



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

**ENVIRONMENTAL IMPACT ASSESSMENT REPORT
AND
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT
MINING RIGHT APPLICATION FOR THE MINING DIAMONDS
GENERAL, DIAMONDS ALLUVIAL AND KIMBERLITE NEAR
PRIESKA ON REMAINDER OF PORTION 1 OF THE FARM
UITDRAAI 33, REGISTRATION DIVISION PRIESKA RD,
NORTHERN CAPE PROVINCE.**

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

NAME OF APPLICANT	Prieska Diamond Mining (Pty) Ltd
TEL NO	(018) 011 1925
FAX NO	087 231 7021
POSTAL ADDRESS:	P.O. Box 1086, Schweizer-Reneke, 2780
PHYSICAL ADDRESS:	4 Botha Street, Schweizer-Reneke, 2780
FILE REFERENCE NUMBER SAMRAD:	NC30/5/1/2/2/10099MR

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.

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.

OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT

1) Contact Person and correspondence address

a) Details of:

i) The EAP who prepared the report

Name of The Practitioner: Danie Labuschagne

Tel No.: (018) 011 1925

Fax No. : (053) 963 2009

e-mail address: danie@milnex-sa.co.za

Name of Practitioner: Percy Sehaole

Tel No.: (018) 011 1925

Fax No. : (053) 963 2009

e-mail address: percy@milnex-sa.co.za

ii) Expertise of the EAP.

(1) The qualifications of the EAP

(With evidence attached as **Appendix 1**).

Danie Labuschagne holds a Master's Degree in Environmental Management and Geography (refer to **Appendix 1**)

Percy Sehaole holds a Master's Degree in Environmental Science (refer to **Appendix 1**)

(2) Summary of the EAP's past experience.

(Attach the EAP's curriculum vitae as **Appendix 2**)

Milnex 189 CC was contracted by Prieska Diamond Mining (Pty) Ltd as the independent environmental consultant to undertake the Scoping and EIA process for a Mining Right for the removal of Diamonds, Diamonds General, Diamonds Alluvial and Kimberlite near Prieska on Remainder of Portion 1 of the farm Uitdraai 33, Registration Division Prieska RD, Northern Cape Province. Milnex 189 CC does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Milnex 189 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 189 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 189 CC team has considerable experience in environmental impact assessment and environmental management, especially in the mining industry.

Danie Labuschagne and Percy Sehaole has experience consulting in the environmental field. His key focus is on environmental assessment, advice and management and ensuring compliance to legislation and guidelines. He is currently involved in undertaking EIAs for several projects across the country (refer to **Appendix 2** for CV)

b) Description of the property.

Farm Name:	1. Remainder of Portion 1 of the farm Uitdraai No. 33
Application area (Ha)	3695.0244 Ha
Magisterial district:	Prieska
Distance and direction from nearest town	The property is situated on the Orange River approximately 30km from Prieska in a Northern Easterly direction.
21 digit Surveyor General Code for each farm portion	1. C06000000000003300001

c) Locality map

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

Farm	Latitude	Longitude
Remainder of Portion 1 of the farm Uitdraai No. 33	29°38'48.86"S	22°55'50.83"E
	29°35'55.52"S	22°57'44.17"E
	29°36'22.11"S	22°55'24.41"E
	29°35'7.83"S	22°54'9.86"E
	29°33'32.28"S	22°52'20.82"E
	29°32'26.11"S	22°51'8.52"E
	29°33'9.24"S	22°50'59.65"E
	29°32'47.43"S	22°50'36.64"E
	29°34'51.60"S	22°52'21.60"E
	29°36'10.77"S	22°52'33.92"E
	29°37'23.74"S	22°52'5.01"E
	29°37'40.69"S	22°53'5.09"E
29°38'1.99"S	22°53'3.92"E	

