Rutherford (2006:518) the Schmidtsdrift Thornveld vegetation covers the Northern Cape, Free State and North West provinces. Footslopes and midslopes to the southeast and below the Ghaap Plateau from around Douglas in the southwest via Schmidtsdrif towards Taung in the northeast. A small less typical section is found east of the Ghaap Plateau from Warrenton towards Hertzogville. This thornveld is situated on an altitude of 1000m – 1350m.

Vegetation and landscape features can be defined as mostly closed shrubby thornveld dominated by *Acacia mellifera* and *A. tortilis*. Apart from grasses, bulbous and annual herbaceous plants species are also prominent. The vegetation is sometimes very disturbed due to overgrazing by goats and other browsers (Mucina and Rutherford, 2006:385)

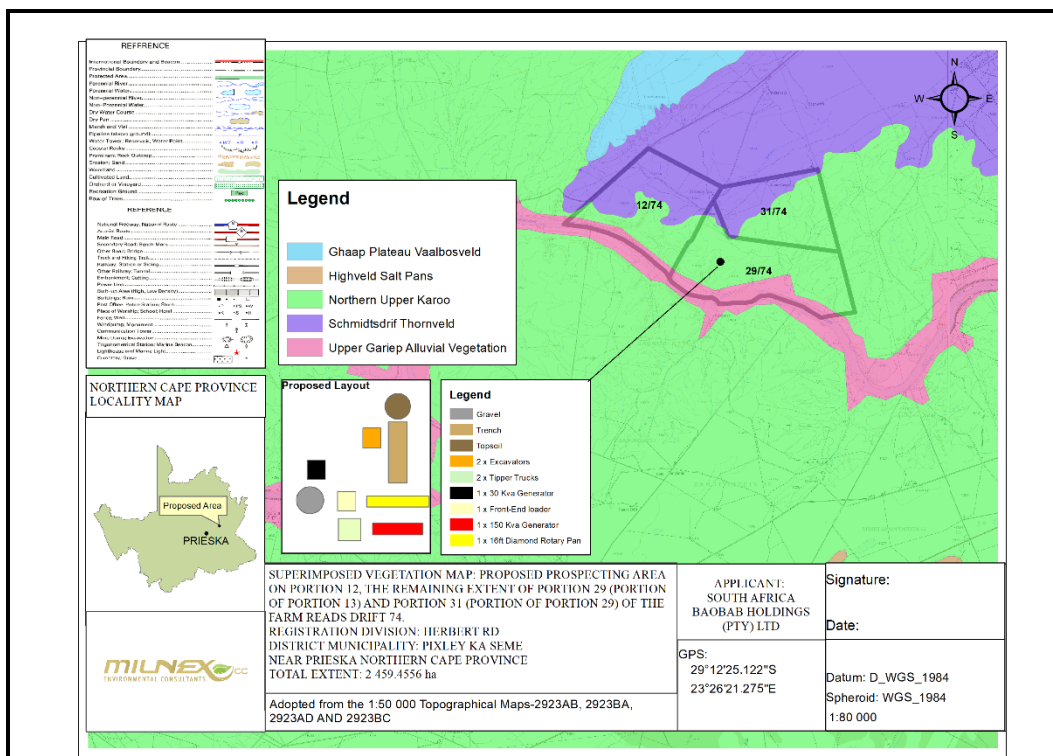


Figure 6: Vegetation Unit Map

Protected Areas

According to the data for protected areas the proposed area does not fall within a Formally Protected Area nor Threatened Ecosystem.

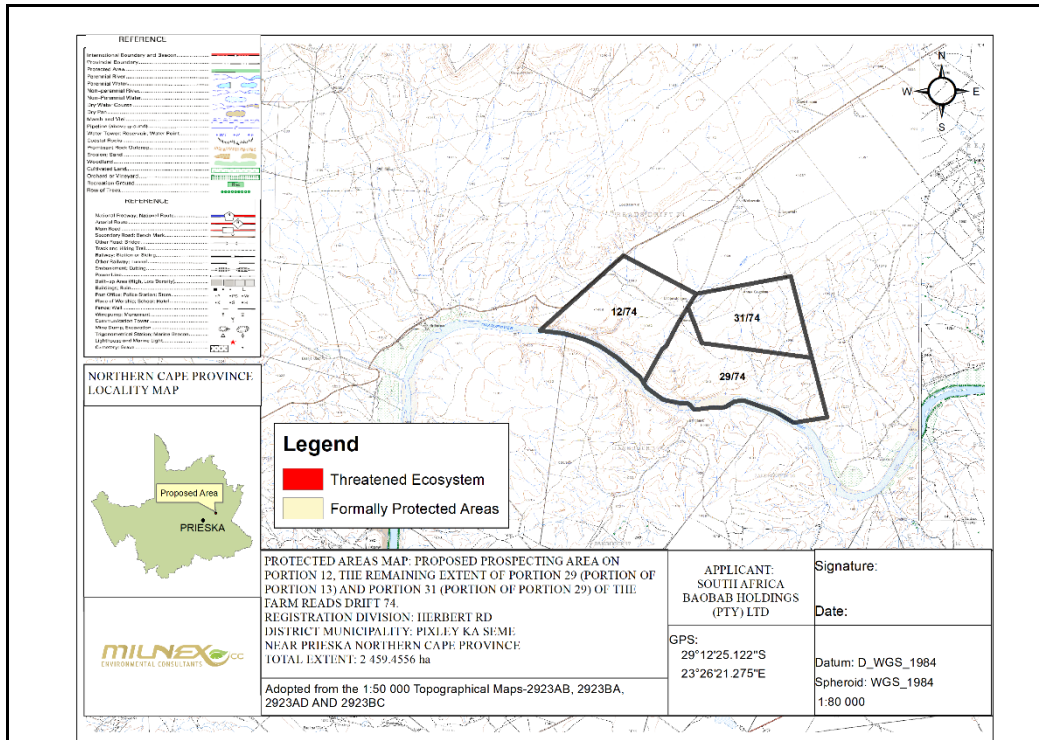


Figure 7: Protected Areas Map

Critical Biodiversity Area

According to B-GIS “Critical biodiversity areas (CBAs) are areas of the “landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services”, therefore the purpose of CBA’s is simply to indicate spatially the location of critical or important areas for biodiversity in the landscape.

According to the data for Critical Biodiversity Areas, the proposed area falls within Critical Biodiversity Area One and Critical Biodiversity Area Two:

Critical Biodiversity Area type 1

Maintain in a natural or near-natural state that maximises the retention of biodiversity pattern and ecological process:

- Ecosystems and species fully or largely intact and undisturbed.
- These are areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern targets. If the biodiversity features targeted in these areas are lost then targets will not be met.

These are biodiversity features that are at, or beyond, their limits of acceptable change.

Critical Biodiversity Area type 2

Maintain in a natural or near-natural state that maximises the retention of biodiversity pattern and ecological process:

- Ecosystems and species fully or largely intact and undisturbed.
- Areas with intermediate irreplaceability or some flexibility in terms of meeting biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising the ability to achieve biodiversity targets, although loss of these sites would require alternative sites to be added to the portfolio of CBAs.

These are biodiversity features that are approaching but have not passed their limits of acceptable change.

Milnex CC: EIA365 –EIR & EMPr - Prospecting Right application for the prospecting of Diamonds (Alluvial & General) near Prieska on a Portion 12, Remaining Extent of Portion 29 (portion of portion 13) and Portion 31 (portion of portion 29) of the farm Reads Drift 74, Registration Division; Herbert. Northern Cape Province.

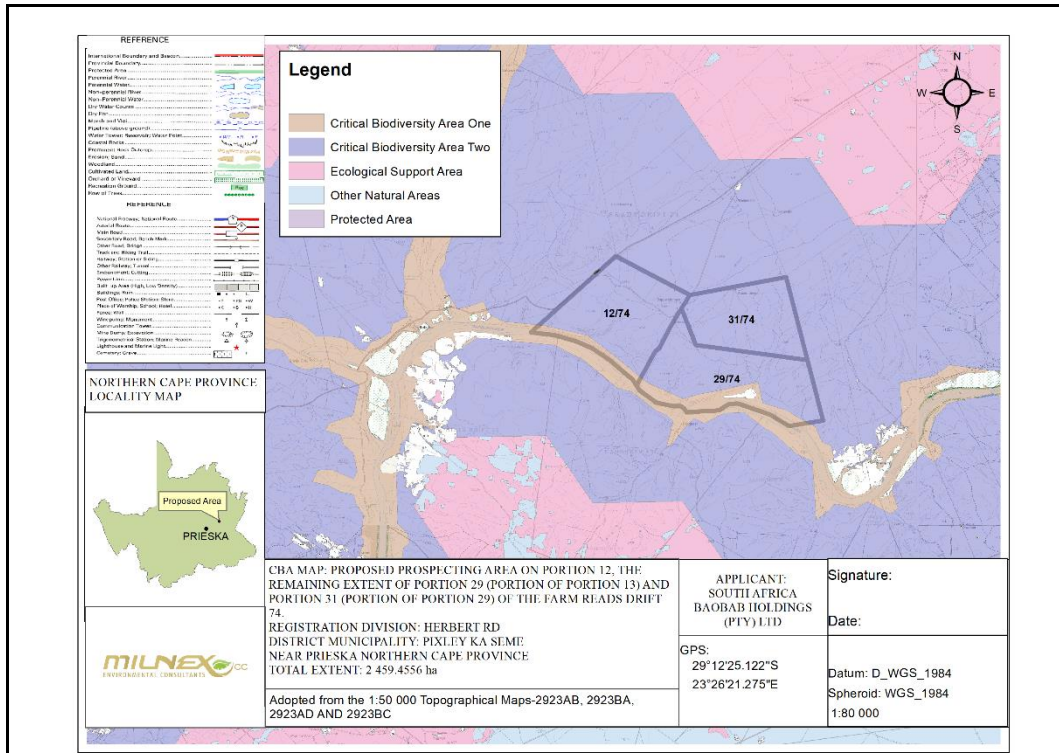


Figure 8: Critical Biodiversity Areas Map.

Sensitive area for Mine

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

Category	Description
A	Legally protected
B	Highest biodiversity importance
C	High biodiversity importance
D	Moderate biodiversity importance

The purpose is to identify and categorize biodiversity priority areas sensitive to the impacts of mining in order to support mainstreaming of biodiversity issues in decision making in the mining sector.

According to the mine guide map, a certain area of the proposed area falls within no category. The biodiversity priority areas are as follows

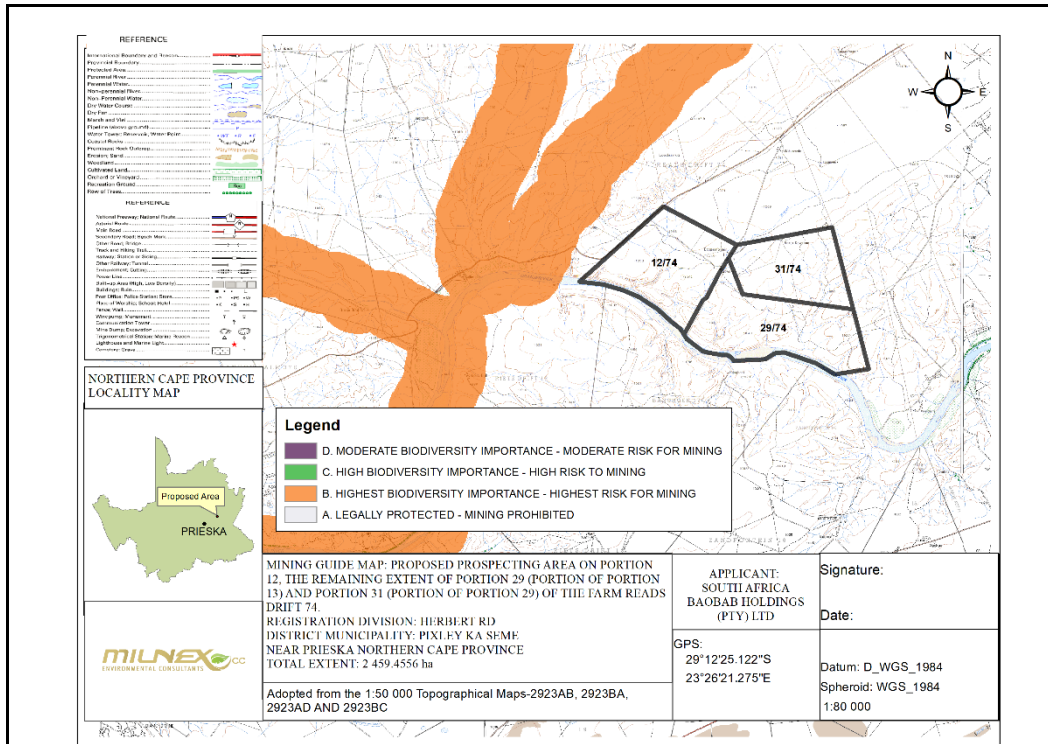


Figure 9: Sensitive area for mine

Wetland Areas

Wetland is 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 depict all wetland areas on the proposed area, there is a Floodplain wetland on the proposed area and the wetland vegetation type falls within the Eastern Kalahari Bushveld Group 3 and Upper Nama Karoo.

According to the 2013 SANBI Biodiversity Series 22 a;

Floodplain wetland is a wetland area on the mostly flat or gently-sloping land adjacent to and formed by an alluvial river channel under its present climate and sediment load, which is subject to periodic inundation by overtopping of the channel bank. They generally occur on a plain and are typically characterised by a suite of geomorphological features associated with river-derived depositional processes, including point bars, scroll bars, oxbow lakes and levees. Floodplain wetlands must be considered as wetland ecosystems that are distinct from but associated with the adjacent river channel itself, which must be classified as a ‘river’.

- Several species possibly occurring on site are protected under NEMBA. Although not listed in the species list, there is a possibility of the Critically Endangered Riverine Rabbit (*Bunolagus monticularis*) occurring on site.
- All Amphibian species are of Least Concern (LC), except for the Giant Bullfrog (*Pyxicephalus adspersus*) which is of special conservation concern and protected under NEMBA.
- No Red Listed or protected reptile species are known to occur on site.

Results of the Wetland Assessment:

Following the results of the site assessment, one Perennial Riparian area (the Orange River), several episodic streams and ephemeral drainage areas were recorded on the study site. The Orange River is classed as a Perennial River, which has continual surface water flow. Numerous episodic streams and ephemeral drainage lines were identified and receive and retain enough water to support riparian characteristics throughout the year. The ecological integrity of the Orange River system and the Episodic Streams is inferred as Moderately Modified, where a loss and change of natural habitat and biota have occurred but the basic ecosystem functions are still predominantly unchanged. The Ephemeral Drainage Lines are classed as Largely Natural with few modifications. The loss of ecological integrity within the riparian zone may be attributed to irrigations practices along the Orange River and the subsequent influx of alien and invasive species. The results are summarised in the table below:

Classification	Scientific Buffer	QHI	VEGRAI	REC
Perennial Orange River	100 m	C	D	D
Episodic Streams	55 m	B/C	B/C	B
Ephemeral Drainage Lines	35 m	B	B/C	B

The proposed prospecting will take place within the watercourses and therefore the buffer zones will not be implemented. Various potential impacts are associated with the proposed prospecting activities and are discussed in the impact assessment scores derived according to the amended EIA Regulations (2017).

Northern Cape Critical Biodiversity Areas (2016)	Critical Biodiversity Area One (CBA1) and Two (CBA2) Most of the study site falls within a CBA1, and the southern boundary where the Orange River passes the study site is classed as CBA2. CBAs are areas that are irreplaceable for meeting biodiversity targets. There are no other options for conserving the ecosystems, species or ecological processes in these areas.
Mining and Biodiversity Guidelines (2013)	None.
NEMA Impact Assessment	Most of the impacts associated with the proposed prospecting range from Medium-Low to High prior to mitigation taking place. With mitigation fully implemented, the significance of most impacts can be reduced to Very Low, Low, Medium-Low or Medium-High.
DWS Risk Assessment	All aspects of the proposed prospecting activities fall within the Medium risk category.
Mitigation Measures	Refer to Section 6.4
Does the Specialist support the Application?	Yes

It is imperative that an effective management plan is implemented to ensure that all mitigation measures discussed in the report are adhered to. Therefore, the proposed prospecting operations can be considered from an ecological conservation point of view. It is, however, essential that all mitigation measures provided in this report as well as general good practice, are strictly adhered to. During the construction, operational and rehabilitation phases all recommendations made and concerns raised in this document should be taken into consideration. A good closure and rehabilitation plan should be in place to rehabilitate the habitat for faunal and floral species and active alien and invasive vegetation removal should take place in accordance with an Alien Invasive Vegetation Management Plan.

Description of the socio-economic environment

- **Socio-economic conditions**

Siyancuma Local Municipality is part of Pixley Ka Seme District Municipality.

MDB code: NC078

Description: The Siyancuma Local Municipality is situated within the Pixley Ka Seme District of the Northern Cape Province. It is bordered by the ZF Mgcawu and Frances Baard Districts in the north, Siyathemba and Thembelihle in the south, the Free State Province in the east, and the ZF Mgcawu District in the west.

It is one of the eight municipalities that make up the district, accounting for 16% of its geographical area.

Area: 16 753km²

Cities/Towns: Campbell, Douglas, Griekwastad, Schmidtsdrif

Main Economic Sectors: Agriculture, mining

(<https://municipalities.co.za/overview/1176/siyancuma-local-municipality>)

- **Cultural and heritage aspects**

Phase 1 Cultural Heritage Impact Assessment:

During the physical survey conducted by J A van Schalkwyk (D Litt et Phil) (2019), the following sites, features or objects of cultural significance were identified.

7.1: Change finds Stone Age artefacts:

Stone Age artefacts, mostly dating to the Middle Stone Age and Later Stone Age occur in small numbers in parts of the study area. On the ridges closer to the river, the density of artefacts is less than 1/2m², diminishing to 1/10m² in the sandy regions. These are mostly made from banded ironstone (jaspelite), although some quartzite flakes were also noted. Cores, flakes and tools are found. The tools are very rough and informal and only a few that can be described as typical, i.e. blades and end scrapers, were identified.

7.3.1: Old farmhouse – referred to on the map as Annex Gewonne.

A rectangular structure with a gable roof that was extended to one side to accommodate more rooms as well as a stoep. A hearth or cooking place, commonly referred to as a komynstjie was added to one end. The house was built with poorly fired clay bricks and it has a corrugated iron roof. Some changes were brought about by entrances that were block off with walls and windows that were installed.

7.3.2: Old house – referred to on the map as Dappersfontein

Old farmhouse now completely demolished and stripped of all fittings and usable material. It is therefore impossible to make any statement on the style and materials used. A large stone-built dam is located some distance from the house.

7.3.3: Old farmhouse – referred to on the map as Gewonne

Farmhouse currently still in use and well maintained. According to the current owner, the central core still exists, but some alterations and additions were made. It is square in form, built with bricks and has a corrugated iron roof in a gable form.

7.3.4: Stone built ‘cottages’

A series of stone built ‘cottages’ spread out along a small valley. The individual structures were built with loose stones stacked on top of each other. As this was not very well done, i.e. very little interlocking of the stones took place, the walls are prone to topple over. The removal of fittings such as the roof and door frames probably also contributed to their current state. In some of them internal features such as shelves were built into the corner of the walls.

7.3.5: Old sheep dip

Built with local stone, some of which seems to be hammer-dressed. It is classified as a ‘spring dip’, with the sheep entering the trough by jumping in and climbing out by means of a number of steps on the opposite side.

7.3.6: Stone built structures

Some very roughly built structures of which only the foundation remains. Some structures are square in nature and others round. The square ones seem to be more recent than the round ones. It is possible that the former related to diamond digger activities whereas the round ones might have been the base of an early herder (Khoi) structure. Unfortunately, no surface artefactual material could be found to assist in the identification of these structures.

7.3.7: Informal burial site

Informal burial site containing approximately 7 graves. Named graves are from the De Lange family, with death dates ranging between 1945 and 1956. Other graves are only marked with stone cairns. The site used to be fenced off with wire, but this has not been maintained for a long time.

7.4.1: Natural spring

A natural spring that, according to local information, has never dried up, in close vicinity of the structures in Stone built ‘cottages’.

7.4.2: Historic engravings

The letters AB engraved twice on a flat piece of rock. It is probably the initials of a former landowner or a diamond miner. It is located far from any known historic structure or other feature. A second site containing even more similar engravings occur some distance to the east.

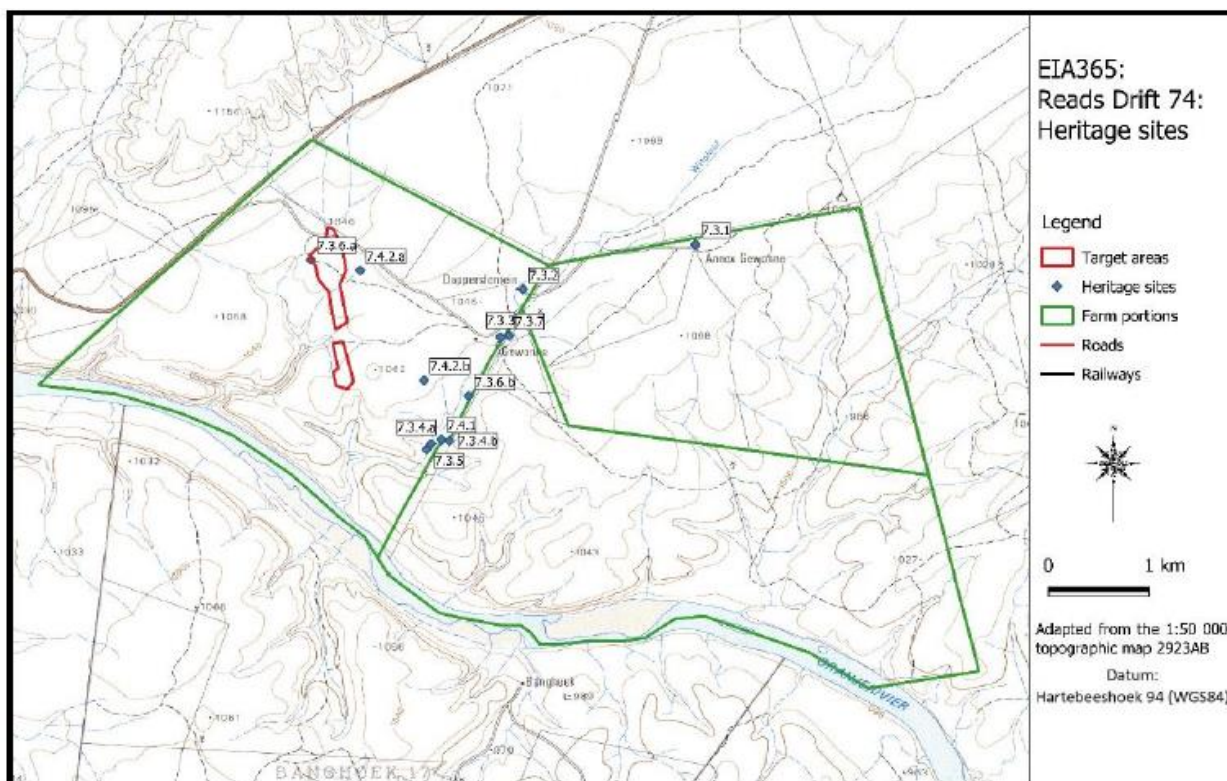


Figure 13. Location of the identified heritage sites (Colour map available under Appendix 12)

Palaeontological Field Assessment

The Proposed Reads Drift 74 are mantled by Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group (Mbizane Formation, Karoo Supergroup) and the Boomplaas Formation (Schmidtsdrift Subgroup, Ghaap Group, Transvaal Supergroup) as well as a very small portion of Vryburg Formation (Ghaap Group, Transvaal Supergroup). According to the South African Heritage Resources Information System, the Palaeontological Sensitivity of the Late Caenozoic Superficial Sediments is High while that of the Tertiary to Quaternary calcretes is Low. The Dwyka Group and Vryburg Fm has a moderate Palaeontological Sensitivity and that of the Boomplaas Formation is Very High.

A one-day site specific field survey of the proposed Reads Drift 74 farm was conducted on foot and by motor vehicle on 19 September 2020. Poorly- to well-preserved, secondarily silicified stromatolite assemblages are recorded within the Boomplaas Formation. The stromatolites of the Boomplaas Formation represent some of the oldest stromatolite examples

in South Africa. These stromatolites have not yet been comprehensively described and their geographical and stratigraphic distributions are poorly understood.

The project can be dividend in to two parts

- Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group (Mbizane Formation, Karoo Supergroup); Vryburg Formation (Ghaap Group, Transvaal Supergroup)
- Boomplaas Formation (Schmidsdrift Subgroup, Ghaap Group, Transvaal Supergroup)

The Impact significance for the Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group and Vryburg Formation will be a **Negative low Impact**. On the other hand, the Impact significance for the Boomplaas Formation will be a **Negative medium Impact**. The possibility of damaging the stromatolites by mining vehicles is likely and a precautionary approach must consequently be undertaken.

(b) Description of the current land uses.

The proposed area consists of a row of trees next to the Orange River (waterbody), floodplain wetlands, Witsloot stream, various tributaries, very uneven to flat terrain, grazing areas, an agricultural property with a central pivot and cultivated land, farm infrastructure and tracks are present. A Water Use License Application will be launched for conducting mining operations. All infrastructure will be temporary and/or mobile.

Below is the land cover of the farm which consist mostly of natural land, cultivated areas and waterbodies.

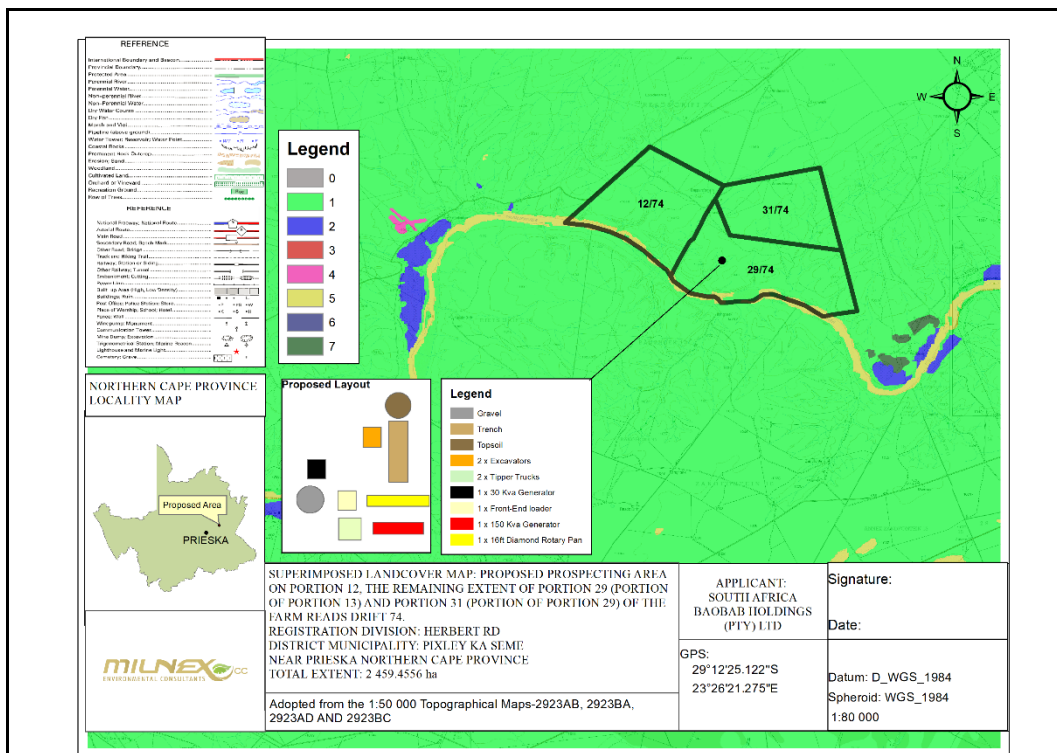


Figure 14: Land cover

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

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

Please see heading J) AN ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK,, for the impacts identified and their assessment.

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

Method of environmental assessment

The environmental assessment aims to identify the various possible environmental impacts that could result from the proposed development. Different impacts need to be evaluated in terms of its significance and in doing so highlight the most critical issues to be addressed.

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale i.e. site, local, national or global whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in the Table below.

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 total number of points scored for each impact indicates the level of significance of the impact.

Impact Rating System

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

- Construction
- Operation
- Decommissioning

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 is used:

Table: The rating system

NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity.		
GEOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be experienced.		
1	Site	The impact will only affect the site.
2	Local/district	Will affect the local area or district.
3	Province/region	Will affect the entire province or region.
4	International and National	Will affect the entire country.
PROBABILITY		
This describes the chance of occurrence of an impact.		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).

4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
DURATION		
This describes the duration of the impacts. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact will either disappear with mitigation or will be mitigated through natural processes in a span shorter than the construction phase (0 – 1 years), or the impact will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects 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 (10 – 30 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered indefinite.
INTENSITY/ MAGNITUDE		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/ component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired. Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
REVERSIBILITY		
This describes the degree to which an impact can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures.
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.

4	Complete loss of resources	The impact is result in a complete loss of all resources.
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts. A cumulative impact is an effect which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible cumulative impact	The impact would result in negligible to no cumulative effects.
2	Low cumulative impact	The impact would result in insignificant cumulative effects.
3	Medium cumulative impact	The impact would result in minor cumulative effects.
4	High cumulative impact	The impact would result in significant cumulative effects
SIGNIFICANCE		
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 + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity.		
The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.		
Points	Impact significance rating	Description
6 to 28	Negative low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative high impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive high impact	The anticipated impact will have significant positive effects.
74 to 96	Negative very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive very high impact	The anticipated impact will have highly significant positive effects.

vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

- Increased ambient noise levels resulting from geophysics surveys site fly-overs and increased traffic movement during all prospecting phases.
- Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on environmental resources utilized by communities, landowners and other stakeholders.
- Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on ecosystem functioning.
- Increased vehicle activity with in the area resulting in the possible destruction and disturbance of fauna and flora.
- Poor access control to farms which may impact on cattle movement, breeding and grazing practices.

- Access control to portion which may impact on cattle movement, breeding and grazing practices of the surrounding community.
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime.
- Potential visual impacts caused by prospecting activities.
- Prospecting will be undertaken by specialist sub - contractors and it is not anticipated that employment opportunities for local and / or regional communities will result from the prospecting activities.
- Negative impacts on the groundwater resources.
- Longterm loss of indigenous vegetation.
- Airpollution due to dust to the surrounding community and hospital.
- Impact on tourism.

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

Adverse environmental associated with the prospecting activity have been identified through the Scoping & EIR 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.

All comments received during the review period of the Scoping and EIR report, as well as response provided is captured and recorded within the Comments and Response Report and will be attached in the final EIR.

ix) if no alternative development [location] footprints for the activity were investigated, the motivation for not considering such; and

As discussed in the previous section, based on outcomes of previous studies in the vicinity of the proposed site, it is expected that high volumes of Diamonds (Alluvial) and Diamonds General will occur on a Portion 12, Remaining Extent of Portion 29 (portion of portion 13) and Portion 31 (portion of portion 29) of the farm Reads Drift 74.

x) a concluding statement indicating the location of the preferred alternative development [location] footprint within the approved site as contemplated in the accepted scoping report;
(Provide a statement motivating the final site layout that is proposed)

Design alternatives were considered throughout the planning and design phase (i.e. where is the rock bed located?). In this regard discussions on the design were held between the EAP and the developer. The layout follows the limitations of the site and aspects such as, roads, site offices and workshop area as well as fencing.

I. A FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS THE ACTIVITY AND ASSOCIATED STRUCTURES AND INFRASTRUCTURE WILL IMPOSE ON THE PREFERRED [LOCATION] DEVELOPMENT FOOTPRINT ON THE APPROVED SITE
(AS CONTEMPLATED IN THE ACCEPTED SCOPING REPORT THROUGH THE LIFE OF THE ACTIVITY, INCLUDING—.)

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

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.

- **Checklist:** The checklist consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts.

- **Matrix:** The matrix analysis provides a holistic indication of the relationship and interaction between the various activities, development phases and the impact thereof on the environment. The method aims at providing a first order cause and effect relationship between the environment and the proposed activity. The matrix is designed to indicate the relationship between the different stressors and receptors which leads to specific impacts. The matrix also indicates the specialist studies, which will be submitted as part of the Environmental Impact Report in order to address the potentially most significant impacts.

Checklist analysis

The site visit was conducted to ensure a proper analysis of the site specific characteristics of the study area. The table below provides a checklist, which is designed to stimulate thought regarding possible consequences of specific actions and so assist scoping of key issues. It consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in 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: Environmental checklist

QUESTION	YES	NO	Un-sure	Description
1. Are any of the following located on the site earmarked for the development?				
I. A river, stream, dam or wetland	✘			The Orange River (waterbody), floodplain wetlands, Witslout stream and various tributaries. Where applicable a Water Use License Application will be launched for conducting mining operations.
II. A conservation or open space area	✘			Most of the application area is still in natural state.
III. An area that is of cultural importance	✘			HIA and PIA was conducted, please see Appendix 12.
IV. Site of geological significance			✘	
V. Areas of outstanding natural beauty		✘		None.
VI. Highly productive agricultural land			✘	The property is classed as land Class VII.
VII. Floodplain	✘			According to the Watercourse Delineation and Ecological Impact Assessment Report (2019), the Orange river is classed as a Floodplain Wetland.
VIII. Indigenous forest		✘		None.
IX. Grass land		✘		None.
X. Bird nesting sites	✘			Due to site being close to the river, birds nests are expect/will be found on site.
XI. Red data species			✘	
XII. Tourist resort		✘		None.
2. Will the project potentially result in potential?				
I. Removal of people		✘		None.
II. Visual Impacts	✘			The sense of place will be changed, visual impact will be present.
III. Noise pollution		✘		The noise impact is likely to be significant.
IV. Construction of an access road		✘		None. Access will be obtained from gravel roads
V. Risk to human or valuable ecosystems due to explosion/fire/ discharge of waste into water or air.		✘		None.

VI. Accumulation of large workforce (>50 manual workers) into the site.		×		Approximately 15 employment opportunities will be created during the construction and operational phase of the project.
VII. Utilisation of significant volumes of local raw materials such as water, wood etc.	×			The application area will use 1 x 16 feet pan uses 17000L water per hour .
VIII. Job creation	×			Approximately 15 employment opportunities will be created during the construction and operational phase of the project.
IX. Traffic generation		×		None.
X. Soil erosion		×		Only areas marked for mining will be cleared. Mining will be phased and the topsoil stockpiled separately. Concurrent rehabilitation will take place. The soil also has a low erosion potential.
XI. Installation of additional bulk telecommunication transmission lines or facilities		×		None.
3. Is the proposed project located near the following?				
I. A river, stream, dam or wetland	×			Yes, the Orange River (waterbody), floodplain wetlands, Witslout stream and various tributaries.
II. A conservation or open space area		×		None.
III. An area that is of cultural importance	×			Special attention will be given to the identification of possible cultural or heritage resources on site. However, heritage resources including archaeological and paleontological sites over 100 years old, graves older than 60 years, structure older than 60 years are protected by the National Heritage Resources Act no 25 of 1999. Therefore, if such resources are found during the prospecting or development activities, they shall not be disturbed without a permit from the relevant heritage resource Authority, which means that before such sites are disturbed by development it is incumbent on the developer to ensure that a heritage impact assessment is done and the Provincial Heritage Resources Authority and SAHRA must be contacted immediately and work will stop.
IV. A site of geological significance		×		None.
V. An area of outstanding natural beauty		×		None.
VI. Highly productive agricultural land	×			Yes
VII. A tourist resort			×	Yes a Caravan park.
VIII. A formal or informal settlement		×		The farm Reads Drift 74 is located approximately 80km Northeast of Prieska in the Northern Cape Province.

Matrix analysis

The matrix describes the relevant listed activities, the aspects of the development that will apply to the specific listed activity, a description of the environmental issues and potential impacts, the significance and magnitude of the potential impacts, and the mitigation of the potential impacts. The matrix also highlights areas of particular concern, which requires more in depth assessment. Each cell is evaluated individually in terms of the nature of the impact, duration and its significance – should no mitigation measures

be applied. This is important since many impacts would not be considered insignificant if proper mitigation measures were implemented. The matrix also provides an indication if mitigation measures are available.

In order to conceptualise the different impacts the matrix specify the following:

- **Stressor:** Indicates the aspect of the proposed activity, which initiates and cause impacts on elements of the environment.
- **Receptor:** Highlights the recipient and most important components of the environment affected by the stressor.
- **Impacts:** Indicates the net result of the cause-effect between the stressor and receptor.
- **Mitigation:** Impacts need to be mitigated to minimise the effect on the environment.

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;

LISTED ACTIVITY (The Stressor)	ASPECTS OF THE DEVELOPMENT /ACTIVITY	POTENTIAL IMPACTS		SIGNIFICANCE AND MAGNITUDE OF POTENTIAL IMPACTS			MITIGATION OF POTENTIAL IMPACTS	SPECIALIST STUDIES / INFORMATION	
		Receptors	Impact description	Minor	Major	Duration	Possible Mitigation		
CONSTRUCTION PHASE									
Listing Notice GNR 325, Activity 15: <i>"The clearance of an area of 20 hectares or more, of indigenous vegetation."</i>	<u>Site clearing and preparation</u> Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately.	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	<ul style="list-style-type: none"> Loss or fragmentation of indigenous natural vegetation. Loss of sensitive species. Loss or fragmentation of habitats. 		-	L	Yes	-
			Air	<ul style="list-style-type: none"> Air pollution due to the increase of traffic of construction vehicles. 	-		M	Yes	-
			Soil	<ul style="list-style-type: none"> Soil degradation, including erosion. Loss of topsoil. Disturbance of soils and existing land use (soil compaction). 		-	S	Yes	-
			Geology	<ul style="list-style-type: none"> It is not foreseen that the removal of indigenous vegetation will impact on the geology or vice versa. 		-	S	Yes	-
			Existing services infrastructure	<ul style="list-style-type: none"> 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. 		-	S	Yes	-
			Ground water	<ul style="list-style-type: none"> Pollution due to construction vehicles. 	-		S	Yes	-
			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). 		-	S	Yes	-
		SOCIALECONOMIC ENVIRONMENT	Local unemployment rate	<ul style="list-style-type: none"> Job creation. Business opportunities. Skills development. 		+	S	Yes	-
			Visual landscape	<ul style="list-style-type: none"> Potential visual impact on residents of farmsteads and motorists in close proximity to proposed facility. 	-		L	Yes	-
			Traffic volumes	<ul style="list-style-type: none"> Increase in construction vehicles. 	-		S	Yes	-
			Health & Safety	<ul style="list-style-type: none"> Air/dust pollution. Road safety. Increased risk of veld fires. 		-	S	Yes	-
			Noise levels	<ul style="list-style-type: none"> The generation of noise as a result of construction vehicles, the use of machinery such as drills, excavators, rotary pans, dumper trucks and people working on the site. 	-		L	Yes	-
			Tourism industry	<ul style="list-style-type: none"> Boegoeberg Holiday Resort is in close proximity to the site, the construction activities will have an impact on tourism in the area. 		-	L	Yes	-
			Heritage resources	<ul style="list-style-type: none"> Removal or destruction of archaeological and/or paleontological sites. Removal or destruction of buildings, structures, places and equipment of cultural significance. 	-		S	Yes	-