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

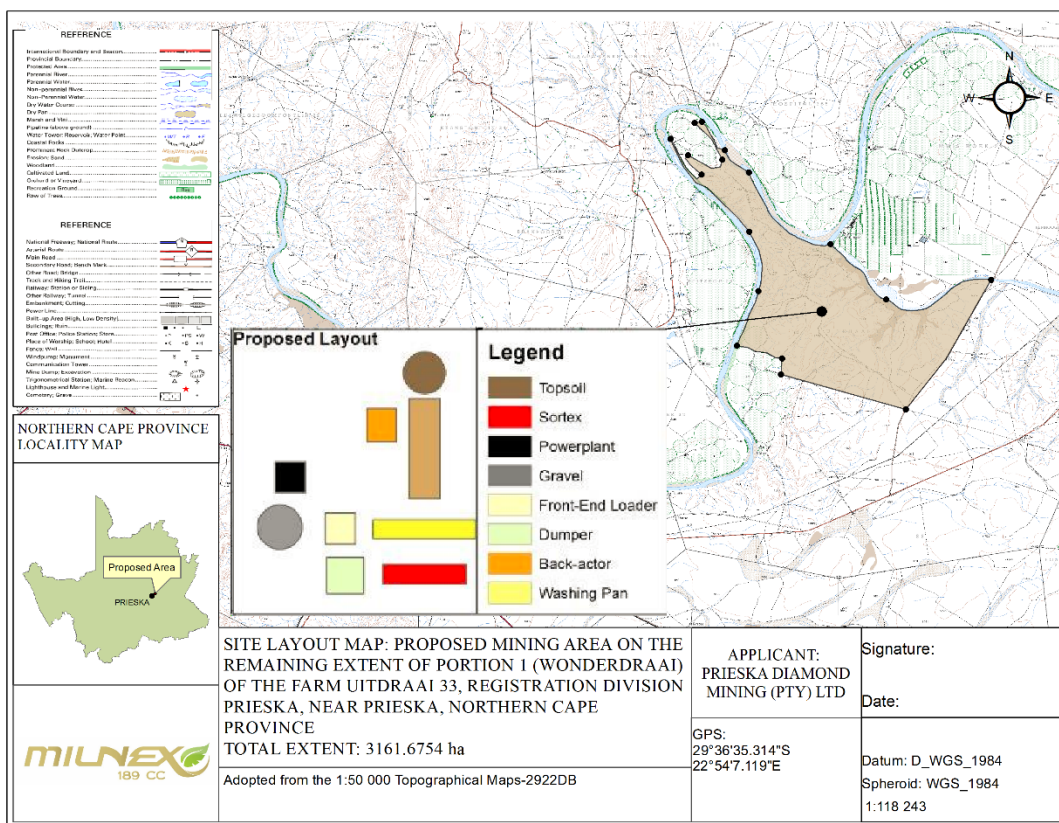


Figure 2: Site Plan Map

NAME OF ACTIVITY (All activities including activities 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.)	Aerial extent of the Activity Ha or m ²	LISTED ACTIVITY Mark with an X where applicable or affected.	APPLICABLE LISTING NOTICE (GNR 544, GNR 545 or GNR 546)/NOT LISTED
Clearance of indigenous vegetation	3695.0244ha - Only the areas where mining takes place, will be cleared. Concurrent backfilling will take place in order to rehabilitate.	X	GNR. 984
Office and Workshop	100m ²	-	-
Roads	+- 20 km	-	-
Stockpiling op topsoil	3695.0244ha – The active mining site will		

	be restricted to only 5ha at any given time in order for rehabilitation to take place.	-	-
Mining of Diamond Alluvial - Excavations	3695.0244ha – The active mining site will be restricted to only 5ha at any given time in order for rehabilitation to take place.	X	GNR. 984
Processing Plant	4 X 16 feet washing pan– 137,280 tons/month to be washed	X	-