				<ul style="list-style-type: none"> Removal or destruction of graves, cemeteries and burial grounds. 					
<p>Listing Notice GNR 325, Activity 19: “The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including—</p> <p>Listing Notice GNR 325, Activity 20: “Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including—</p>	<p><u>Site clearing and preparation</u> Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately. This will inevitably result in the removal of indigenous vegetation located on the site.</p>	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	<ul style="list-style-type: none"> Loss or fragmentation of indigenous natural vegetation. Loss of sensitive species. Loss or fragmentation of habitats. 		-	L	Yes	-
			Air quality	<ul style="list-style-type: none"> Air pollution due to the increase of traffic. 	-		M	Yes	-
			Soil	<ul style="list-style-type: none"> Soil degradation, including erosion. Disturbance of soils and existing land use (soil compaction). Loss of agricultural potential (low significance relative to agricultural potential of the site). 		-	M	Yes	-
			Geology	<ul style="list-style-type: none"> It is not foreseen that the removal of indigenous vegetation will impact on the geology or vice versa. 	N/A	N/A	N/A	N/A	-
			Existing services infrastructure	<ul style="list-style-type: none"> 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. 	-		M	Yes	-
			Ground water	<ul style="list-style-type: none"> Pollution due to construction vehicles. 			S	Yes	-
			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	-
		SOCIALECONOMIC 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"> Since there are no tourism facilities in close proximity to the site, the construction activities will not have an impact on tourism in the area. 	-		M	Yes	-
			Traffic volumes	<ul style="list-style-type: none"> Increase in construction vehicles. 	-		S	Yes	-
			Health & Safety	<ul style="list-style-type: none"> Air/dust pollution. Road safety. 	-		S	Yes	-
			Noise levels	<ul style="list-style-type: none"> The generation of noise as a result of construction vehicles, and people working on the site. 	-		M	Yes	-
			Tourism industry	<ul style="list-style-type: none"> Boegoeberg Holiday Resort is in close proximity to the site, the construction activities will have an impact on tourism in the area. 			L	Yes	-
OPERATIONAL PHASE									
<p>Listing Notice GNR 325, Activity 19: “The removal and disposal of minerals contemplated in terms of section 20 of</p>	The key components of the proposed project are described below:	BIOPHYSICA	Fauna & Flora	<ul style="list-style-type: none"> Fragmentation of habitats. Establishment and spread of declared weeds and alien invader plants (operations). 		-	L	Yes	-
			Heritage resources	<ul style="list-style-type: none"> Removal or destruction of archaeological and/or paleontological sites. Removal or destruction of buildings, structures, places and equipment of cultural significance. Removal or destruction of graves, cemeteries and burial grounds. 	N/A	N/A	N/A	N/A	-

<p>the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource [,]; or (b) [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)] 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 this Notice applies.</p> <ul style="list-style-type: none"> • <u>Supporting Infrastructure</u> - A control facility with basic services such as water and electricity will be constructed on the site and will have an approximate footprint 50m² or less. Other supporting infrastructure includes a site office and workshop area. • <u>Roads</u> – Access will be obtained from existing tar and gravel roads. • <u>Fencing</u> - For health, safety and security reasons, the facility will be required to be fenced off from the surrounding farm. 	<ul style="list-style-type: none"> • <u>Supporting Infrastructure</u> - A control facility with basic services such as water and electricity will be constructed on the site and will have an approximate footprint 50m² or less. Other supporting infrastructure includes a site office and workshop area. • <u>Roads</u> – Access will be obtained from existing tar and gravel roads. • <u>Fencing</u> - For health, safety and security reasons, the facility will be required to be fenced off from the surrounding farm. 	Air quality	<ul style="list-style-type: none"> • Air pollution due to the mining activity, crusher plant and transport of the gravel to the designated areas. 	-		S	Yes	-	
		Soil	<ul style="list-style-type: none"> • Soil degradation, including erosion. • Disturbance of soils and existing land use (soil compaction). • Loss of agricultural potential (low significance relative to agricultural potential of the site). 		-	L	Yes	-	
		Geology	<ul style="list-style-type: none"> • Collapsible soil. • Seepage (shallow water table). • Active soil (high soil heave). • Erodible soil. • The presence of undermined ground. • Instability due to soluble rock. • 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"> • Generation of waste that need to be accommodated at a licensed landfill site. • Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. • Increased consumption of water. Approximately 34 000 L/hour 		-	L	Yes	-	
		Ground water	<ul style="list-style-type: none"> • Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can contaminate water supplies. 		-	L	Yes	-	
		Surface water	<ul style="list-style-type: none"> • Increase in storm water runoff. The development will potentially result in an increase in storm water run-off that needs to be managed to prevent soil erosion. • Destruction of watercourses (pans/dams/streams). • Leakage of hazardous materials. The machinery on site require oils and fuel to function. Leakage of these oils and fuels can contaminate water supplies. 	-		L	Yes	-	
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	<ul style="list-style-type: none"> • Job creation. Security guards will be required for 24 hours every day of the week. • Skills development. 		+	L	Yes	-
			Visual landscape	<ul style="list-style-type: none"> • The proposed portions are used for livestock grazing which will still take place simultaneously with the prospecting activity, however this depends on the location of the activity. 		-	L	Yes	-
			Traffic volumes	<ul style="list-style-type: none"> • Increase in vehicles collecting gravel for distribution. 	-		S	Yes	-
			Health & Safety	<ul style="list-style-type: none"> • Air/dust pollution. • Road safety. 		-	S	Yes	-
			Noise levels	<ul style="list-style-type: none"> • The proposed development will result in noise pollution during the operational phase. 	-	-	L	Yes	-
			Tourism industry	<ul style="list-style-type: none"> • Boegoeberg Holiday Resort is in close proximity to the site, the construction activities will have an impact on tourism in the area. 		-	L	Yes	-
			Heritage resources	<ul style="list-style-type: none"> • It is not foreseen that the proposed activity will impact on heritage resources or vice versa . 	N/A	N/A	N/A	N/A	-
DECOMMISSIONING PHASE									

-	<p><u>Mine closure</u> During the mine closure the Mine and its associated infrastructure will be dismantled.</p> <p><u>Rehabilitation of biophysical environment</u> The biophysical environment will be rehabilitated.</p>	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	<ul style="list-style-type: none"> Re-vegetation of exposed soil surfaces to ensure no erosion in these areas. 	+		L	Yes	-
			Air quality	<ul style="list-style-type: none"> Air pollution due to the increase of traffic of construction vehicles. 	-		S	Yes	-
			Soil	<ul style="list-style-type: none"> Backfilling of all voids Placing of topsoil on backfill 	+		L	Yes	-
			Geology	<ul style="list-style-type: none"> It is not foreseen that the decommissioning phase will impact on the geology of the site or vice versa. 	N/A	N/A	N/A	N/A	-
			Existing services infrastructure	<ul style="list-style-type: none"> Generation of waste that need to be accommodated at the local landfill site. Generation of sewage that need to be accommodated by the municipal sewerage system and the local sewage plant. Increase in construction vehicles. 	-		S	Yes	-
			Ground water	<ul style="list-style-type: none"> Pollution due to construction vehicles. 	-		S	Yes	-
			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). 	-		S	Yes	-
		SOCIAL/ECONOMIC ENVIRONMENT	Local unemployment rate	<ul style="list-style-type: none"> Loss of employment. 		-	L	Yes	-
			Visual landscape	<ul style="list-style-type: none"> Potential visual impact on visual receptors in close proximity to proposed facility. 	-		S	Yes	-
			Traffic volumes	<ul style="list-style-type: none"> Increase in construction vehicles. 	-		S	Yes	-
			Health & Safety	<ul style="list-style-type: none"> Air/dust pollution. Road safety. Increased crime levels. The presence of mine workers on the site may increase security risks associated with an increase in crime levels as a result of influx of people in the rural area. 		-	L	Yes	-
			Noise levels	<ul style="list-style-type: none"> The generation of noise as a result of construction vehicles, the use of machinery and people working on the site. 	-		S	Yes	-
			Tourism industry	<ul style="list-style-type: none"> Boegoeberg Holiday Resort is in close proximity to the site, the construction activities will have an impact on tourism in the area. 		-	L	Yes	-
Heritage resources	<ul style="list-style-type: none"> It is not foreseen that the decommissioning phase will impact on any heritage resources. 	N/A	N/A	N/A	N/A	-			

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

J. AN ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK, INCLUDING—

- (i) cumulative impacts;
- (ii) the nature, significance and consequences of the impact and risk;
- (iii) the extent and duration of the impact and risk;
- (iv) the probability of the impact and risk occurring;
- (v) the degree to which the impact and risk can be reversed;
- (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and
- (vii) the degree to which the impact and risk can be mitigated;

Significance of potential impacts

The following sections present the outcome of the significance rating exercise. The results suggest that almost none of the key issues identified as part of the EIR process had a negative high environmental significance. Instead the overall score indicate a low environmental significance score.

INITIAL CLEARANCE AND SITE PREPARATION PHASE

Direct impacts: During this phase minor negative impacts are foreseen over the short term. The latter refers to a period of weeks. The site preparation may result in the loss or fragmentation of indigenous natural fauna and flora, loss or fragmentation of habitats, soil erosion, hydrology, and temporary noise disturbance, generation of waste, visual intrusions, increase in heavy vehicle traffic, and risk to safety, livestock and farm infrastructure, and increased risk of veld fires. The abovementioned impacts are discussed in more detail below:

Loss or fragmentation of indigenous natural fauna and flora:

The proposed area falls within vegetation unit NKu 3, SVk 6 and AZa 4 which is known as the Northern Upper Karoo, Schmidtsdrift Thornveld and Upper Gariep Alluvial Vegetation.

The Northern Upper Karoo is part of the Upper Karoo Bioregion, which is a sub-bioregion for the Nama-Karoo Biome. The Schmidtsdrift thornveld is part of the Eastern Kalahari Bushveld, which is a sub-bioregion for the Savanna Biome and the Upper Gariep Alluvial Vegetation is part of the Alluvial Vegetation Bioregion which is a sub-bioregion for the Inland Azonal Vegetation.

Loss or fragmentation of indigenous natural fauna and flora	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Definite (4)	Definite (4)
Duration	Permanent (4)	Permanent (4)
Magnitude	Very High (4)	High (3)
Reversibility	Irreversible (4)	Barely reversible (3)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	High cumulative impacts (4),	
Significance	Negative very high impact (80)	Negative medium (45)
Can impacts be mitigated?	<p>If the development is approved, contractors must ensure that no mammalian species are disturbed, trapped, hunted or killed. If the development is approved, every effort should be made to confine the footprint to the blocks allocated for the development and have the least possible edge effects on the surrounding area. The EMPr also provides numerous mitigation measures – refer to section (f) of the EMPr.</p> <p>The potential impacts associated with damage to and loss of farmland should be effectively mitigated. The aspects that should be covered include:</p> <ul style="list-style-type: none"> • The site should be fenced off prior to commencement of construction activities; • The footprint associated with the construction related activities (access roads, construction platforms, workshop etc.) should be confined to the fenced off area and minimised where possible; 	

	<ul style="list-style-type: none"> • An Environmental Control Officer (ECO) should be appointed to monitor the establishment phase of the construction phase; • All areas disturbed by construction related activities, such as access roads on the site, construction platforms, workshop area etc., should be rehabilitated at the end of the construction phase; • The implementation of a rehabilitation programme should be included in the terms of reference for the contractor/s appointed. Specifications for the rehabilitation are provided throughout the EMPr – section (f) of the EMPr. • The implementation of the Rehabilitation Programme should be monitored by the ECO.
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- Loss or fragmentation of habitats – Given the high probability of resident threatened species occurring at the footprint site, Water Use License Application will be lodged with the department of Water & Sanitation (DWS).

Loss or fragmentation of habitats	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Definite (4)	Definite (4)
Duration	Permanent (4)	Permanent (4)
Magnitude	Very High (4)	High (3)
Reversibility	Irreversible (4)	Barely reversible (3)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	High cumulative impacts (4).	
Significance	Negative very high impact (80)	Negative medium (45)
Can impacts be mitigated?	Exotic and invasive plant species should not be allowed to establish, if the development is approved. Where exotic and invasive plant species are found at the site continuous eradication should take place. If the development is approved, every effort should be made to confine the footprint to the blocks allocated for development – section (f) of the EMPr also provides numerous mitigation measures related to fauna and flora.	

- Loss of topsoil – Topsoil may be lost due to poor topsoil management (burial, erosion, etc.) during construction related soil profile disturbance (levelling, excavations, disposal of spoils from excavations etc.) The effect will be the loss of soil fertility on disturbed areas after rehabilitation.

Loss of topsoil	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Geographical extent	Site (1)	Site (1)
Probability	Possible (2)	Unlikely (1)
Duration	Medium term (2)	Medium term (2)
Magnitude	High (3)	High (3)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Significant (3)	Marginal (2)
Cumulative impact	Medium cumulative impact (3).	
Significance	Negative Medium (39)	Negative Medium (33)
Can impacts be mitigated?	The following mitigation or management measures are provided: <ul style="list-style-type: none"> • If an activity will mechanically disturb below surface in any way, then any available topsoil should first be stripped from the entire surface and stockpiled for re-spreading during rehabilitation. • Topsoil stockpiles must be conserved against losses through erosion by establishing vegetation cover on them. • Dispose of all subsurface spoils from excavations where they will not impact on undisturbed land. 	

	<ul style="list-style-type: none"> • During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface. • Erosion must be controlled where necessary on top soiled areas. <p>Establish an effective record keeping system for each area where soil is disturbed for constructional purposes. These records should be included in environmental performance reports, and should include all the records below.</p> <ul style="list-style-type: none"> • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation of constructional (or operational) activities at the particular site. • Photograph the area on cessation of constructional activities. • Record date and depth of re-spreading of topsoil. • Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. <p>Section (f) of the EMPr also provide mitigation measures related to topsoil management.</p>
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- Soil erosion – Soil erosion due to alteration of the land surface run-off characteristics. Alteration of run-off characteristics may be caused by construction related land surface disturbance, vegetation removal and the establishment of roads. Erosion will cause loss and deterioration of soil resources. The erosion risk is low due to the low slope gradients and low to moderate erodibility of the soils.

Soil erosion	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Geographical extent	Site (1)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal (2)	Marginal (2)
Cumulative impact	Medium cumulative impact (2).	
Significance	Negative Medium (33)	Negative medium (22)
Can impacts be mitigated?	<p>The following mitigation or management measures are provided: Implement an effective system of run-off control, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion.</p> <p>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 section (f) of the EMPr.</p>	

- Temporary noise disturbance - Preparation activities will result in the generation of noise over a period of months. Sources of noise are likely to include vehicles, the use of machinery such as back actors and people working on the site. The noise impact is unlikely to be significant; but activities should be limited to normal working days and hours (6:00 – 18:00).

Temporary noise disturbance	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative

Extent	Local (2)	Local (2)
Probability	Definite (4)	Probable (3)
Duration	Short term (1)	Short term (1)
Magnitude	Medium (2)	Medium (2)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	The impact would result in negligible to no cumulative effects (1).	
Significance	Negative low (20)	Negative low (20)
Can impacts be mitigated?	Yes, management actions related to noise pollution are included in section (f) of the EMPr.	

- Generation of waste - general waste, construction waste, sewage and grey water - The workers on site are likely to generate general waste such as food wastes, packaging, bottles, etc. Construction waste is likely to consist of packaging, scrap metals, waste cement, etc (if any). The applicant will need to ensure that general and construction waste is appropriately disposed of i.e. taken to the nearest licensed landfill. Sufficient ablution facilities will have to be provided, in the form of portable/VIP toilets. No pit latrines, French drain systems or soak away systems shall be allowed.

Generation of waste	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local/district (2)	Local/district (2)
Probability	Definite (4)	Definite (4)
Duration	Short term (1)	Short term (1)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Medium cumulative impact (3) - An additional demand for landfill space could result in significant cumulative impacts if services become unstable or unavailable, which in turn would negatively impact on the local community.	
Significance	Negative medium (39)	Negative low (26)
Can impacts be mitigated?	Yes, it is therefore important that all management actions and mitigation measures included in section (f) of the EMPr are implemented.	

- Impacts on heritage objects –

Phase 1 Cultural Heritage Impact Assessment

During the physical survey conducted by J A van Schalkwyk (D Litt et Phil) (2019), the following sites, features or objects of cultural significance were identified.

7.1: Change finds Stone Age artefacts:

Stone Age artefacts, mostly dating to the Middle Stone Age and Later Stone Age occur in small numbers in parts of the study area. On the ridges closer to the river, the density of artefacts is less than 1/2m², diminishing to 1/10m² in the sandy regions. These are mostly made from banded ironstone (jaspelite), although some quartzite flakes were also noted. Cores, flakes and tools are found. The tools are very rough and informal and only a few that can be described as typical, i.e. blades and end scrapers, were identified.

7.3.1: Old farmhouse – referred to on the map as Annex Gewonne.

A rectangular structure with a gable roof that was extended to one side to accommodate more rooms as well as a stoep. A hearth or cooking place, commonly referred to as a komyntjie was added to one end. The house was built with poorly fired clay bricks and it has a corrugated iron roof. Some changes were brought about by entrances that were block off with walls and windows that were installed.

7.3.2: Old house – referred to on the map as Dappersfontein

Old farmhouse now completely demolished and stripped of all fittings and usable material. It is therefore impossible to make any statement on the style and materials used. A large stone-built dam is located some distance from the house.

7.3.3: Old farmhouse – referred to on the map as Gewonne

Farmhouse currently still in use and well maintained. According to the current owner, the central core still exists, but some alterations and additions were made. It is square in form, built with bricks and has a corrugated iron roof in a gable form.

7.3.4: Stone built 'cottages'

A series of stone built 'cottages' spread out along a small valley. The individual structures were built with loose stones stacked on top of each other. As this was not very well done, i.e. very little interlocking of the stones took place, the walls are prone to topple over. The removal of fittings such as the roof and door frames probably also contributed to their current state. In some of them internal features such as shelves were built into the corner of the walls.

7.3.5: Old sheep dip

Built with local stone, some of which seems to be hammer-dressed. It is classified as a 'spring dip', with the sheep entering the trough by jumping in and climbing out by means of a number of steps on the opposite side.

7.3.6: Stone built structures

Some very roughly built structures of which only the foundation remains. Some structures are square in nature and others round. The square ones seem to be more recent than the round ones. It is possible that the former related to diamond digger activities whereas the round ones might have been the base of an early herder (Khoi) structure. Unfortunately, no surface artefactual material could be found to assist in the identification of these structures.

7.3.7: Informal burial site

Informal burial site containing approximately 7 graves. Named graves are from the De Lange family, with death dates ranging between 1945 and 1956. Other graves are only marked with stone cairns. The site used to be fenced off with wire, but this has not been maintained for a long time.

7.4.1: Natural spring

A natural spring that, according to local information, has never dried up, in close vicinity of the structures in Stone built 'cottages'.

7.4.2: Historic engravings

The letters AB engraved twice on a flat piece of rock. It is probably the initials of a former landowner or a diamond miner. It is located far from any known historic structure or other feature. A second site containing even more similar engravings occur some distance to the east.

Palaeontological Field Assessment

The Proposed Reads Drift 74 are mantled by Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group (Mbizane Formation, Karoo Supergroup) and the Boomplaas Formation (Schmidsdrift Subgroup, Ghaap Group, Transvaal Supergroup) as well as a very small portion of Vryburg Formation (Ghaap Group, Transvaal Supergroup). According to the South African Heritage Resources Information System, the Palaeontological Sensitivity of the Late Caenozoic Superficial Sediments is High while that of the Tertiary to Quaternary calcretes is Low. The Dwyka Group and Vryburg Fm has a moderate Palaeontological Sensitivity and that of the Boomplaas Formation is Very High.

A one-day site specific field survey of the proposed Reads Drift 74 farm was conducted on foot and by motor vehicle on 19 September 2020. Poorly- to well-preserved, secondarily silicified stromatolite assemblages are recorded within the Boomplaas Formation. The stromatolites of the Boomplaas Formation represent some of the oldest stromatolite examples in South Africa. These stromatolites have not yet been comprehensively described and their geographical and stratigraphic distributions are poorly understood.

The project can be divided into two parts

- Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group (Mbizane Formation, Karoo Supergroup); Vryburg Formation (Ghaap Group, Transvaal Supergroup)
- Boomplaas Formation (Schmidsdrift Subgroup, Ghaap Group, Transvaal Supergroup)

The Impact significance for the Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group and Vryburg Formation will be a **Negative low Impact**. On the other hand, the Impact significance for the Boomplaas Formation will be a **Negative medium Impact**. The possibility of damaging the stromatolites by mining vehicles is likely and a precautionary approach must consequently be undertaken.

Impacts on heritage objects	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Short term (1)	Short term (1)
Magnitude	Very high (4)	Medium (2)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	Low cumulative impact (2). Should these impacts occur, there may be a cumulative impact on the preservation of heritage objects in the area.	
Significance	Negative medium (48)	Negative low (24)
Can impacts be mitigated?	<p>If archaeological sites or graves are exposed during construction work, it should immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. Also refer to section (f) of the EMPr.</p> <p>According to Dr. J A van Schalkwyk (D Litt et Phil) (2019) (Appendix 12):</p> <p>Objectives</p> <ul style="list-style-type: none"> • Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft. • The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities. <p>The following shall apply:</p> <ul style="list-style-type: none"> • Known sites 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 Environmental Control Officer 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 Environmental • Control Officer 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). <p>In order to achieve this, the following should be in place:</p> <ul style="list-style-type: none"> • A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage. • Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that 	

	<p>these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.</p> <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.
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Indirect impacts: The nuisance aspects generally associated with the installation of infrastructure or ground preparation will also be applicable to this development, which relates primarily to the increase in vehicle traffic associated with prospecting practices, the influx of job seekers to the area, risk to safety, livestock and farm infrastructure, and increased risk of veld fires.

- Increase in vehicle traffic** – 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. Access will be obtained from existing tar and gravel roads. While the volume of traffic along this road is low, the movement of heavy vehicles along this road is likely to damage the road surface and impact on other road users. The contractor should be required to ensure that damage to the road is repaired periodically. The movement of additional heavy vehicle traffic is will add significantly to the current traffic load on the road. The impact on the roads is therefore likely to be moderate.

Increase in vehicle traffic	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Probable (3)
Duration	Short term (1)	Short term (1)
Magnitude	High (3)	Medium (2)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Medium cumulative impact (3). If damage to roads is not repaired then this will affect the farming activities in the area and result in higher maintenance costs for vehicles of local farmers and other road users. The costs will be borne by road users who were no responsible for the damage.	
Significance	Negative medium impacts (33)	Negative low (11)
Can impacts be mitigated?	<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 roads are repaired. 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. <p>Also refer section (f) of the EMPr. For mitigation measures related to traffic.</p>	

- Risk to safety, livestock and farm infrastructure** - The presence on and movement of workers on and off the site poses a potential safety threat to local farmer's and farm workers in the vicinity of the site threat. In addition, farm infrastructure, such as fences and gates, may be damaged and stock losses may also result from gates being left open and/or fences being damaged or stock theft linked either directly or indirectly to the presence of farm workers on the site.

Risk to safety, livestock and farm infrastructure	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative

Extent	Local (2)	Local (2)
Probability	Probable (3)	Probable (3)
Duration	Medium term (2)	Medium term (2)
Magnitude	Very High (4)	Medium (2)
Reversibility	Barely reversible (3)	Partly reversible (2)
Irreplaceable loss of resources	Significant resource (3)	Marginal resource (2)
Cumulative impact	Medium cumulative effects (3), provided losses are compensated for.	
Significance	Negative High (64)	Negative low (28)
Can impacts be mitigated?	<p>Key mitigation measures include:</p> <ul style="list-style-type: none"> • Steinmann Groep (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 Steinmann Groep (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; • Steinmann Groep (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 neighbouring landowners. The agreement should also cover losses and costs associated with fires caused by construction workers or construction related activities (see below); • The Environmental Management Programme (EMPr) should outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested; • Contractors appointed Steinmann Groep (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 Steinmann Groep (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). 	

- Increased risk of veld fires - The presence of construction workers and construction-related activities on the site poses an increased risk of grass fires that could in turn pose a threat to livestock, crops, wildlife and farmsteads in the area. In the process, farm infrastructure may also be damaged or destroyed and human lives threatened. The potential risk of grass fires was heightened by the windy conditions in the area, especially during the dry, windy winter months from May to October. In terms of potential mitigation measures, a fire-break should be constructed around the perimeter of the site prior to the commencement of the construction phase. In addition, fire-fighting equipment should be provided on site during the construction phase.

Increased risk of veld fires	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Region (3)	Local (2)
Probability	Probable (3)	Probable (3)
Duration	Medium term (2)	Short term (1)

Magnitude	High (3)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Negligible cumulative effects (1), provided losses are compensated for.	
Significance	Negative medium (33)	Negative low (9)
Can impacts be mitigated?	<p>The mitigation measures include:</p> <ul style="list-style-type: none"> • A fire-break should be constructed around the perimeter of the site prior to the commencement of the construction phase; • Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas; • Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy winter months; • Contractor to provide adequate firefighting equipment on-site, including a fire fighting vehicle; • Contractor to provide fire-fighting training to selected construction staff; • No construction staff, with the exception of security staff, to be accommodated on site over night; • As per the conditions of the Code of Conduct, in the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the firefighting costs borne by farmers and local authorities. 	

OPERATIONAL PHASE

Direct impacts: During the operational phase the study area will serve as an prospecting area and the impacts are generally associated with soil erosion, change in land use, impacts associated with the, increase in storm water runoff, increased consumption of water, visual intrusion, the generation of general waste, leakage of hazardous materials, and the change in the sense of place. The operational phase will also have a direct positive impact through the provision of permanent employment opportunities and facilitating a positive economic growth. The abovementioned impacts are discussed in more detail below:

- Soil erosion – The largest risk factor for soil erosion will be during the operational phase when the prospecting 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.

Soil erosion	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local/Regional (2)	Local/Regional (2)
Probability	Definite (4)	Unlikely (1)
Duration	Long term (3)	Long term (3)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Medium cumulative impact (3). Should these impacts occur, there will be a cumulative impact on the air and water resources in the study area in terms of pollution.	
Significance	Negative High (51)	Negative Low (26)

Can impacts be mitigated?	Yes, to avoid soil erosion it will be a good practice to not remove all the vegetation at once but to only clear the area as it becomes necessary and to implement concurrent rehabilitation. Also refer to section (f) of the EMPr.
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- Change in land-use – The use of the area for the operation of the prospecting activity will not disturb any agricultural activities on most of the portions as both will be done concurrently.

Change in land use	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Province (3)	Local (2)
Probability	Definite (4)	Definite (4)
Duration	medium term (2)	medium term (2)
Magnitude	High (3)	Medium (2)
Reversibility	Barely reversible (3)	Partly reversible (2)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Medium cumulative impacts (3).	
Significance	Negative high (54)	Negative medium (30)
Can impacts be mitigated?	The proponent should establish a Rehabilitation Fund to be used to rehabilitate the area once the proposed facility has been decommissioned. The fund should be funded by revenue generated during the operational phase of the project. The motivation for the establishment of a Rehabilitation Fund is based on the experience in the mining sector where many mines on closure have not set aside sufficient funds for closure and decommissioning. Also refer to section (f) of the EMPr.	

- Generation of alternative land use income – Income generated through the alluvial diamond mine will provide the farming enterprise with increased cash flow and rural livelihood, and thereby improve the financial sustainability of farming on site.

Generation of alternative land use income	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Positive	Positive
Geographical extent	Site (1)	Site (1)
Probability	Definite (4)	Definite (4)
Duration	Long term (3)	Long term (3)
Magnitude	Medium (2)	High (3)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resources (1)	No loss of resources (1)
Cumulative impact	Medium cumulative impact (3).	
Significance	Positive Low (24)	Positive medium (39)
Can impacts be mitigated?	No mitigation required.	

- Increase in storm water runoff – The development will potentially result in an increase in storm water run-off that needs to be managed to prevent soil erosion, especially where vegetation will be cleared. Not all the vegetation should be removed at once. Only the specific trench being excavated at the specific time should be cleared

Increase in storm water runoff	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Probable (3)	Unlikely (1)
Duration	Long term (3)	Long term (3)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)

Cumulative impact	Medium cumulative impact (3) - Should these impacts occur, there will be a cumulative impacts on the wider area.	
Significance	Negative medium (30)	Negative low (13)
Can impacts be mitigated?	<p>Yes. It is therefore important that all management actions and mitigation measures included in section (f) of the EMPr. are implemented to ensure that these impacts do not occur</p> <p>The cut-off trenches and silt fences will be installed where necessary as to control runoff storm water by attenuating it and control the movement of sediment on the premises.</p> <p>These structures will be monitored on a regular basis. It is suggested that it be monitored on a weekly basis during the rainy season, and after possible rain events during the dry season.</p> <p>If these practices is found to be insufficient for the control of storm water and sedimentation, other alternatives should immediately be investigated and implemented.</p>	

Increased consumption of water - Since 1 x 16 feet washing pans will be used, the amount of water for the pans will be 17 000 L/hour from which 30% is re-used.

Increased consumption of water	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Region (3)	Region (3)
Probability	Definite (4)	Definite (4)
Duration	Long term (3)	Long term (3)
Magnitude	High (3)	Medium (2)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	Significant loss of resources (3)	Marginal loss of resources (2)
Cumulative impact	High cumulative impacts (4) - An additional demand on water sources could result in a significant cumulative impact with regards to the availability of water.	
Significance	Negative high impact (63)	Negative medium (40)
Can impacts be mitigated?	Yes, management actions and mitigation measures related to the use of water are included in section (f) of the EMPr.	

- Generation of waste – Approximately 15 Workers will be present on site from 6:00 – 18:00, 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.

Generation of waste	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Definite (4)	Definite (4)
Duration	Long term (3)	Long term (3)
Magnitude	Low (1)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	Medium cumulative impact (3) - An additional demand for landfill space could result in significant cumulative impacts with regards to the availability of landfill space.	
Significance	Negative low (15)	Negative low (15)
Can impacts be mitigated?	Yes, management actions related to waste management are included in section (f) of the EMPr.	

- **Leakage of hazardous materials** - The proposed prospecting activity will make use of machinery that use fuel and oil. Leakage of these oils and fuel can contaminate water supplies and must be prevented by constructing oil and diesel permeable bunds to ensure that any spills are suitably attenuated and not released into the environment.

Leakage of hazardous materials	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Possible (2)	Unlikely (1)
Duration	Long term (3)	Long term (3)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal loss of resource (2)	Marginal loss of resource (2)
Cumulative impact	The impact would result in negligible to no cumulative effects (1)	
Significance	Negative medium (36)	Negative low (22)
Can impacts be mitigated?	Yes. It is therefore important that all management actions and mitigation measures included in the section (f) of EMPr are implemented to ensure that these impacts do not occur.	

- **Noise disturbance** - Prospecting 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, rotary pans and people working on the site, as well as occasional blasting. The noise impact is likely to be significant as the closest

Temporary noise disturbance	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Definite (4)	Probable (3)
Duration	Medium term (2)	Medium term (2)
Magnitude	Very high (4)	High (3)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	The impact would result in medium cumulative effects (3).	
Significance	Negative High (52)	Negative medium (36)
Can impacts be mitigated?	Yes, management actions related to noise pollution are included in section (f) of the EMPr.	

Indirect impacts: The operational phase will have an indirect negative impact through the change in the sense of place and an indirect positive impact through the provision of additional electrical infrastructure.

- **Potential impact on tourism** – The impact of the proposed prospecting of diamond alluvial on the areas sense of place with mitigation is likely to be low. In addition, the site will be visible from the existing tar and gravel roads.

Potential impacts on tourism	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Site (1)	Site (1)
Probability	Possible (2)	Possible (2)
Duration	Medium term (2)	Medium term (2)
Magnitude	Very high (4)	Very high (4)
Reversibility	Barely reversible (3)	Barely reversible (3)
Irreplaceable loss of resources	Significant loss of resources (3)	Significant loss of resources (3)
Cumulative impact	Medium cumulative impacts (3)	
Significance	Negative high (56)	Negative high (56)
Can impacts be mitigated?	No mitigation required	

DECOMMISSIONING PHASE (MINE CLOSURE AND REHABILITATION)

Direct impacts: Typically, the major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income. This has implications for the households who are directly affected, the communities within which they live. If infrastructures are removed after a 3/5 year period, the site will be returned to its natural state. Therefore the physical environment will benefit from the closure of the prospecting area.

- Rehabilitation of the physical environment – The physical environment will benefit from the closure of the prospecting area since the site will be restored to its natural state.

Rehabilitation of the physical environment	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Positive	Positive
Extent	Site (1)	Site (1)
Probability	Possible (2)	Probable (3)
Duration	Long term (3)	Long term (3)
Magnitude	Low (1)	Medium (2)
Reversibility	N/A	N/A
Irreplaceable loss of resources	N/A	N/A
Cumulative impact	The impact would result in negligible to no cumulative effects (1)	
Significance	Negative low (7)	Negative low (16)
Can impacts be mitigated?	No mitigation measures required.	

- 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.

Loss of employment	Pre-mitigation impact rating	Post mitigation impact rating
Status (positive or negative)	Negative	Negative
Extent	Local (2)	Local (2)
Probability	Possible (2)	Possible (2)
Duration	Medium term (2)	Short term (1)
Magnitude	High (3)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	No loss of resource (1)	No loss of resource (1)
Cumulative impact	The impact would result in negligible to no cumulative effects (1)	
Significance	Negative medium (30)	Negative low (18)
Can impacts be mitigated?	The following mitigation measures are recommended: <ul style="list-style-type: none"> • All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning; • STEINMANN GROEP (PTY) LTD. should establish an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas. 	

Indirect impacts: No indirect impacts are anticipated from the decommissioning phase of the proposed development.

K. SUMMARY OF THE FINDINGS AND RECOMMENDATIONS OF ANY SPECIALIST REPORT

(where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report):-

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.
Phase 1 Cultural Heritage Impact Assessment (Appendix 12)	<p>During the physical survey conducted by J A van Schalkwyk (D Litt et Phil) (2019), the following sites, features or objects of cultural significance were identified.</p> <p>7.1: Change finds Stone Age artefacts: Stone Age artefacts, mostly dating to the Middle Stone Age and Later Stone Age occur in small numbers in parts of the study area. On the ridges closer to the river, the density of artefacts is less than 1/2m², diminishing to 1/10m² in the sandy regions. These are mostly made from banded ironstone (jaspelite), although some quartzite flakes were also noted. Cores, flakes and tools are found. The tools are very rough and informal and only a few that can be described as typical, i.e. blades and end scrapers, were identified.</p> <p>7.3.1: Old farmhouse – referred to on the map as Annex Gewonne. A rectangular structure with a gable roof that was extended to one side to accommodate more rooms as well as a stoep. A hearth or cooking place, commonly referred to as a komyntjie was added to one end. The house was built with poorly fired clay bricks and it has a corrugated iron roof. Some changes were brought about by entrances that were block off with walls and windows that were installed.</p> <p>7.3.2: Old house – referred to on the map as Dappersfontein Old farmhouse now completely demolished and stripped of all fittings and usable material. It is therefore impossible to make any statement on the style and materials used. A large stone-built dam is located some distance from the house.</p> <p>7.3.3: Old farmhouse – referred to on the map as Gewonne</p>		

	<p>Farmhouse currently still in use and well maintained. According to the current owner, the central core still exists, but some alterations and additions were made. It is square in form, built with bricks and has a corrugated iron roof in a gable form.</p> <p>7.3.4: Stone built ‘cottages’ A series of stone built ‘cottages’ spread out along a small valley. The individual structures were built with loose stones stacked on top of each other. As this was not very well done, i.e. very little interlocking of the stones took place, the walls are prone to topple over. The removal of fittings such as the roof and door frames probably also contributed to their current state. In some of them internal features such as shelves were built into the corner of the walls.</p> <p>7.3.5: Old sheep dip Built with local stone, some of which seems to be hammer-dressed. It is classified as a ‘spring dip’, with the sheep entering the trough by jumping in and climbing out by means of a number of steps on the opposite side.</p> <p>7.3.6: Stone built structures Some very roughly built structures of which only the foundation remains. Some structures are square in nature and others round. The square ones seem to be more recent than the round ones. It is possible that the former related to diamond digger activities whereas the round ones might have been the base of an early herder (Khoi) structure. Unfortunately, no surface artefactual material could be found to assist in the identification of these structures.</p> <p>7.3.7: Informal burial site Informal burial site containing approximately 7 graves. Named graves are from the De Lange family, with death dates ranging between 1945 and 1956. Other graves are only marked with stone cairns. The site used to be fenced off with wire, but this has not been maintained for a long time.</p> <p>7.4.1: Natural spring A natural spring that, according to local information, has never dried up, in close vicinity of the structures in Stone built ‘cottages’.</p> <p>7.4.2: Historic engravings The letters AB engraved twice on a flat piece of rock. It is probably the initials of a former landowner or a diamond miner. It is located far from any known historic structure or other feature. A second site containing even more similar engravings occur some distance to the east.</p>		
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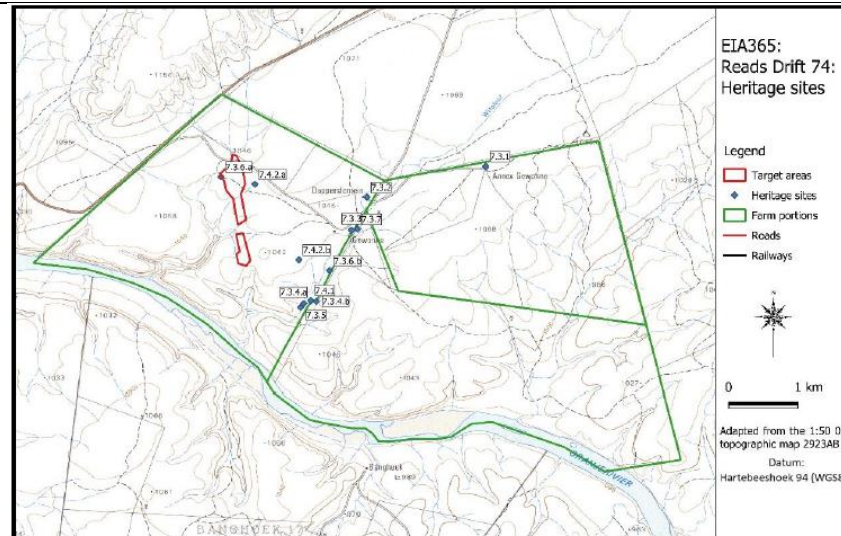


Figure 14. Location of the identified heritage sites (Colour map available under **Appendix 12**)

Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities.