<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"> 1. Listing Notice GNR 983, Activity 14: <i>“The development of facilities or infrastructure, for the storage, or the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.”</i> - The storage of diesel in bunded diesel tanks, exceeding 80 000 litres. 2. Listing Notice GNR 983, Activity 24(ii): <i>“The development of a road with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres.”</i> - The development of 10m wide road, with no road reserve. 3. Listing Notice GNR 984, Activity 15: <i>“The clearance of an area of 20 hectares or more, of indigenous vegetation.”</i> – Random indigenous vegetation clearance over a 3695.0244 hectare area. 4. Listing Notice GNR 984, Activity 17: <i>“Any activity including the operation of that activity which requires a mining right as contemplated on section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource.”</i> – Mining right for the mining of Diamonds General, Diamonds Alluvial, Diamonds and Kimberlite, including associated infrastructure, structure and earthworks.
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	<p>5. Listing Notice GNR 984, Activity 21: “Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.”</p>
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ii) Description of the activities to be undertaken

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

Timeframes and scheduling of Implementation Phases

- Explanation of time taken to develop the mine and commence production.

It will take approximately three to six months to erect the mining sight, to build the infrastructure and to commence with production.

- Explanation of the production build-up period once production commences.

From date of mining activities commences the production will be build up so that the mine can be in full production a month after date of commencement.

- Explanation of production decline period (as grades deteriorate).

In the event that the diamond price is lower than estimate \$600 a carat and the grade drops below 0.15 carats per 100 ton, the holder will then consider to put the mine on care and maintenance.

- Production forecast for each year over the full period applied for based on the above explanations. (Not Life of Mine calculation).

Year	Production Period	Tons	Carats
Year 1-11	5 months	5x137,280 = 686,400 100 x 0.3	2059
Year 2-11	11 months	11x137,280= 1,510,080 100 x 0.3	4530

- Year 1: R24 102 000
- Year 2: R53 024 400
- Year 3: R55 675 620
- Year 4: R58 459 401
- Year 5: R61382 371
- Year 6: R64 451 489
- Year 7: R67 674 064

Year 8: R71 057 767
Year 9: R74 610 655
Year 10: R78 341 188

Technically justified estimate of the period required

(Description of the rate of production, estimated payable reserve ratio, efficiency factors and extraction rates, relative to available resources to justify the period applied for).

The applicant will conduct his activities with at least 4x 16ft washing machines. These machines will wash 260 tonnes of gravel an hour. Activities will be conducted for 24 hours a day.

4 x (washing plants) x 65 (tonnes an hour) x 24 (working hours per day x 22 (working days during the month) = 137,280 tonnes a month.

137.280 (tonnes) 100 x 0.3 = 411,8 carats a month.

Mine design map

Due to the nature of alluvial mining it is extremely difficult to have a predetermined mine plan. Mining and mine planning is reviewed as per results achieved. See **Appendix 4** for the basic site plan.

Description of the mining method's impact on operating cost.

- Basic overview of the mining method

The gravel will be removed from the property by an excavator/s. It will be loaded by the excavator onto a dumper truck which will transport the gravel to the gravel stockpile. From here the gravel will be moved by a front-end loader to the screen and scrubber into the washing plants and to the flowsort plant. The gravel will be processed in the plant for later sorting of the concentrate derived from the plant in the flowsort. All waste will either be accumulated in a dump dam or used for rehabilitation, by washing the waste back into the excavations. Tailings will be pumped into the tailings dam.

- Equipment to be used

Excavators
Front end loaders
Dumper trucks

High level description of the processing plant

- Basic plant design

Except for processing it is not foreseen that there will be any technological processes for the extraction and preparation for the minerals. The minerals are diamonds, which will be sold in a form the way they are found. The Tender House

where the diamonds will be sold deep boil the diamonds. The cost of the deep boiling is subtract from the 1.5% commission payed over to the Tender House.

- Efficiency of the process

The mineral recovery rate will be 0.3 carats per 100 tons of gravel processed. Approximately 1.2t - 1.6t of the residue will be formed for every one ton of gravel processed. The reason here for is for the water used during the processing activities. The residue will either be washed back into the excavations or washed into a tailings dam.