The following shall apply:

- Known sites 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 Environmental Control Officer 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 Environmental
- Control Officer will advise the necessary actions to be taken;

	<ul style="list-style-type: none"> • 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). <p><u>In order to achieve this, the following should be in place:</u></p> <ul style="list-style-type: none"> • A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage. • 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 Environmental Control Officer as identified above. • 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><u>Reasoned opinion as to whether the proposed activity should be authorised:</u></p> <ul style="list-style-type: none"> • From a heritage point of view, it is recommended that the proposed development be allowed to continue on acceptance of the conditions proposed below. <p><u>Conditions for inclusion in the environmental authorisation:</u></p> <ul style="list-style-type: none"> • If the identified structure is to be demolished, it must be fully documented – mapped, photographed and described – beforehand. • The Palaeontological Sensitivity Map (SAHRIS) indicate that the study area has high sensitivity of fossil remains to be found and therefore a desktop palaeontological study of the site is required. • Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. 		
<p>Palaeontological Field Assessment (Appendix 12)</p>	<p>The Proposed Reads Drift 74 are mantled by Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group (Mbizane Formation, Karoo Supergroup) and the Boomplaas Formation (Schmidsdrift Subgroup, Ghaap Group, Transvaal Supergroup) as well as a very small portion of Vryburg Formation (Ghaap Group, Transvaal Supergroup). According to the South African Heritage Resources Information System, the Palaeontological Sensitivity of the Late Caenozoic Superficial Sediments is High while that</p>		

	<p>of the Tertiary to Quaternary calcretes is Low. The Dwyka Group and Vryburg Fm has a moderate Palaeontological Sensitivity and that of the Boomplaas Formation is Very High.</p> <p>A one-day site specific field survey of the proposed Reads Drift 74 farm was conducted on foot and by motor vehicle on 19 September 2020. Poorly- to well-preserved, secondarily silicified stromatolite assemblages are recorded within the Boomplaas Formation. The stromatolites of the Boomplaas Formation represent some of the oldest stromatolite examples in South Africa. These stromatolites have not yet been comprehensively described and their geographical and stratigraphic distributions are poorly understood.</p> <p>The project can be dividend in to two parts</p> <ul style="list-style-type: none"> • Late Cenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group (Mbizane Formation, Karoo Supergroup); Vryburg Formation (Ghaap Group, Transvaal Supergroup) • Boomplaas Formation (Schmidsdrift Subgroup, Ghaap Group, Transvaal Supergroup) <p>The Impact significance for the Late Cenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group and Vryburg Formation will be a Negative low Impact. On the other hand, the Impact significance for the Boomplaas Formation will be a Negative medium Impact. The possibility of damaging the stromatolites by mining vehicles is likely and a precautionary approach must consequently be undertaken.</p> <p>However, prospecting will only be conducted in the Late Cenozoic Superficial Sediments and Dwyka Group.</p> <p>No visible evidence of fossiliferous outcrops was found in the remainder of the proposed footprint. The scarcity of fossil heritage at the proposed development footprint indicates that the impact of the proposed development will be of a moderate significance in palaeontological terms. It is therefore considered that the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area.</p>		
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	<p>In the event of the discovering of fossil remains during any phase of construction or operation, either on the surface or exposed by excavations, a Chance Find Protocol must be implemented by the ECO in charge of this development. These discoveries should be protected (if possible, <i>in situ</i>) and the ECO must report such discovery to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). Suitable mitigation (e.g. recording and collection) will consequently be undertaken by a palaeontologist.</p> <p>Preceding any collection of fossil material, the palaeontologist would need to apply for a collection permit from SAHRA. Fossil material must be curated in an accredited collection (museum or university collection), while all fieldwork and reports should meet the minimum standards for palaeontological impact studies required by SAHRA.</p> <p>These recommendations should be incorporated into the EMP for the Prospecting Right Application of the development.</p> <p>Recommendations</p> <ul style="list-style-type: none"> • The ECO of the project must be informed that the Stromatolites of the Boomplaas Formation has a High Palaeontological Sensitivity and is widespread in the development footprint and special precaution must be undertaken not to damage any stromatolites. • In the event that fossil remains are discovered in the Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group and Vryburg Formation during any phase of construction or operation, either on the surface or exposed by excavations, the Chance Find Protocol must be implemented by the ECO. 		
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<p>Watercourse Delineation and Ecological Impact Assessment Report (Appendix 12)</p>	<ul style="list-style-type: none"> • Any activities that take place within 32 meters of a wetland or watercourse or the 1:100 year flood lines will require authorisation in terms of the relevant regulations of NEMA, however as far as possible infrastructure should be placed outside of buffer lines. • Demarcate the watercourse areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas. • Where construction occurs in the demarcated watercourse and buffer areas, additional precautions should be implemented to minimise watercourse loss. • No stockpiling should take place within a watercourse or the calculated buffers. • All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. • Erosion and sedimentation into channels must be minimised through the effective stabilisation and the re-vegetation of any disturbed stream banks. • Ensure that erosion management and sediment controls are strictly implemented from the beginning of site clearing activities. • All areas should be re-sloped and top-soiled where necessary and reseeded with indigenous grasses to stabilise the loose material. • Monitor the occurrence of erosion during the rainy season and take immediate corrective action where needed. • A sensitivity map has been developed for the study area, indicating the drainage lines and riparian systems, and their relevant buffer zones. It is recommended that this sensitivity map be considered during all phases of the development and with special mentioning of the planning of infrastructure, in order to aid in the conservation of and minimise impact on the riparian and aquatic habitat and resources within the study site. • Any areas where bank failure is observed, due to the prospecting impacts, should be immediately repaired. • As far as possible the existing road network should be utilised, minimising the need to develop new access routes resulting in an increased impact on the local environment. • Operational phase activities should not take place within watercourses or buffer zones. • The duration of impacts on the drainage line should be minimised as far as possible by ensuring that the duration of time in which flow alteration and sedimentation will take place is minimised. • Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat. • All rehabilitation activities should occur in the dry season. 		
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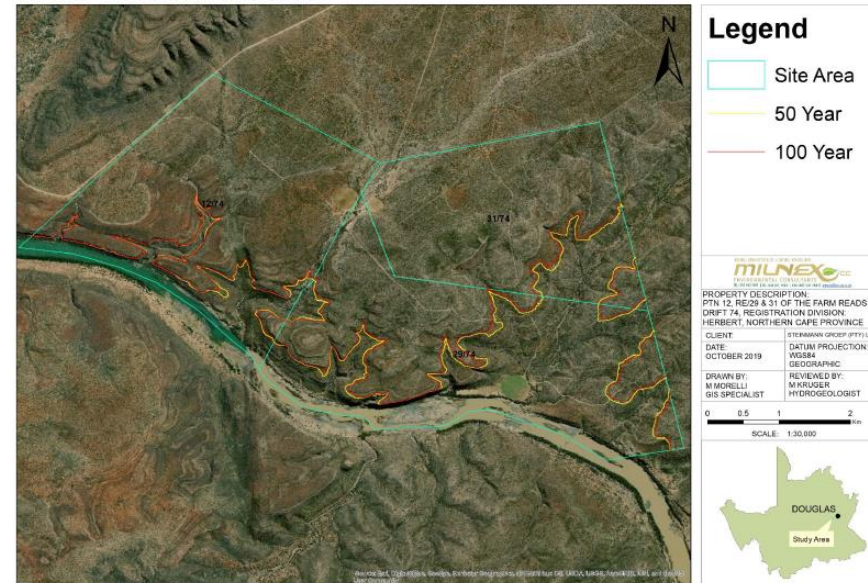
	<ul style="list-style-type: none"> • Rehabilitation of disturbed areas as a result of construction must be implemented immediately upon completion of construction. • Other than approved and authorized structures, no other development or maintenance infrastructure is allowed within the delineated watercourse and riparian areas or their associated buffer zones. • Bi-annual biomonitoring of aquatic macro-invertebrates and diatoms within the riverine systems is essential. • All maintenance within watercourses must be restricted to the dry season. • Maintenance activities should not impact on rehabilitated or naturally vegetated areas. • Rehabilitation should limit fragmentation and isolation of sections of the non-perennial drainage line systems. • The duration of impacts on the riverine and drainage line systems should be minimised as far as possible by ensuring that the duration of time in which flow alteration and sedimentation will take place is minimised. • Rehabilitation must ensure that riparian structure and function are reinstated in such a way as to ensure the ongoing functionality of the larger riparian systems at pre-mining levels. • Buffer zones should be maintained, in order to minimise sedimentation of the downstream areas. • As far as possible the existing road network should be utilised, minimising the need to develop new access routes resulting in an increased impact on the local environment. • Erosion control measures, such as berms, must be implemented to manage runoff from roads to prevent erosion and pollution. • Silt screens should be used where necessary. • Rehabilitation of disturbed areas as a result of construction must be implemented immediately upon completion of construction. • Rehabilitation must ensure that riparian structure and function are reinstated in such a way as to ensure the ongoing functionality of the larger riparian systems at pre-mining levels. • Maintain flood capacity, particularly in areas with significant flood hazards. • Other than approved and authorized structures, no other development or maintenance infrastructure is allowed within the delineated watercourse and riparian areas or their associated buffer zones. 		
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	<ul style="list-style-type: none"> • Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat. • Monitor the occurrence of erosion during the rainy season and take immediate corrective action where needed. • No stockpiling should take place within a watercourse or the calculated buffers. • All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. • Bi-annual biomonitoring of aquatic macro-invertebrates and diatoms within the riverine systems is essential. • All maintenance within watercourses must be restricted to the dry season. • Maintenance activities should not impact on rehabilitated or naturally vegetated areas. • Rehabilitation should limit fragmentation and isolation of sections of the non-perennial drainage line systems. • The duration of impacts on the riverine and drainage line systems should be minimised as far as possible by ensuring that the duration of time in which flow alteration and sedimentation will take place is minimised. • Rehabilitation must ensure that riparian structure and function are reinstated in such a way as to ensure the ongoing functionality of the larger riparian systems at pre-mining levels. • All rehabilitation activities should occur in the dry season. • Site clearing to take place in a phased manner (where possible) to allow for any faunal species present to move away from the study site to the surrounding open space areas. • Prior and during vegetation clearance any larger fauna species noted should be given the opportunity to move away from the construction machinery. • Fauna species such as frogs and reptiles that have not moved away should be carefully and safely removed to a suitable location beyond the extent of the development footprint by a suitably qualified ECO trained in the handling and relocation of animals. • Fencing should be erected around the project area to prevent workers and members of the public from entering the surrounding environments. This fence should have small openings to allow wildlife to pass through. • Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. 		
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	<ul style="list-style-type: none">• Should any sensitive or Red Data animal or bird species be encountered during the construction, operation and decommissioning activities, these should be relocated to natural areas in the vicinity. Any sensitive fauna that are inadvertently killed during earthmoving operations should be preserved as museum voucher specimens.• No hunting, trapping or killing of fauna are allowed.• Any lizards, snakes or monitors encountered should be allowed to escape to a suitable habitat away from disturbance.• General avoidance of snakes is the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area.• Trenches and deep excavations should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench.• Noise must be kept to an absolute minimum at night to minimise all possible disturbances to amphibian species and nocturnal mammals.		
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Floodline Assessment Report
(Appendix 12)

FIGURE 8-1: 1:50 and 1:100 Floodlines



Conclusion

As seen in figure 8-1, part of the 1:50 and 1:100 flood peaks extend across the farm boundary adjacent to the river.

Recommendation

It is recommended that the placement of infrastructure should adhere to the GN704 of the South African National Water Act (36 of 1998) and not be located within the 1:100- year Return Period flood line. This is essential for the safety of human life as well as for the protection of infrastructure from flood inundation and destruction.

If it is planned to mine within in the flood peak areas, it is recommended that the client apply for 21(c) & (i) water-uses as part of the Water Use License Application (WULA).

<p>Baseline Hydrogeological Investigation(Appendix 12)</p>	<p><u>CONCLUSION AND RECOMMENDATIONS</u></p> <p>Based on the findings of this investigation, the following conclusions were made:</p> <ul style="list-style-type: none"> • The study area is located on portion 12, remaining extent of portion 29 (portion of portion 13) and portion 31 (portion of portion 29) of the farm Reads Drift 74, registration division Herbert, near Douglas in the Northern Cape Province; • No hydrocensus or NGA boreholes were identified within a 1km radius of the site. The major source of water in the area is the Orange River; • Two (2) boreholes (BH1 and BH2) were identified during the borehole survey conducted on the 28th November 2019. The static groundwater level measured in BH1 was 11.67mbgl; • Groundwater abstracted from BH1 was used for drinking and domestic purposes while BH2 was used for stock watering. Both boreholes were sampled to determine baseline water quality; • Based on the groundwater quality analysis, no major constituents of concern were identified; • Based on the groundwater quality analysis, no major constituents of concern were identified; • Based on the groundwater level measured within the borehole (BH1) located on-site, no groundwater inflow is expected to occur within the mine excavations, which according to the prospecting work programme, will reach a maximum depth of 5m; • Water are proposed to be abstracted from the Orange River for the mining operations. A water sample was therefore collected from the Orange River abstraction point to establish if any constituents pose a risk to the underlying aquifer once mining commence. Based on the laboratory analysis, no major constituents of concern were identified; • A soil sample was collected by means of augering into the stratum proposed to be mined with the use of a hand auger. The sample was submitted to an accredited laboratory for inorganic analyses to determine possible contaminants that can leach into the underlying aquifer. Based on the leach testing conducted for the tailings facility, waste classified as type 3 waste. <p><u>Recommendations</u></p>		
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	<p>The following recommendations are made based on the findings of this investigation:</p> <ul style="list-style-type: none">• Given the low likelihood for the tailings material to impact on the groundwater, it is recommended that motivation is provided for a Type 4 Classification;• Groundwater Monitoring should be undertaken in accordance with SANS and DWS requirements in line with the recommended schedule. Two (2) boreholes are recommended to be monitored; and• 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.		
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L. AN ENVIRONMENTAL IMPACT STATEMENT WHICH CONTAINS—

(i) a summary of the key findings of the environmental impact assessment:

This section provides a summary of the assessment and conclusions drawn from the proposed prospecting area. In doing so, it draws on the information gathered as part of the environmental impact assessment process and the knowledge gained by the environmental consultant during the course of the process and presents an informed opinion on the environmental impacts associated with the proposed project. The following conclusions can be drawn for the proposed prospecting activity:

- Potential impacts on biodiversity: According to the critical biodiversity, the proposed farm portions within Critical Biodiversity Area One and Two. But through implementing mitigation measures, no adverse impacts are expected.
- Potential impacts on land use: The farm is currently in a natural state. The activity which will be subject to concurrent rehabilitation will still have a significant impact on the land use and will change the sense of place of the area.
- Potential social impacts: The presence of construction workers poses a potential risk to family structures and social networks. While the presence of construction workers does not in itself constitute a social impact, the manner in which construction workers conduct themselves can impact on local communities. The most significant negative impact is associated with the disruption of existing family structures and social networks.
- Potential negative impacts: (noise, dust, soil degradation, storm water, traffic, health and safety) associated with the operation of the facility are expected to be of low-medium impact, of medium terms and site specific. These can be mitigated or negated through the implementation of practical and appropriate mitigation measures.
- Positive impacts: The mining of Diamonds (Alluvial & General) will have socio-economic benefit to the area.

All possible negative impacts and risks that have been identified in this report can be effectively mitigated and managed by implementing the migratory measures as set out in the Environmental Management Programme (EMPr) attached in Part B. It is therefore recommended that the environmental authorisation for the prospecting right be granted.

(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred [site] development footprint on the approved site as contemplated in the accepted scoping report indicating any areas that should be avoided, including buffers; and

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

Refer to Site layout Map attached in **Appendix 4**.

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

There are regional socio economic benefits due to the Diamonds (Alluvial & General) being prospected in the Northern Cape Province and greater knowledge is gained on the mineralogy of South Africa. All possible negative impacts and risks that have been identified in this report can be effectively mitigated and managed by implementing the mitigation measures as set out in the Environmental Management Programme (EMPr) attached in Part B. Significant adverse social environmental impacts are anticipated.

M. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPr

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

Management objectives include:

- Ensure that the prospecting activity does not cause pollution to the environment or harm to persons.

- Minimise production of waste.
- All prospecting activities must be conducted in a manner that minimises noise impact, litter, environmental degradation and health hazards i.e. injuries.
- The mine must be kept neat and tidy during waste handling to prevent unsightliness and accidents.

Expected outcomes include:

- Minimum impacts on the environment as a result of alluvial diamond prospecting.
- Compliance with legislative requirements.
- Mine is neat and tidy and well managed.

N. FINAL PROPOSED ALTERNATIVES.

(Provide an explanation for the final layout of the infrastructure and activities on the overall site as shown on the final site map together with the reasons why they are the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment)

This alternative asks the question, if there is not, from an environmental perspective, a more suitable location for the proposed activity. Portion 12, Remaining Extent of Portion 29 (portion of portion 13) and Portion 31 (portion of portion 29) of the farm Reads Drift 74 is preferred due to the sites underlying alluvial diamond bearing gravel, therefore there will be no other alternative (i.e. to facilitate the movement of machinery, equipment, infrastructure).

O. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

(Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;)

- The operational activities and relevant rehabilitation of disturbed areas should be monitored against the improved EMPr and all other relevant environmental legislation.
- A copy of the EMP should be made available onsite at all times.
- Implementation of the proposed mitigation measures set out in the EMPr.

P. DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.

(Which relate to the assessment and mitigation measures proposed)

The uncertainties in results are mostly related to the availability of information, time available to gather the relevant information as well as the sometimes subjective nature of the assessment methodology. In terms of addressing the key issues the EAP is satisfied that there are no major gaps in knowledge and that the report provide sufficient information to conduct the significance rating and provide the environmental authority with sufficient information to make an informed decision.

Q. REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

(and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;)

Reasons why the activity should be authorized or not.

Based on the outcomes of other diamond mines in the area, the possibility to encounter further Diamond Reserves were identified.

The proposed prospecting area is targeted as, historically, several alluvial diamond occurrences are known in the area, and a number of these have been exploited in the past. There are also various alluvial diamond operations within the vicinity of the exploration area.

No other properties have been secured by the applicant and the site is therefore regarded as the preferred site, and alternatives are not considered.

The option of not approving the activities will result in a significant loss to valuable diamond deposits being exploited. And all economic benefits will be lost.

Conditions that must be included in the authorisation

- The operational activities and relevant rehabilitation of disturbed areas should be monitored against the improved EMPr and all other relevant environmental legislation.
- A copy of the EMP should be made available onsite at all times.
- Implementation of the proposed mitigation measures set out in the EMPr.

The EMPr should be binding on all managers and contractors operating/utilizing the site.
The applicant shall familiarize himself with the content of this document and the attached specialist studies and the requirements/conditions thereof.

R. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

For a minimum of 5 years.

S. AN UNDERTAKING UNDER OATH OR AFFIRMATION BY THE EAP IN RELATION TO:

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 Environmental Management Programme 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:

Milnex CC – Environmental Consultants

Name of company:

07/10/2020

Date:

T. FINANCIAL PROVISION

(where applicable, details of any financial provision[s] for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;)

XXXXX

A. Explain how the aforesaid amount was derived.

The closure cost estimate provided 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 was calculated by Milnex CC.

B. 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 financial guarantee for the rehabilitation for land disturbed by **Steinmann Groep (Pty) Ltd.** will be submitted

Rehabilitation Fund

Steinmann Groep (Pty) Ltd. will also make provision for rehabilitation during closure by establishing a rehabilitation trust.

U. DEVIATIONS FROM THE APPROVED SCOPING REPORT AND PLAN OF STUDY.

(i) Any deviation from the methodology used in determining the significance of potential environmental impacts and risks; and

None of the methodologies approved for the scoping report were deviated

(ii) Motivation for the deviation.

Not applicable

V. ANY SPECIFIC INFORMATION THAT MAY BE REQUIRED BY THE COMPETENT AUTHORITY; AND

W. COMPLIANCE WITH THE PROVISIONS OF SECTIONS 24(4)(A) AND (B) OF THE ACT

Read with Section 24 (3) (A) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA Report must include the:

ii. Impact on the socio-economic conditions of any directly affected person. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as **Appendix 2.19.1** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6. and 2.12. herein).

The Diamonds (Alluvial & General) prospecting will not impact directly on any socio-economic aspects. Indirect socio-economic benefits are expected to be associated with the creation of employment.

iii. Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception

of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6 and 2.12.herein).

Phase 1 Cultural Heritage Impact Assessment:

During the physical survey conducted by J A van Schalkwyk (D Litt et Phil) (2019), the following sites, features or objects of cultural significance were identified.

7.1: Change finds Stone Age artefacts:

Stone Age artefacts, mostly dating to the Middle Stone Age and Later Stone Age occur in small numbers in parts of the study area. On the ridges closer to the river, the density of artefacts is less than 1/2m², diminishing to 1/10m² in the sandy regions. These are mostly made from banded ironstone (jaspelite), although some quartzite flakes were also noted. Cores, flakes and tools are found. The tools are very rough and informal and only a few that can be described as typical, i.e. blades and end scrapers, were identified.

7.3.1: Old farmhouse – referred to on the map as Annex Gewonne.

A rectangular structure with a gable roof that was extended to one side to accommodate more rooms as well as a stoep. A hearth or cooking place, commonly referred to as a komyntjie was added to one end. The house was built with poorly fired clay bricks and it has a corrugated iron roof. Some changes were brought about by entrances that were block off with walls and windows that were installed.

7.3.2: Old house – referred to on the map as Dappersfontein

Old farmhouse now completely demolished and stripped of all fittings and usable material. It is therefore impossible to make any statement on the style and materials used. A large stone-built dam is located some distance from the house.

7.3.3: Old farmhouse – referred to on the map as Gewonne

Farmhouse currently still in use and well maintained. According to the current owner, the central core still exists, but some alterations and additions were made. It is square in form, built with bricks and has a corrugated iron roof in a gable form.

7.3.4: Stone built ‘cottages’

A series of stone built ‘cottages’ spread out along a small valley. The individual structures were built with loose stones stacked on top of each other. As this was not very well done, i.e. very little interlocking of the stones took place, the walls are prone to topple over. The removal of fittings such as the roof and door frames probably also contributed to their current state. In some of them internal features such as shelves were built into the corner of the walls.

7.3.5: Old sheep dip

Built with local stone, some of which seems to be hammer-dressed. It is classified as a ‘spring dip’, with the sheep entering the trough by jumping in and climbing out by means of a number of steps on the opposite side.

7.3.6: Stone built structures

Some very roughly built structures of which only the foundation remains. Some structures are square in nature and others round. The square ones seem to be more recent than the round ones. It is possible that the former related to diamond digger activities whereas the round ones might have been the base of an early herder (Khoi) structure. Unfortunately, no surface artefactual material could be found to assist in the identification of these structures.

7.3.7: Informal burial site

Informal burial site containing approximately 7 graves. Named graves are from the De Lange family, with death dates ranging between 1945 and 1956. Other graves are only marked with stone cairns. The site used to be fenced off with wire, but this has not been maintained for a long time.

7.4.1: Natural spring

A natural spring that, according to local information, has never dried up, in close vicinity of the structures in Stone built ‘cottages’.

7.4.2: Historic engravings

The letters AB engraved twice on a flat piece of rock. It is probably the initials of a former landowner or a diamond miner. It is located far from any known historic structure or other feature. A second site containing even more similar engravings occur some distance to the east.

Palaeontological Field Assessment

The Proposed Reads Drift 74 are mantled by Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group (Mbizane Formation, Karoo Supergroup) and the Boomplaas Formation (Schmidsdrift Subgroup, Ghaap Group, Transvaal Supergroup) as well as a very small portion of Vryburg Formation (Ghaap Group, Transvaal Supergroup). According to the South African Heritage Resources Information System, the Palaeontological Sensitivity of the Late Caenozoic Superficial Sediments is High while that of the Tertiary to Quaternary calcretes is Low. The Dwyka Group and Vryburg Fm has a moderate Palaeontological Sensitivity and that of the Boomplaas Formation is Very High.

A one-day site specific field survey of the proposed Reads Drift 74 farm was conducted on foot and by motor vehicle on 19 September 2020. Poorly- to well-preserved, secondarily silicified stromatolite assemblages are recorded within the Boomplaas Formation. The stromatolites of the Boomplaas Formation represent some of the oldest stromatolite examples in South Africa. These stromatolites have not yet been comprehensively described and their geographical and stratigraphic distributions are poorly understood.

The project can be dividend in to two parts

- Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group (Mbizane Formation, Karoo Supergroup); Vryburg Formation (Ghaap Group, Transvaal Supergroup)
- Boomplaas Formation (Schmidsdrift Subgroup, Ghaap Group, Transvaal Supergroup)

The Impact significance for the Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group and Vryburg Formation will be a **Negative low Impact**. On the other hand, the Impact significance for the Boomplaas Formation will be a **Negative medium Impact**. The possibility of damaging the stromatolites by mining vehicles is likely and a precautionary approach must consequently be undertaken.

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

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

Portion 12, Remaining Extent of Portion 29 (portion of portion 13) and Portion 31 (portion of portion 29) of the farm Reads Drift 74 is preferred due to the sites underlying geology and the shallowness of the diamond bearing gravel to the surface as well as site access (i.e. to facilitate the movement of machinery, equipment, infrastructure and people). The specific site has been chosen for its mineral resources thus making an alternative site selection null and void.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

An EMPr must comply with section 24N of the Act and include—

A. DETAILS OF—

- (i) the EAP who prepared the EMPr; and
- (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;

Name of Practitioner	Qualifications	Contact details
Ms. Percy Sehaole Pr.Sci.Nat	Master's Degree in Environmental Science (refer to Appendix 1)	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: percy@milnex-sa.co.za
Lizanne Esterhuizen	Honours Degree in Environmental Science (refer to Appendix 1)	Tel No.: (018) 011 1925 Fax No. : (053) 963 2009 e-mail address: lizanne@milnex-sa.co.za

It is hereby confirmed that the requirements for the provision of the details and expertise of the EAP are contained in Part A, section 1(a) as required. The Curriculum Vitae for the responsible EAP is contained in **Appendix 1 and 2**.

B. DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

(a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;)

It is hereby confirmed that the requirements to describe the aspects of the activity that are required by the EMP is already included in Part A, section 1(h).

C. COMPOSITE MAP

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

Refer to Locality Map, attached as in **Appendix 4**.

D. A DESCRIPTION OF THE IMPACT MANAGEMENT [OBJECTIVES] OUTCOMES, INCLUDING MANAGEMENT STATEMENTS, IDENTIFYING THE IMPACTS AND RISKS THAT NEED TO BE AVOIDED, MANAGED AND MITIGATED AS IDENTIFIED THROUGH THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOR ALL PHASES OF THE DEVELOPMENT INCLUDING—

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

Closure objectives for the alluvial diamond mine will aim to ensure that the residual post-closure impacts be minimized and be acceptable to relevant parties. To achieve these closure objectives, the following will be implemented:

- All prospecting related infrastructure, foundations and concrete areas will be decommissioned, removed from the site and appropriately disposed of. Reclaimable structures such as metal, electrical installations or equipment will be sold for re-use or as scrap.
- All disturbed areas within the site not already vegetated will be re-vegetated with appropriate indigenous, ecologically adapted species appropriate to the area and the final land use as soon as possible after operation ceases. Progress of vegetation growth/establishment, stability and drainage/erosion will be monitored and, in the event of adverse trends being identified, corrective measures will be implemented.
- Vegetation monitoring will consider, inter alia, the establishment of perennial ground cover and infestation by alien invasive plant species. The encroachment of indigenous vegetation into the area will be used as an indication of a stable, self-sustaining vegetation cover with little risk of retrogressing to a situation where are and water pollution may occur.
- Final landforms must be resilient to perturbation and also be self-sustaining to obviate/limit further/ongoing interventions and maintenance by **Steinmann Groep (Pty) Ltd**. The remaining impacts be of an acceptable nature with minimal deterioration over time.
- The final outcome of the mine site rehabilitation would be productive systems, where required sustaining either cattle or wildlife.
- Environmental and human quality of life, including health and safety requirements in general, would not be compromised; and
- Closure is achieved in an efficient and cost-effective manner as possible and with minimum socioeconomic changes.

E. A DESCRIPTION AND IDENTIFICATION OF IMPACT MANAGEMENT OUTCOMES REQUIRED FOR THE ASPECTS CONTEMPLATED IN PARAGRAPH (D);]

The above goal is underpinned by more specific objectives listed below.

1. Upfront planning/development

To provide overall guidance and direction to closure planning and/or the implementation of progressive closure measures over the remaining over the prospecting life.

2. Physical stability

To ensure that surface infrastructure and prospecting residue and/or disturbances that are present at processing plant decommissioning will be removed and/or stabilised in a manner that these will not compromise post-closure land use and be sustainable long-term landforms.

- Closure, removal and disposal of all surface infrastructure that has no beneficial post-closure use.
- Shaping and vegetating the remaining earth embankments, trenches, etc. to stabilise slopes and integrate with surrounding topography.

3. Environmental quality

To ensure that local environmental quality is not adversely affected by possible physical effects arising from prospecting operations and the prospecting site after closure. This will be achieved by:

- Avoiding and/or limiting the following during prospecting operations which could result in adverse effects that could not be readily addressed and/or mitigated at mine closure.
 - Dust fall-out areas surrounding the prospecting site.
 - Wash-off and/or mobilisation of chemically contaminated soils and sediments from the prospecting site that could have long term adverse effects on local aquatic health and/or other water uses.
 - Possible shallow groundwater contamination adversely affecting the quality of the local water resource and its beneficial use.
- Limiting the potential for dust generation on the rehabilitated prospecting site that could cause nuisance and/or health effects to surrounding landowners;
- Limiting the possible adverse water quality and quantity effects arising from the rehabilitated prospecting site to ensure that long term beneficial use of local resources is not compromised;
- Conducting soil clean-up/remediation to ensure that the planned land use could be implemented and maintained;

4. Health and safety

To limit the possible health and safety treats due to terrain hazards to humans and animals utilizing the rehabilitated prospecting site after closure by:

- Demonstrating through upfront soil testing that any resultant inorganic and organic pollution present on the site is acceptable;
- Removal of potential contaminants such as hydrocarbons and chemicals off site;
- Shaping of embankments and trenches to safe slopes and reintegrating of these into surrounding topography.

- Ensuring that the environmental quality as reflected above is achieved.

5. Land capability / land use

To ensure that the required land capability to achieve and support the planned land use can be achieved over the prospecting site by:

- Clean-up and reclamation of contaminated soil areas in order not to compromise the above land use planning earmarked for implementation;
- To ensure that the overall rehabilitated prospecting site is free draining
- Transferring prospecting related surface infrastructure to third parties for beneficial use after closure.

6. Aesthetic quality

To ensure that the rehabilitated prospecting site will display, at a minimum, an acceptable aesthetic appearance that would not compromise the planned land use by leaving behind:

- A prospecting area that is properly cleared-up with no fugitive/scattered waste piles
- Rehabilitated prospecting area that is free draining and disturbed areas that are suitably vegetated.
- Rehabilitated prospecting residues that are suitably landscaped, blending with the surrounding environment as far as possible.
- Shaped and rehabilitated terrace and hard stand areas, roughly emulating the local natural surface topography.

7. Landscape viability

To create a landscape that is self-sustaining and over time will evolve/converge to the desired ecosystem structure, function and composition by:

- Conducting surface profiling, with associated material movement optimisation, to obtain a landscape resembling the natural landscapes to support the succession trajectory towards a climax ecological system.
- Establishing woody patches and create “rough and loose” areas for pioneer specie establishment around the respective patches.
- Establishing pioneer species as follows:
 - Collected and prepared seeds for broad casting;
 - Seedlings grown on on-site nursery;
 - Cuttings collected from surrounding veld areas;
 - Conducting rehabilitation monitoring and corrective action as required.

8. Biodiversity

To encourage, where appropriate, the re-establishment of native vegetation on the rehabilitated mine site such the terrestrial biodiversity is largely re-instated over time, by:

- 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 communities of local fauna, as far as possible.

F. A DESCRIPTION OF PROPOSED IMPACT MANAGEMENT ACTIONS, IDENTIFYING THE MANNER IN WHICH THE IMPACT MANAGEMENT [OBJECTIVES AND] OUTCOMES CONTEMPLATED IN PARAGRAPH (D) [AND (E)] WILL BE ACHIEVED, AND MUST, WHERE APPLICABLE, INCLUDE ACTIONS TO —

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 8**.

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

XXXXX

- a. **Confirm that the financial provision will be provided as determined.**

Financial Guarantee

The financial guarantee for the rehabilitation for land disturbed **Steinmann Groep (Pty) Ltd.** will be submitted

Rehabilitation Fund

Steinmann Groep (Pty) Ltd. will also make provision for rehabilitation during closure by establishing a rehabilitation trust.

IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

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

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	SIZE AND SCALE of disturbance (volumes, tonnages and hectares or m ²)	MITIGATION MEASURES (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:- Upon cessation of the individual activity Or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Clearance of vegetation	Pitting and trenching phase- (construction and operation phase)	2 459.4556 Ha – 3m x 3m x 4m (90 pits), 30m x 30m x 5m (32 trenches)	<ol style="list-style-type: none"> 1. Site clearing must take place in a phased manner, as and when required. 2. Areas which are not to be prospected on within two months must not be cleared to reduce erosion risks. 3. The area to be cleared must be clearly demarcated and this footprint strictly maintained. 4. Spoil that is removed from the site must be removed to an approved spoil site or a licensed landfill site. 5. The necessary silt fences and erosion control measures must be implemented in areas where these risks are more prevalent. 	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting activities.
Construction of roads	Pitting and trenching phase- (construction and operation phase)	+- 500m	<ol style="list-style-type: none"> 1. Planning of access routes to the site for construction/prospecting purposes shall be done in conjunction with the Contractor and the Landowner. All agreements reached 	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting activities.

			<p>should be documented and no verbal agreements should be made. The Contractor shall clearly mark all access roads. Roads not to be used shall be marked with a "NO ENTRY for prospecting vehicles" sign.</p> <ol style="list-style-type: none"> 2. Construction routes and required access roads must be clearly defined. 3. Damping down of the un-surfaced roads must be implemented to reduce dust and nuisance. 4. Soils compacted by construction/prospecting activities shall be deep ripped to loosen compacted layers and re-graded to even running levels. 5. The contractor must ensure that damage caused by related traffic to the gravel access road off the N8 is repaired continuously. The costs associated with the repair must be borne by the contractor; 6. 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 the gravel are fitted with tarpaulins or covers; 7. 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. 		
Prospecting of Diamonds (Alluvial & General) – Soils and geology	Pitting and trenching phase- (construction and operation phase)	2 459.4556 Ha – 3m x 3m x 4m (90 pits), 30m x 30m x 5m (32 trenches)	<ol style="list-style-type: none"> 1. The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil (If topsoil exists), and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused 	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the mine

			<p>where possible to rehabilitate disturbed areas.</p> <ol style="list-style-type: none"> 2. Care must be taken not to mix topsoil and subsoil during stripping. 3. The topsoil must be conserved on site in and around the pit/trench area. 4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms, trenches or low brick walls around their bases. 6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7. Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager. 8. The impact on the geology will be permanent. There is no mitigation measure. 		
Prospecting Diamonds (Alluvial & General) – excavations and blasting	Pitting and trenching phase- (construction and operation phase)	2 459.4556 Ha – 3m x 3m x 4m (90 pits), 30m x 30m x 5m (32 trenches)	<ol style="list-style-type: none"> 1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development. 2. Mine, pans, workshops and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be 	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the prospecting area

			<p>evaluated in detail and specific measures designed in to the system.</p> <ol style="list-style-type: none"> 3. Truck traffic should be routed away from noise sensitive areas, where possible. 4. Noise levels must be kept within acceptable limits. 5. Noisy operations should be combined so that they occur where possible at the same time. 6. Mine workers to wear necessary ear protection gear. 7. Noisy activities to take place during allocated hours. 8. Noise from labourers must be controlled. 9. Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site. 10. The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport. 11. Implementation of enclosure and cladding of processing plants. 12. Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine. 		
No-Go Areas	All Phases		On the proposed area there are two historic mining areas. The applicant commits to not work these areas and to not go within the 50-meter		

			buffer zone of each area. These areas will be referred to as No-Go Area 1 and No-Go Area 2. Please see Figures 16, 17 and 18 of the location and coordinates of No-Go Area 1 and No-Go Area 2.		
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IMPACT MANAGEMENT OUTCOMES

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

ACTIVITY (whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. <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	Loss or fragmentation of habitats	Fauna & flora	Pitting and trenching phase-(construction and operation phase)	Existing vegetation <ol style="list-style-type: none"> 1. Vegetation removal must be limited to the prospecting area. 2. Vegetation to be removed as it becomes necessary rather than removal of all vegetation throughout the site in one step. 3. No vegetation to be used for firewood. 4. Exotic and invasive plant species should not be allowed to establish, if the development is approved. Rehabilitation <ol style="list-style-type: none"> 5. All damaged areas shall be rehabilitated upon completion of the contract. 	Minimisation of impacts to acceptable limits

				<ol style="list-style-type: none"> 6. Re-vegetation of the disturbed site is aimed at approximating as near as possible the natural vegetative conditions prevailing prior to construction. 7. All natural areas impacted during construction/prospecting must be rehabilitated with locally indigenous grasses typical of the representative botanical unit. 8. Rehabilitation must take place in a phased approach as soon as possible. 9. Rehabilitation process must make use of species indigenous to the area. Seeds from surrounding seed banks can be used for re-seeding. 10. Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas. 11. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged. <p>Demarcation of prospecting area</p> <ol style="list-style-type: none"> 12. All plants not interfering with prospecting operations shall be left undisturbed clearly marked and indicated on the site plan. 13. The prospecting area must be well demarcated and no construction/prospecting activities must be allowed outside of this demarcated footprint. 14. Vegetation removal must be phased in order to reduce impact of construction/prospecting. 15. Site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas. 16. Strict and regular auditing of the prospecting process to ensure containment of the prospecting and laydown areas. 17. Soils must be kept free of petrochemical solutions that may be kept on site during construction/prospecting. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora. <p>Utilisation of resources</p>	
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				<p>18. Gathering of firewood, fruit, muti plants, or any other natural material onsite or in areas adjacent to the site is prohibited unless with prior approval of the ECO.</p> <p>Exotic vegetation</p> <p>19. Alien vegetation on the site will need to be controlled.</p> <p>20. The Contractor should be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion.</p> <p>21. The spread of exotic species occurring throughout the site should be controlled.</p> <p>Herbicides</p> <p>22. Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used.</p> <p>23. The use of pesticides and herbicides on the site must be discouraged as these impact on important pollinator species of indigenous vegetation.</p> <p>Fauna</p> <p>24. Rehabilitation to be undertaken as soon as possible after the prospecting activities have been completed.</p> <p>25. No trapping or snaring to fauna on the construction/prospecting site should be allowed.</p> <p>26. No faunal species must be disturbed, trapped, hunted or killed by maintenance staff during any routine maintenance at the development.</p>	
Prospecting Diamonds (Alluvial & General) – excavations	Loss of topsoil	Soil	Pitting and trenching phase-(construction and operation phase)	<p>1. The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil, and agree on this with the ECO. The full depth of topsoil should be</p>	Minimisation of impacts to acceptable limits

				<p>stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas.</p> <ol style="list-style-type: none"> 2. Care must be taken not to mix topsoil and subsoil during stripping. 3. The topsoil must be conserved on site in and around the pit/trench area. 4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases. 6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7. Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager. <p>Establish an effective record keeping system for each area where soil is disturbed for prospecting purposes. These records should be included in environmental performance reports, and should include all the records below.</p> <ul style="list-style-type: none"> • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation prospecting activities at the particular site. • Photograph the area on cessation of prospecting activities. 	
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				<ul style="list-style-type: none"> Record date and depth of re-spreading of topsoil. Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. 	
	Erosion	Soil Air Water	Pitting and trenching phase-(construction and operation phase)	<ol style="list-style-type: none"> An effective system of run-off control should be implemented, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. Periodical site inspection should be included in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence of any erosion on site or downstream. Wind screening and stormwater control should be undertaken to prevent soil loss from the site. The use of silt fences and sand bags must be implemented in areas that are susceptible to erosion. Other erosion control measures that can be implemented are as follows: <ul style="list-style-type: none"> Brush packing with cleared vegetation Mulch or chip packing Planting of vegetation Hydroseeding/hand sowing Sensitive areas need to be identified prior to construction/prospecting so that the necessary precautions can be implemented. All erosion control mechanisms need to be regularly maintained. Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces. Retention of vegetation where possible to avoid soil erosion. Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time. Re-vegetation of disturbed surfaces should occur immediately after construction/prospecting 	Minimisation of impacts to acceptable limits

				<p>activities are completed. This should be done through seeding with indigenous grasses.</p> <p>12. No impediment to the natural water flow other than approved erosion control works is permitted.</p> <p>13. To prevent stormwater damage, the increase in stormwater run-off resulting from construction/prospecting activities must be estimated and the drainage system assessed accordingly.</p> <p>14. Stockpiles not used in three (3) months after stripping must be seeded or backfilled to prevent dust and erosion.</p>	
	Air Pollution	Air	Pitting and trenching phase-(construction and operation phase)	<p>Dust control</p> <ol style="list-style-type: none"> 1. Wheel washing and damping down of un-surfaced and un-vegetated areas. 2. Retention of vegetation where possible will reduce dust travel. 3. Clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. 4. Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust. 5. The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the neighbouring communities. 6. A speed limit of 30km/h must not be exceeded on site. 7. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor. 8. Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled. <p>Odour control</p> <ol style="list-style-type: none"> 9. Regular servicing of vehicles in order to limit gaseous emissions. 10. Regular servicing of onsite toilets to avoid potential odours. 	Minimisation of impacts to acceptable limits