The diamond pan is one of the oldest methods that is used for concentrating and the recovery of diamonds in the North West Region. The pan is used to separate light material in the feed to the pan from the heavy minerals – the diamond being relatively heavy at an Rd of 3.53

The method is relatively cost effective but produces a large amount of concentrate and recovery efficiencies is very sensitive to size distribution of the feed and the quality of the medium – called puddle.

Pan efficiencies are normally calculated at approximately 80 % recovery of diamonds provided that all operational parameters are being adhered to and medium contamination is kept to the minimum. Losses will mainly occur in the very small diamond fractions.

The estimated mineral recovery rate will be dependent on the prevailing condition as well as the type of material to be processed varying from dry material with high sand content to high clay presence but on average a grade of 0.60 carats per 100 ton material processed can be achieved with operations being retarded during periods of high rain occurrence.

This may also be influenced by the uneven distribution of diamonds in the area.

Oversize material (25 % of ROM feed), pan tailings (40 % of ROM Feed) are being backfilled into open and depleted mining trenches simultaneously with the Plant feed process.

Slimes/waste from the pan operations (water/fines/solids) are being re-directed to depleted mining trenches with the objective of replenishing underground water and the stabilization of the water table. This is estimated at about 25 % of ROM feed.

This is of critical importance in view of the relative scarcity of water in the area. The Pan Plant process water requirements is estimated at approximately 25 cubic meters per hour.

Rehabilitation and Closure

- Remove all mining related infrastructure
- Return tailings and overburden to the excavation in order to fill up the excavation.
- Place topsoil on top of the backfilled excavation.
- Rehabilitate disturbed areas appropriately

e) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);	REFERENCE WHERE APPLIED
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)	-
National Infrastructure Plan	-
Northern Cape Province Growth and Development Strategy	-
Pixley Ka Seme District Municipality Integrated Development Plan (IDP)	-
Siyathemba Local Municipality Integrated Development Plan (IDP) Review	-

f) Need and desirability of the proposed activities.

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

Prospecting rights, mining rights and mining permits have been applied for all around the proposed site, and the outcome of that prospecting activities under the prospecting right indicated that alluvial diamonds are found on site also more people from the surrounding community will be employed .

g) Period for which the environmental authorisation is required.

The environmental authorisation is required for a minimum period of 10 years.

h) Description of the process followed to reach the proposed preferred site.

NB!! – This section is not about the impact assessment itself; It is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.

Due to the nature of alluvial mining it is extremely difficult to have a predetermined mine plan. Mining and mine planning is reviewed as per results achieved. For the purposes of this report, the overall mining area is presented in **Appendix 3**.

The stakeholder consultation phase has not been completed at this time, and therefore the comments raised by I&APs have not been incorporated in this section. This will be updated as part of the final report.

i) Details of all alternatives considered.

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

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

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

As discussed in the previous section, based on outcomes of prospecting activities under the prospecting right and previous studies in the vicinity of the proposed site, indicated that alluvial diamonds are found on Remainder of Portion 1 of the farm Uitdraai 33, Registration Division Prieska RD, Northern Cape Province.

Also it should just be mentioned that Prieska Diamond Mining (Pty) Ltd is not the land owner. According to the Mining work programme, DMR has been advised that the surface owner prevents the applicant from conducting prospecting activities on the property. The applicant was also advised that the surface owner will not allow him to mine on the property. This may have an effect on the development on the mine as it may be necessary for the applicant to approach the court for an interdict preventing the surface owner to prevent the applicant to conduct the mining activities on the property.

In terms of the technologies proposed, these have been chosen based on long term success in terms of their mining history. As the mining area has been determined by prospecting. The applicant will thus proceed with mining activities and the excavation of trenches. Trenches will be excavated by excavators. The topsoil will be removed and stored separately. The gravel will be removed and transported next to the processing plant. Here it will be stored and transported by a front-end loader into the processing plant. The gravel will be washed by using 4 x 16ft Pan processing plant. The waste will be washed back into the excavations. The possible diamond bearing gravel will be mortised into bins, where after the gravel will sorted by a sortex to separate the gravel to find the diamonds.