				<p>Rehabilitation</p> <p>11. The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks.</p> <p>Fire prevention</p> <p>12. No open fires shall be allowed on site under any circumstance. All cooking shall be done in demarcated areas that are safe and cannot cause runaway fires.</p> <p>13. 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.</p>	
	Noise		Pitting and trenching phase-(construction and operation phase)	<p>1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development.</p> <p>2. Mine, crushers, workshops and other noisy fixed facilities should be located well away from 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 in to the system.</p> <p>3. Truck traffic should be routed away from noise sensitive areas, where possible.</p> <p>4. Noise levels must be kept within acceptable limits.</p> <p>5. Noisy operations should be combined so that they occur where possible at the same time.</p> <p>6. Mine workers to wear necessary ear protection gear.</p> <p>7. Noisy activities to take place during allocated hours.</p> <p>8. Noise from labourers must be controlled.</p> <p>9. Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order.</p>	Minimisation of impacts to acceptable limits

				<p>Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site.</p> <p>10. The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport.</p> <p>11. Implementation of enclosure and cladding of processing plants.</p> <p>12. Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine.</p>	
	Impact on potential cultural and heritage artefacts	Heritage	Pitting and trenching phase-(construction and operation phase)	<p>1) Any finds must be reported to the nearest National Monuments office to comply with the National Heritage Resources Act (Act No 25 of 1999) and to DEA.</p> <p>2) Local museums as well as the South African Heritage Resource Agency (SAHRA) should be informed if any artefacts/ fossils are uncovered in the affected area.</p> <p>3) The Contractor must ensure that his workforce is aware of the necessity of reporting any possible historical, archaeological or palaeontological finds to the ECO so that appropriate action can be taken.</p> <p>4) Known sites should be clearly marked in order that they can be avoided. The work force should also be informed that fenced-off areas are no-go areas.</p> <p>5) The ECO must also survey for heritage and palaeontological artefacts during ground breaking and digging or drilling. He/she should familiarise themselves with formations and its fossils or a palaeontologist should be appointed during the digging and excavation phase of the development.</p> <p>6) All digging, excavating, drilling or blasting activities must be stopped if heritage and/or palaeontological artefacts</p>	Minimisation of impacts to acceptable limits

				<p>are uncovered and a specialist should be called in to determine proper management, mitigation, excavation and/or collecting measures.</p> <p>7) Any discovered artefacts or fossils shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits shall be obtained from SAHRA should the proposed site affect any world heritage/palaeontology sites or if any heritage/palaeontology sites are to be destroyed or altered.</p> <p>8) 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 NHRA (Act No. 25 of 1999), Section 51. (1).</p> <p>9) If anything of Archaeological and/or paleontological significance is found during the construction and operational phase of the mine the following applies:</p> <ul style="list-style-type: none"> • NHRA 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; • NHRA 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (012 320 8490), must be alerted immediately as per section 36(6) of the 	
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				<p>NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;</p> <ul style="list-style-type: none"> NHRA 38(4)e – The following conditions apply with regards to the appointment of specialists: i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA; <p>According to Dr. J A van Schalkwyk (D Litt et Phil) (2019) (Appendix 12):</p> <p>Objectives</p> <ul style="list-style-type: none"> Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft. The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities. <p>The following shall apply:</p> <ul style="list-style-type: none"> Known sites 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 Environmental Control Officer shall be notified as soon as possible; 	
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				<ul style="list-style-type: none"> • 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 Environmental • Control Officer 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). <p>In order to achieve this, the following should be in place:</p> <ul style="list-style-type: none"> • A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage. • 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 Environmental Control Officer as identified above. • 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>Palaeontological Field Assessment</p> <ul style="list-style-type: none"> • The ECO of the project must be informed that the Stromatolites of the Boomplaas Formation has a High Palaeontological Sensitivity and is widespread in the development footprint and special precaution must be undertaken not to damage any stromatolites. 	
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				<ul style="list-style-type: none"> In the event that fossil remains are discovered in the Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group and Vryburg Formation during any phase of construction or operation, either on the surface or exposed by excavations, the Chance Find Protocol must be implemented by the ECO. 	
Waste management		Pollution	Pitting and trenching phase-(construction and operation phase)	<p>Litter management</p> <ol style="list-style-type: none"> 1. Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site. 2. The Contractor shall supply waste collection bins where such is not available and all solid waste collected shall be disposed of at registered/licensed landfill. 3. Good housekeeping practices should be implemented to regularly maintain the litter and rubble situation on the construction site. 4. If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled. An independent contractor can be appointed to conduct this recycling. 5. Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite. 6. Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly. 7. All waste must be removed from the site and transported to a landfill site promptly to ensure that it does not attract vermin or produce odours. 8. Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management. 9. A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant. 	Minimisation of impacts to acceptable limits

				<p>10. Under no circumstances may solid waste be burnt on site.</p> <p>11. All waste must be removed promptly to ensure that it does not attract vermin or produce odours.</p> <p>Hazardous waste</p> <p>12. All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of offsite at a licensed landfill site, where practical. Incineration may be used where relevant.</p> <p>13. Contaminants to be stored safely to avoid spillage.</p> <p>14. Machinery must be properly maintained to keep oil leaks in check.</p> <p>15. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during construction and any spills shall immediately be cleaned up and all affected areas rehabilitated.</p> <p>Sanitation</p> <p>16. The Contractor shall install mobile chemical toilets on the site.</p> <p>17. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed.</p> <p>18. Toilets shall be serviced regularly and the ECO shall inspect toilets regularly.</p> <p>19. 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>20. Under no circumstances may open areas, neighbours fences or the surrounding bush be used as a toilet facility.</p> <p>21. The construction of “Long Drop” toilets is forbidden, but rather toilets connected to the sewage treatment plant.</p> <p>22. Potable water must be provided for all construction staff.</p> <p>Remedial actions</p>	
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				<p>23. Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site.</p> <p>24. Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site.</p> <p>25. The ECO must determine the precise method of treatment for polluted soil. This could involve the application of soil absorbent materials as well as oil-digestive powders to the contaminated soil.</p> <p>26. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material.</p> <p>27. If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure.</p> <p>28. Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use.</p> <p>29. Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of petrochemicals to the environment, and stored in adequate containers until appropriate disposal.</p>	
Water Use and Quality	Water pollution	Water	Pitting and trenching phase-(construction and operation phase)	<p>Water Use</p> <p>1. Develop a sustainable water supply management plan to minimise the impact to natural systems by managing water use, avoiding depletion of aquifers and minimising impacts to water users.</p> <p>2. Water must be reused, recycled or treated where possible.</p> <p>Water Quality</p> <p>3. The quality and quantity of effluent streams discharged to the environment including stormwater should be managed and treated to meet applicable effluent discharge guidelines.</p> <p>4. Discharge to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria outside a scientifically established mixing zone.</p>	

				<p>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.</p> <p>Stormwater</p> <p>6. The site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids and silt or chemical pollutants.</p> <p>7. Silt fences should be used to prevent any soil entering the stormwater drains.</p> <p>8. Temporary cut off drains and berms may be required to capture stormwater and promote infiltration.</p> <p>9. Promote a water saving mind set with construction/prospecting workers in order to Contractor ensure less water wastage.</p> <p>10. Hazardous substances must be stored at least 40m from any water bodies on site to avoid pollution.</p> <p>11. The installation of the stormwater system must take place as soon as possible to attenuate stormwater from the construction phase as well as the operation phase.</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. There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed.</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>	
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				<p>The cut-off trenches and silt fences will be installed where necessary as to control runoff storm water by attenuating it and control the movement of sediment on the premises.</p> <p>These structures will be monitored on a regular basis. It is suggested that it be monitored on a weekly basis during the rainy season, and after possible rain events during the dry season.</p> <p>If these practices is found to be insufficient for the control of storm water and sedimentation, other alternatives should immediately be investigated and implemented.</p> <p>Groundwater resource protection</p> <ol style="list-style-type: none"> 15. Process solution storage ponds and other impoundments designed to hold non fresh water or non-treated process effluents should be lined and be equipped with sufficient wells to enable monitoring of water levels and quality. 16. Prevent dirty water runoff from leaving the general mining area; 17. Compact the base of dirty areas, like the workshops and oil and diesel storage areas to minimise infiltration of poor-quality water to the underlying aquifers; 18. Enough supply of absorbent fibre should be kept at the site to contain accidental spills; 19. Contain dirty water in return water dams and re-use dirty water for dust suppression and make up water in the plant; 20. Proper storm water management should be implemented. Berms should also be constructed to ensure separation of clean water and dirty water areas; 21. A detailed mine closure plan should be prepared during the operational phase, including a risk assessment, water resource impact prediction etc. as stipulated in the DWS Best Practice Guidelines. The implementation of the mine closure plan, and the application for the closure certificate can be conducted during the decommissioned phase. 	
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				<p>Sanitation</p> <p>22. Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers).</p> <p>23. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.</p> <p>Concrete mixing</p> <p>24. 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>Public areas</p> <p>25. 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>26. The Contractor should take steps to ensure that littering by construction/prospecting 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>27. No washing or servicing of vehicles on site.</p> <p>Infrastructure</p> <p>28. Infrastructure should adhere to the GN704 of the South African National Water Act (36 of 1998) and not be located within the 1:100- year Return Period flood line. This is essential for the safety of human life as well as for the protection of infrastructure from flood inundation and destruction.</p>	
No-Go Areas		Two historic mining areas	All Phases	<p>On the proposed area there are two historic mining areas. The applicant commits to not work these areas and to not go within the 50-meter buffer zone of each area. These areas will be referred to as No-Go Area 1 and No-Go Area 2.</p> <p>Please see Figures 16, 17 and 18 of the location and coordinates of No-Go Area 1 and No-Go Area 2.</p>	

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).

<p>ACTIVITY Whether listed or not listed.</p> <p>(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.)</p>	<p>POTENTIAL IMPACT</p> <p>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)</p>	<p>MITIGATION TYPE</p> <p>(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)</p> <p>E.g.</p> <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring <p style="text-align: center;">Remedy through rehabilitation..</p>	<p>TIME PERIOD FOR IMPLEMENTATION</p> <p>Describe the time period when the measures in the environmental management programme 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 alluvial diamond prospecting as the case may be.</p>	<p>COMPLIANCE WITH STANDARDS</p> <p>(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)</p>
<p>Clearance of vegetation</p>	<p>Loss or fragmentation of habitats</p>	<p>Existing vegetation</p> <ol style="list-style-type: none"> 1. Vegetation removal must be limited to the prospecting site. 2. Vegetation to be removed as it becomes necessary rather than removal of all vegetation throughout the site in one step. 3. No vegetation to be used for firewood. 4. Exotic and invasive plant species should not be allowed to establish, if the development is approved. 	<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>Rehabilitation</p> <ol style="list-style-type: none"> 5. All damaged areas shall be rehabilitated upon completion of the contract. 6. Re-vegetation of the disturbed site is aimed at approximating as near as possible the natural vegetative conditions prevailing prior to construction. 7. All natural areas impacted during construction/prospecting must be rehabilitated with locally indigenous grasses typical of the representative botanical unit. 8. Rehabilitation must take place in a phased approach as soon as possible. 9. Rehabilitation process must make use of species indigenous to the area. Seeds from surrounding seed banks can be used for re-seeding. 10. Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas. 11. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged. <p>Demarcation of prospecting area</p> <ol style="list-style-type: none"> 12. All plants not interfering with prospecting operations shall be left undisturbed clearly marked and indicated on the site plan. 13. The prospecting area must be well demarcated and no construction activities must be allowed outside of this demarcated footprint. 14. Vegetation removal must be phased in order to reduce impact of construction/prospecting. 15. Site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas. 16. Strict and regular auditing of the prospecting process to ensure containment of the prospecting and laydown areas. 17. Soils must be kept free of petrochemical solutions that may be kept on site during construction/prospecting. Spillage can result in a 		
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		<p>loss of soil functionality thus limiting the re-establishment of flora.</p> <p>Utilisation of resources</p> <p>18. Gathering of firewood, fruit, muti plants, or any other natural material onsite or in areas adjacent to the site is prohibited unless with prior approval of the ECO.</p> <p>Exotic vegetation</p> <p>19. Alien vegetation on the site will need to be controlled.</p> <p>20. The Contractor should be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion.</p> <p>21. The spread of exotic species occurring throughout the site should be controlled.</p> <p>Herbicides</p> <p>22. Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used.</p> <p>23. The use of pesticides and herbicides on the site must be discouraged as these impact on important pollinator species of indigenous vegetation.</p> <p>Fauna</p> <p>24. Rehabilitation to be undertaken as soon as possible after prospecting has been completed.</p> <p>25. No trapping or snaring to fauna on the construction/prospecting site should be allowed.</p> <p>26. No faunal species must be disturbed, trapped, hunted or killed by maintenance staff during any routine maintenance at the development.</p>		
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<p>Prospecting of Diamonds (Alluvial & General) – excavations</p>	<p>Loss of topsoil</p>	<ol style="list-style-type: none"> 1. The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil, and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction/prospecting and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2. Care must be taken not to mix topsoil and subsoil during stripping. 3. The topsoil must be conserved on site in and around the pit/trench area. 4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases. 6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7. Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager. <p>Establish an effective record keeping system for each area where soil is disturbed for prospecting purposes. These records should be included in environmental performance reports, and should include all the records below.</p> <ul style="list-style-type: none"> • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. 	<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>
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		<ul style="list-style-type: none"> • Record the date of cessation prospecting activities at the particular site. • Photograph the area on cessation of prospecting activities. • Record date and depth of re-spreading of topsoil. • Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. 		
	Erosion	<ol style="list-style-type: none"> 1. An effective system of run-off control should be implemented, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion. 2. Periodical site inspection should be included in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence of any erosion on site or downstream. 3. Wind screening and stormwater control should be undertaken to prevent soil loss from the site. 4. The use of silt fences and sand bags must be implemented in areas that are susceptible to erosion. 5. Other erosion control measures that can be implemented are as follows: <ul style="list-style-type: none"> ○ Brush packing with cleared vegetation ○ Mulch or chip packing ○ Planting of vegetation ○ Hydroseeding/hand sowing 6. Sensitive areas need to be identified prior to construction/prospecting so that the necessary precautions can be implemented. 7. All erosion control mechanisms need to be regularly maintained. 8. Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces. 9. Retention of vegetation where possible to avoid soil erosion. 	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.

		<ol style="list-style-type: none"> 10. Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time. 11. Re-vegetation of disturbed surfaces should occur immediately after construction/prospecting activities are completed. This should be done through seeding with indigenous grasses. 12. No impediment to the natural water flow other than approved erosion control works is permitted. 13. To prevent stormwater damage, the increase in stormwater run-off resulting from construction/prospecting activities must be estimated and the drainage system assessed accordingly. A drainage plan must be submitted to the Engineer for approval and must include the location and design criteria of any temporary stream crossings. 14. Stockpiles not used in three (3) months after stripping must be seeded/backfilled to prevent dust and erosion. 		
	Air Pollution	<p>Dust control</p> <ol style="list-style-type: none"> 14. Wheel washing and damping down of un-surfaced and un-vegetated areas. 15. Retention of vegetation where possible will reduce dust travel. 16. Clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. 17. Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust. 18. The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the neighbouring communities. 19. A speed limit of 30km/h must not be exceeded on site. 20. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor. 	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.

		<p>21. Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled.</p> <p>Odour control</p> <p>22. Regular servicing of vehicles in order to limit gaseous emissions.</p> <p>23. Regular servicing of onsite toilets to avoid potential odours.</p> <p>Rehabilitation</p> <p>24. The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks.</p> <p>Fire prevention</p> <p>25. No open fires shall be allowed on site under any circumstance. All cooking shall be done in demarcated areas that are safe and cannot cause runaway fires.</p> <p>26. 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.</p>		
	Noise	<ol style="list-style-type: none"> 1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development. 2. Pans, power plants, crushers, workshops and other noisy fixed facilities should be located well away from 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 in to the system. 3. Truck traffic should be routed away from noise sensitive areas, where possible. 4. Noise levels must be kept within acceptable limits. 5. Noisy operations should be combined so that they occur where possible at the same time. 	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.

		<ol style="list-style-type: none"> 6. Mine workers to wear necessary ear protection gear. 7. Noisy activities to take place during allocated hours. 8. Noise from labourers must be controlled. 9. Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site. 10. The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport. 11. Implementation of enclosure and cladding of processing plants. 12. Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine. 		
	<p>Impact on potential cultural and heritage artefacts</p>	<ol style="list-style-type: none"> 1) Any finds must be reported to the nearest National Monuments office to comply with the National Heritage Resources Act (Act No 25 of 1999) and to DEA. 2) Local museums as well as the South African Heritage Resource Agency (SAHRA) should be informed if any artefacts/ fossils are uncovered in the affected area. 3) The Contractor must ensure that his workforce is aware of the necessity of reporting any possible historical, archaeological or palaeontological finds to the ECO so that appropriate action can be taken. 4) Known sites should be clearly marked in order that they can be avoided. The work force should also be informed that fenced-off areas are no-go areas. 	<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>5) The ECO must also survey for heritage and palaeontological artefacts during ground breaking and digging or drilling. He/she should familiarise themselves with formations and its fossils or a palaeontologist should be appointed during the digging and excavation phase of the development.</p> <p>6) All digging, excavating, drilling or blasting activities must be stopped if heritage and/or palaeontological artefacts are uncovered and a specialist should be called in to determine proper management, mitigation, excavation and/or collecting measures.</p> <p>7) Any discovered artefacts or fossils shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits shall be obtained from SAHRA should the proposed site affect any world heritage/palaeontology sites or if any heritage/palaeontology sites are to be destroyed or altered.</p> <p>8) 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 NHRA (Act No. 25 of 1999), Section 51. (1).</p> <p>9) If anything of Archaeological and/or paleontological significance is found during the construction and operational phase of the mine the following applies:</p> <ul style="list-style-type: none"> • NHRA 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, 		
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		<p>SAHRA APM Unit (021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;</p> <ul style="list-style-type: none"> • NHRA 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; • NHRA 38(4)e – The following conditions apply with regards to the appointment of specialists: i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA; <p>According to Dr. J A van Schalkwyk (D Litt et Phil) (2019) (Appendix 12):</p> <p>Objectives</p> <ul style="list-style-type: none"> • Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft. • The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities. <p>The following shall apply:</p>		
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		<ul style="list-style-type: none"> • Known sites 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 Environmental Control Officer 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 Environmental • Control Officer 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). <p>In order to achieve this, the following should be in place:</p> <ul style="list-style-type: none"> • A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage. • 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 Environmental Control Officer as identified above. • 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 		
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		<p>heritage official should be part of the team executing these measures.</p> <p>Palaeontological Field Assessment</p> <ul style="list-style-type: none"> • The ECO of the project must be informed that the Stromatolites of the Boomplaas Formation has a High Palaeontological Sensitivity and is widespread in the development footprint and special precaution must be undertaken not to damage any stromatolites. • In the event that fossil remains are discovered in the Late Caenozoic Superficial Sediments, Tertiary to Quaternary calcretes, the Dwyka Group and Vryburg Formation during any phase of construction or operation, either on the surface or exposed by excavations, the Chance Find Protocol must be implemented by the ECO. 		
Waste Management		<p>Litter management</p> <ol style="list-style-type: none"> 1. Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction/prospecting site. 2. The Contractor shall supply waste collection bins where such is not available and all solid waste collected shall be disposed of at registered/licensed landfill. 3. Good housekeeping practices should be implemented to regularly maintain the litter and rubble situation on the construction/prospecting site. 4. If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled. An independent contractor can be appointed to conduct this recycling. 5. Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite. 6. Skip waste containers should be maintained on site. These should be kept covered and 	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.