(c) The design or layout of the activity

Due to the nature of alluvial mining it is extremely difficult to have a predetermined mine plan. Mining and mine planning is reviewed as per results achieved. Where applicable a Water Use License Application will be launched for conducting mining operations in or near any water resource. A desktop study indicated that there are cultivated lands, water attributes, Perennial River, sand erosion and Non-perennial River. All infrastructure will be temporary and/or mobile.

(d) The technology to be used in the activity

In terms of the technologies proposed, these have been chosen based on the long term success of their mining history.

Although there are a number of different diamond recovery technologies being utilized worldwide, the two principal types are Rotary Pan Plants and Dense Media Separation (DMS). Both methods are in actual fact used for bulk material reduction and require a further process for the final diamond recovery. These systems are based on the property of diamonds having a much higher specific gravity (density) of ~3.52 g/cm³ compared to most of the other minerals that make up material in which diamonds are found.

The first stage of kimberlite processing is to crush and screen the mined ore as required in order to reduce its' size. For alluvial type deposits crushing is rarely required and the material goes straight to screening. Depending on the processing method being employed, material under a certain chosen size fraction may go through a scrubbing system to clean the ore prior to it being fed into the processing plant.

Rotary Pan Plants

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 center 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.

Dense Media Separation (DMS) Plants

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.

Both recovery methods have their advantages and disadvantages, but in this case a pan will be used since it is much more advantageous. Its advantages are as follow:

- The diamond pan is one of the oldest methods that is used for concentrating and the recovery of diamonds in the North West Region.
- The capital required for an equivalent (high) throughput DMS plant is in the order of ten times higher than the capital required for a Rotary Pan plant.
- Water usage and operating costs for an equivalent DMS plant are also typically much higher than that of a Rotary Pan plant.
- Oversize material (25 % of ROM feed), pan tailings (40 % of ROM Feed) can be backfilled into open and depleted mining trenches simultaneously with the Plant feed process.
- Slimes/waste from the pan operations (water/fines/solids) can be re-directed to depleted mining trenches with the objective of replenishing underground water and the stabilization of the water table.

(e) The operational aspects of the activity

Due to the nature of the mining activities, services in terms of water supply, electricity, or sewerage services are required for 10 years.

The activities will commence according to the results of the prospecting activities and the further prospecting activities, which will be taking place under the mining right. This will ensure that the applicant can clearly delineate areas which are suitable for further investigation and no unnecessary surface disturbance will be undertaken.

Trenches and pits will then be dug according to the above mentioned results.

Material from mining trenches delivered by ADT is stockpiled at the pan plant site in the vicinity of the pan feed bin. The material will then be fed to the pan feed bin with a front-end-loader at a rate of approximately 45 tons per hour depending on the type of material (lower feed rates for material with high sand or clay content).

The material will then be screened to minus 32 mm by using a barrel screen. The screened material will then be fed into the pan with a pan feed conveyor. The remaining oversize material (+ 32 mm) will then be directed to a tailings dump via a tailings conveyor.

The pan material will be separated with a medium of puddle applying the sink/float principle at an operating density of Rd 1.35 – Rd 1.40. The floating particles (gravel/puddle/fines) is then directed to a chute onto a dewatering screen and screened at 1.00 mm. The plus 1.00 mm material or pan tailings are directed to a tailings dump with a tailings conveyor.

The minus 1.00 mm material (slimes) will be collected in the screen under the pan and pumped to an open and depleted mine trench in order to replenish the underground water and to restore the underground water level. This operation is done during the same cycle of plant ROM feed.

As an alternative to the above mentioned; the pan may be situated on the side of an open and depleted mining trench in order to deposit oversize, pan tailings and slimes directly into the open and worked mining trench.