		<p>arrangements made for them to be collected regularly.</p> <ol style="list-style-type: none"> 7. All waste must be removed from the site and transported to a landfill site promptly to ensure that it does not attract vermin or produce odours. 8. Where a registered waste site is not available close to the construction/prospecting site, the Contractor shall provide a method statement with regard to waste management. 9. A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant. 10. Under no circumstances may solid waste be burnt on site. 11. All waste must be removed promptly to ensure that it does not attract vermin or produce odours. <p>Hazardous waste</p> <ol style="list-style-type: none"> 12. All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of offsite at a licensed landfill site, where practical. Incineration may be used where relevant. 13. Contaminants to be stored safely to avoid spillage. 14. Machinery must be properly maintained to keep oil leaks in check. 15. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during construction/prospecting and any spills shall immediately be cleaned up and all affected areas rehabilitated. <p>Sanitation</p> <ol style="list-style-type: none"> 16. The Contractor shall install mobile chemical toilets on the site. 17. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed. 18. Toilets shall be serviced regularly and the ECO shall inspect toilets regularly. 19. Toilets should be no closer than 50m or above the 1:100 year flood line from any natural or manmade 		
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		<p>water bodies or drainage lines or alternatively located in a place approved of by the Engineer.</p> <p>20. Under no circumstances may open areas, neighbours fences or the surrounding bush be used as a toilet facility.</p> <p>21. The construction of “Long Drop” toilets is forbidden, but rather toilets connected to the sewage treatment plant.</p> <p>22. Potable water must be provided for all construction staff.</p> <p>Remedial actions</p> <p>23. Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site.</p> <p>24. Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site.</p> <p>25. The ECO must determine the precise method of treatment for polluted soil. This could involve the application of soil absorbent materials as well as oil-digestive powders to the contaminated soil.</p> <p>26. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material.</p> <p>27. If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure.</p> <p>28. Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use.</p> <p>29. Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of petrochemicals to the environment and stored in adequate containers until appropriate disposal.</p>		
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Water Use and Quality	Water pollution	<p>Water Use</p> <ol style="list-style-type: none"> 1. Develop a sustainable water supply management plan to minimise the impact to natural systems by managing water use, avoiding depletion of aquifers and minimising impacts to water users. 2. Water must be reused, recycled or treated where possible. <p>Water Quality</p> <ol style="list-style-type: none"> 3. The quality and quantity of effluent streams discharged to the environment including stormwater should be managed and treated to meet applicable effluent discharge guidelines. 4. Discharge to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria outside a scientifically established mixing zone. 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. <p>Stormwater</p> <ol style="list-style-type: none"> 6. The site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids and silt or chemical pollutants. 7. Silt fences should be used to prevent any soil entering the stormwater drains. 8. Temporary cut off drains and berms may be required to capture stormwater and promote infiltration. 9. Promote a water saving mind set with construction/prospecting workers in order to Contractor ensure less water wastage. 10. New stormwater construction must be developed strictly according to specifications from engineers in order to ensure efficiency. 		
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		<ol style="list-style-type: none"> 11. Hazardous substances must be stored at least 20m from any water bodies on site to avoid pollution. 12. The installation of the stormwater system must take place as soon as possible to attenuate stormwater from the construction phase as well as the operation phase. 13. 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. 14. There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed. 15. 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>Groundwater resource protection</p> <ol style="list-style-type: none"> 16. Process solution storage ponds and other impoundments designed to hold non fresh water or un-treated process effluents should be lined and be equipped with sufficient wells to enable monitoring of water levels and quality. 17. Prevent dirty water runoff from leaving the general mining area; 18. Compact the base of dirty areas, like the workshops and oil and diesel storage areas to minimise infiltration of poor-quality water to the underlying aquifers; 19. Enough supply of absorbent fibre should be kept at the site to contain accidental spills; 20. Contain dirty water in return water dams and re-use dirty water for dust suppression and make up water in the plant; 21. Proper storm water management should be implemented. Berms should also be constructed 		
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		<p>to ensure separation of clean water and dirty water areas;</p> <p>22. A detailed mine closure plan should be prepared during the operational phase, including a risk assessment, water resource impact prediction etc. as stipulated in the DWS Best Practice Guidelines. The implementation of the mine closure plan, and the application for the closure certificate can be conducted during the decommissioned phase</p> <p>Sanitation</p> <p>23. Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers).</p> <p>24. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.</p> <p>Concrete mixing</p> <p>25. 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>Public areas</p> <p>26. 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>27. The Contractor should take steps to ensure that littering by construction 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>28. No washing or servicing of vehicles on site.</p> <p>Infrastructure</p> <p>29. Infrastructure should adhere to the GN704 of the South African National Water Act (36 of 1998) and not be located within the 1:100- year Return Period flood line. This is essential for the safety of human life as well as for the protection of</p>		
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		infrastructure from flood inundation and destruction.		
No-Go Areas	Two historic mining areas	<p>On the proposed area there are two historic mining areas. The applicant commits to not work these areas and to not go within the 50-meter buffer zone of each area. These areas will be referred to as No-Go Area 1 and No-Go Area 2.</p> <p>Please see Figures 16, 17 and 18 of the location and coordinates of No-Go Area 1 and No-Go Area 2.</p>		

Proposed management measures relevant to the proposed prospecting operations

Impact	Source of Impact	Recommended Mitigation Measures
Alteration of the flow regime of the watercourse	<p>Construction:</p> <ul style="list-style-type: none"> Infrastructure development within watercourses Removal and disturbance of watercourse habitat and vegetation Habitat fragmentation Impoundments within the watercourse Lack of adequate rehabilitation resulting in colonization by invasive plants <p>Operational:</p> <ul style="list-style-type: none"> Excavation from the watercourses Clearing of vegetation Vehicles driving in and through watercourses <p>Decommissioning:</p> <ul style="list-style-type: none"> Damage to vegetated areas Ineffective rehabilitation measures 	<ul style="list-style-type: none"> Any activities that take place within 32 meters of a wetland or watercourse or the 1:100 year flood lines will require authorisation in terms of the relevant regulations of NEMA, however as far as possible infrastructure should be placed outside of buffer lines. Demarcate the watercourse areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas. Where construction occurs in the demarcated watercourse and buffer areas, additional precautions should be implemented to minimise watercourse loss. No stockpiling should take place within a watercourse or the calculated buffers. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. Erosion and sedimentation into channels must be minimised through the effective stabilisation and the re-vegetation of any disturbed stream banks. Ensure that erosion management and sediment controls are strictly implemented from the beginning of site clearing activities. All areas should be re-sloped and top-soiled where necessary and reseeded with indigenous grasses to stabilise the loose material.

	<ul style="list-style-type: none"> Vehicles driving in and through watercourses 	<ul style="list-style-type: none"> Monitor the occurrence of erosion during the rainy season and take immediate corrective action where needed. A sensitivity map has been developed for the study area, indicating the drainage lines and riparian systems, and their relevant buffer zones. It is recommended that this sensitivity map be considered during all phases of the development and with special mentioning of the planning of infrastructure, in order to aid in the conservation of and minimise impact on the riparian and aquatic habitat and resources within the study site. Any areas where bank failure is observed, due to the prospecting impacts, should be immediately repaired. As far as possible the existing road network should be utilised, minimising the need to develop new access routes resulting in an increased impact on the local environment. Operational phase activities should not take place within watercourses or buffer zones. The duration of impacts on the drainage line should be minimised as far as possible by ensuring that the duration of time in which flow alteration and sedimentation will take place is minimised. Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat. All rehabilitation activities should occur in the dry season. Rehabilitation of disturbed areas as a result of construction must be implemented immediately upon completion of construction.
<p>Changing the physical structure within a water resource (habitat)</p>	<p><u>Construction:</u></p> <ul style="list-style-type: none"> Infrastructure development within watercourses Loss of vegetation Flow alteration Erosion <p><u>Operational:</u></p> <ul style="list-style-type: none"> Excavation from the watercourses leading to degraded river channels. Removal of substrate within drainage lines and streams Clearing of vegetation – vegetation loss Loss of biodiversity Alteration and/or loss of hydrological flow classes Vehicles driving in and through watercourses <p><u>Decommissioning:</u></p>	<ul style="list-style-type: none"> Other than approved and authorized structures, no other development or maintenance infrastructure is allowed within the delineated watercourse and riparian areas or their associated buffer zones. Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat. Monitor the occurrence of erosion during the rainy season and take immediate corrective action where needed. No stockpiling should take place within a watercourse or the calculated buffers. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. Bi-annual biomonitoring of aquatic macro-invertebrates and diatoms within the riverine systems is essential. All maintenance within watercourses must be restricted to the dry season. Maintenance activities should not impact on rehabilitated or naturally vegetated areas.

	<ul style="list-style-type: none"> • Damage to vegetated areas • Ineffective rehabilitation measures • Vehicles driving in and through watercourses 	<ul style="list-style-type: none"> • Rehabilitation should limit fragmentation and isolation of sections of the non-perennial drainage line systems. • The duration of impacts on the riverine and drainage line systems should be minimised as far as possible by ensuring that the duration of time in which flow alteration and sedimentation will take place is minimised. • Rehabilitation must ensure that riparian structure and function are reinstated in such a way as to ensure the ongoing functionality of the larger riparian systems at pre-mining levels. • All rehabilitation activities should occur in the dry season.
<p>Alteration of the amount of sediment entering the water resource and associated change in turbidity</p>	<p><u>Construction:</u></p> <ul style="list-style-type: none"> • Vegetation clearance causing sedimentation • Earthworks activities • Disturbance of soil surface and runoff characteristics • Erosion <p><u>Operational:</u></p> <ul style="list-style-type: none"> • Excavation from the watercourses leading to degraded river channels. • Removal of substrate within drainage lines and streams • Clearing of vegetation – vegetation loss • Loss of biodiversity • Alteration and/or loss of hydrological flow classes • Vehicles driving in and through watercourses <p><u>Decommissioning:</u></p> <ul style="list-style-type: none"> • Damage to vegetated areas • Ineffective rehabilitation measures • Vehicles driving in and through watercourses 	<ul style="list-style-type: none"> • Buffer zones should be maintained, in order to minimise sedimentation of the downstream areas. • No stockpiling should take place within a watercourse or the calculated buffers. • Ensure that erosion management and sediment controls are strictly implemented from the beginning of site clearing activities. • All areas should be re-sloped and top-soiled where necessary and reseeded with indigenous grasses to stabilise the loose material. • All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. • Erosion and sedimentation into channels must be minimised through the effective stabilisation and the re-vegetation of any disturbed stream banks. • As far as possible the existing road network should be utilised, minimising the need to develop new access routes resulting in an increased impact on the local environment. • Erosion control measures, such as berms, must be implemented to manage runoff from roads to prevent erosion and pollution. • Silt screens should be used where necessary. • Rehabilitation of disturbed areas as a result of construction must be implemented immediately upon completion of construction. • Rehabilitation must ensure that riparian structure and function are reinstated in such a way as to ensure the ongoing functionality of the larger riparian systems at pre-mining levels. • All rehabilitation activities should occur in the dry season. • The duration of impacts on the riverine and drainage line systems should be minimised as far as possible by ensuring that the duration of time in which flow alteration and sedimentation will take place is minimised; • Maintain flood capacity, particularly in areas with significant flood hazards.
<p>Alteration of water quality</p>	<p><u>Construction:</u></p> <ul style="list-style-type: none"> • Runoff from road surfaces • Discharge of sewage 	<ul style="list-style-type: none"> • All vehicles must be regularly inspected for leaks. • Re-fuelling must take place on a sealed surface area to prevent hydrocarbon pollution. • All spills should be cleaned up immediately and disposed of.

	<ul style="list-style-type: none"> Discharge of solvents, chemicals and hydrocarbons <p><u>Operational:</u></p> <ul style="list-style-type: none"> Maintenance of vehicles and machinery Runoff from road surfaces Discharge of sewage Discharge of solvents, chemicals and hydrocarbons Excavation from the watercourses and the release of nutrients and pollutants from disturbed soils Removal of substrate within drainage lines and streams <p><u>Decommissioning:</u></p> <ul style="list-style-type: none"> Damage to vegetated areas Ineffective rehabilitation measures Vehicles driving in and through watercourses 	<ul style="list-style-type: none"> Spill kits should be readily available and easily accessible throughout the site. All chemicals must be stored safely on site, outside the buffer areas and surrounded by bunds. Chemical storage containers must be regularly inspected for early leak detection. Littering must be prevented by effective site management and the provision of bins. Provision of adequate sanitation facilities located outside of the delineated buffer zones. An emergency spill procedure should be developed and implemented. No stockpiling should take place within a watercourse. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. Stockpiles must be located away from river channels and drainage lines. Erosion and sedimentation into channels must be minimised through the effective stabilisation and the re-vegetation of any disturbed riverbanks.
<p>Loss of terrestrial habitat</p>	<p><u>Construction:</u></p> <ul style="list-style-type: none"> Clearing of vegetation – vegetation loss <p><u>Operational:</u></p> <ul style="list-style-type: none"> Removal of substrate within watercourses Clearing of vegetation during prospecting operations <p><u>Decommissioning:</u></p> <ul style="list-style-type: none"> Damage to vegetated areas Ineffective rehabilitation measures Vehicles driving in and through watercourses 	<ul style="list-style-type: none"> Areas that are stripped during construction and operation should be re-vegetated with indigenous vegetation. It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon (including fencing off the defined project area) and preventing movement of workers into natural areas. The duration of the prospecting should be minimized to as short term as possible, in order to reduce the period of disturbance on fauna and flora. Areas of indigenous vegetation should under no circumstances be fragmented or disturbed for used as an area for dumping of waste. As far as possible the existing road network should be utilised, minimising the need to develop new access routes resulting in an increased impact on the local environment. All staff and visitors to the site must undergo an induction process and must be made aware of the sensitive nature of the environment and floral species which occur there. The area must be re-vegetated with plant and grass species which are endemic to the exact vegetation types. Rehabilitation measures that are implemented must be continually monitored for a minimum period of four years to ensure that proper succession has occurred and that there is no erosion occurring. An alien invasive vegetation management plan should be developed and implemented. Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat.

<p>Loss of Aquatic Biota</p>	<p><u>Construction:</u></p> <ul style="list-style-type: none"> • Runoff from road surfaces • Sedimentation • Discharge of sewage • Discharge of solvents, chemicals and hydrocarbons <p><u>Operational:</u></p> <ul style="list-style-type: none"> • Maintenance of vehicles and machinery • Runoff from road surfaces • Discharge of sewage • Discharge of solvents, chemicals and hydrocarbons • Excavation from the watercourses and the release of nutrients and pollutants from disturbed soils • Removal of substrate within drainage lines and streams • Sedimentation 	<ul style="list-style-type: none"> • Bi-annual biomonitoring of aquatic macro-invertebrates and diatoms within the riverine systems is essential. • Refer to Mitigation Measures regarding water quality and sedimentation as listed above.
<p>Loss of Terrestrial Fauna</p>	<p><u>Construction and Operational:</u></p> <ul style="list-style-type: none"> • Vegetation loss and disturbance – clearing of vegetation • Excessive noise disturbances • Illegal hunting • Habitat fragmentation destruction • Vehicles driving through natural vegetated areas 	<ul style="list-style-type: none"> • Site clearing to take place in a phased manner (where possible) to allow for any faunal species present to move away from the study site to the surrounding open space areas. • Prior and during vegetation clearance any larger fauna species noted should be given the opportunity to move away from the construction machinery. • Fauna species such as frogs and reptiles that have not moved away should be carefully and safely removed to a suitable location beyond the extent of the development footprint by a suitably qualified ECO trained in the handling and relocation of animals. • Fencing should be erected around the project area to prevent workers and members of the public from entering the surrounding environments. This fence should have small openings to allow wildlife to pass through. • Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. • Should any sensitive or Red Data animal or bird species be encountered during the construction, operation and decommissioning activities, these should be relocated to natural areas in the vicinity. Any sensitive fauna that are inadvertently killed during earthmoving operations should be preserved as museum voucher specimens. • No hunting, trapping or killing of fauna are allowed. • Any lizards, snakes or monitors encountered should be allowed to escape to a suitable habitat away from disturbance.

		<ul style="list-style-type: none"> • General avoidance of snakes is the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area. • Trenches and deep excavations should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench. • Noise must be kept to an absolute minimum at night to minimise all possible disturbances to amphibian species and nocturnal mammals.
Loss of Terrestrial Flora	<p><u>Construction and Operational:</u></p> <ul style="list-style-type: none"> • Vegetation clearance • Vehicles driving through natural vegetated areas • Habitat fragmentation and destruction 	<ul style="list-style-type: none"> • Areas that are stripped during construction and operation should be re-vegetated with indigenous vegetation as soon as possible. This will also reduce the likelihood of encroachment by alien invasive plant species. • Protected trees and plants shall not be removed or damaged without prior approval, permits or licenses from the relevant authority, this is especially applicable to the Protected Witgat (<i>Boscia albitrunca</i>), which were present on site.
Introduction and spread of alien vegetation	<p><u>Construction:</u></p> <ul style="list-style-type: none"> • Clearing of vegetation <p><u>Operational:</u></p> <ul style="list-style-type: none"> • Removal of substrate within watercourses • Clearing of vegetation during prospecting operations • Vehicles driving in and through watercourses <p><u>Decommissioning:</u></p> <ul style="list-style-type: none"> • Damage to vegetated areas • Ineffective rehabilitation measures • Vehicles driving in and through watercourses 	<ul style="list-style-type: none"> • Proliferation of alien and invasive species is expected within any disturbed areas particularly as there are some alien and invasive species present within the study site. These species should be eradicated and controlled to prevent further spread beyond. • An alien invasive vegetation management plan should be developed and implemented. • Alien and invasive vegetation control should take place throughout all phases to prevent loss of floral habitat. • Footprint areas should be kept as small as possible when removing alien plant species. • No vehicles should be allowed to drive through designated sensitive drainage lines and riparian areas during the eradication of alien and weed species. • All alien vegetation in the riparian zone should be removed upon completion of prospecting activities and reseeded with indigenous grasses as specified by a suitably qualified specialist (ecologist).

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

G. MONITORING OF IMPACT MANAGEMENT ACTIONS

H. MONITORING AND REPORTING FREQUENCY

I. RESPONSIBLE PERSONS

J. TIME PERIOD FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS

K. MECHANISM FOR MONITORING COMPLIANCE

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Clearance of vegetation	Loss or fragmentation of habitats	<ul style="list-style-type: none"> • Conduct regular internal audits • Conduct regular external audits 	<ul style="list-style-type: none"> • Environmental Manager • Suitable qualified environmental auditor 	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.
Prospecting of Diamonds (Alluvial & General) – excavations	Loss of topsoil Erosion Air Pollution Noise Impact on potential cultural and heritage artefacts	<ul style="list-style-type: none"> • Conduct regular internal audits • Conduct regular external audits 	<ul style="list-style-type: none"> • Environmental Manager • Suitable qualified environmental auditor 	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.
Waste management	Pollution	<ul style="list-style-type: none"> • Conduct regular internal audits • Conduct regular external audits 	<ul style="list-style-type: none"> • Environmental Manager • Suitable qualified environmental auditor 	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports

				should be made available to the competent authority if required.
Water Use and Quality	Water pollution	<ul style="list-style-type: none"> • Conduct regular internal audits • Conduct regular external audits 	<ul style="list-style-type: none"> • Environmental Manager • Suitable qualified environmental auditor 	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.
No-Go Area 1 and No-Go Area 2	No-Go area of Historic Mining Areas.	<ul style="list-style-type: none"> • Conduct regular internal audits • Conduct regular external audits 	<ul style="list-style-type: none"> • Environmental Manager • Suitable qualified environmental auditor 	Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required.

L. A PROGRAM FOR REPORTING ON COMPLIANCE, TAKING INTO ACCOUNT THE REQUIREMENTS AS BY THE REGULATIONS;

External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the Competent Authority if required.

M. AN ENVIRONMENTAL AWARENESS PLAN DESCRIBING THE MANNER IN WHICH—

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

Steinmann Groep (Pty) Ltd. will implement an Environmental Awareness Plan which will include various mechanisms for informing employees of environmental risks resulting from their work, including:

- Induction training for full –time staff and contractors;
- In-house training sessions to be held with relevant employees;
- On the job training regarding environmental issues
- Training and skills development

The above measures will be implemented through an Environmental Communication Strategy to be implemented.

See the attached **appendix 11** for the Awareness plan

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

Steinmann Groep (Pty) Ltd. will implement an incident reporting and reporting procedure in order to identify risks timeously and implement actions to avoid or minimise environmental impacts.

**N. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY
(Among others, Confirm that the financial provision will be reviewed annually).**

No specific information requirements have been detailed by the Competent Authority.

*****END OF THE REPORT*****