The concentrated material will be tapped into a concentrate bin and transported to a Final Recovery Plant for final diamond concentration and recovery.

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

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

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.

(f) The option of not implementing the activity

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 and will continue to be used for low density cattle grazing.

(f) The option of not implementing the activity

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 and will continue to be used for low density cattle grazing.

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.

1. Advertisement and Notices

Newspaper advertisement

Since the proposed development is unlikely to result in any impacts that extend beyond the municipal area where it is located, it was deemed sufficient to advertise in a local newspaper. An advertisement was placed in English in the local newspaper (Gemsbok) on the 19 February 2016 (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 189 CC. I&APs were given the opportunity to raise comments within 30 days of the advertisement.

Site notices

Site notices were placed on site on the 16th February 2016, in English, to inform surrounding communities and immediately adjacent landowners of the proposed development. I&APs are given the opportunity to raise comments within 30 days. Photographic evidence of the site notices will be included in **Appendix 6**.

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

Identified I&APs, including key stakeholders representing various sectors, were directly informed of the proposed development and the availability of the Scoping Report via registered post on 17 February 2016 and were requested to submit comments by 18 March 2016. A copy of the report will also be available at the Milnex offices, Schweizer-Reneke, from 7:00 – 17:00, Monday to Friday. For a complete list of stakeholder details and for proof of registered post see **Appendix 6**. The consultees included:

- Northern Cape Department of Environmental Affairs and Nature Conservation (DEANC)
- The Department of Water and Sanitation (DWS)
- NC Department of Agriculture, Forestry and Fisheries (NC DAFF)
- The Department of Agriculture (Dep. Agric)
- Provincial Heritage Resources Agency (NC PHRA)
- Department of Roads and Public Works (NC DRPW)
- NC Department of Mineral Resources (NC DMR)
- Pixley Ka Seme District Municipality
- The Wildlife and Environment Society of South Africa (WESSA)
- Siyathemba Local Municipality

- Land Owner: Wonderdraai trust
- Leopont 474 Prop (Pty) Ltd (Charl Johan de Villiers)
- Rondon Water Boerdery (Pty) Ltd
- Uitdraai Boerdery CC
- Green Valley Nuts (Pty) Ltd
- Anna Jacoba De Villiers
- Connie Coetzee Familie Trust (Coenraad Nolte Coetzee)
- Hentiq 2338 Pty Ltd
- Schalk Theron Familie Trust (Schalk Willem Petrus Theron)
- Williams Romeo Daniel David Stanley
- Tedo Beleggings 86 (Pty) Ltd (Charl Johan de Villiers)
- Oldewage Trust
- Mahoebe Eiendomme Pty Ltd
- Cypher Boerdery Trust

It is expected from I&APs to provide their inputs and comments within 30 days after receipt of the notification or Scoping Report. Comments are attached on table below

Direct notification of surrounding land owners and occupiers

Written notices and the availability of the Scoping Report were also provided to all surrounding land owners and occupiers on 19 February 2016. The surrounding land owners were given the opportunity to raise comments by 18 March 2016. For a list of surrounding land owners see **Appendix 6**.

2. Consultation

All I&AP's were invited to attend the public meeting held at Siyathemba Local Municipality Hall, 09th of March 2016. The public meeting was an opportunity to share information regarding the proposed development and provide I&APs with an opportunity to raise any issues and provide comments.

Siyathemba Local Municipality Hall		
Address:	Time:	Coordinates:
1 Victoria Street, Prieska, 8940,	13:00PM – 14:00PM	-29° 39'59.84"S 22°44'59.93"E

The following key stakeholders and surrounding land owners were also directly informed of the public meeting via registered post 19 February 2016:

- Northern Cape Department of Environmental Affairs and Nature Conservation (DEANC)
- The Department of Water and Sanitation (DWS)
- NC Department of Agriculture, Forestry and Fisheries (NC DAFF)
- The Department of Agriculture (Dep. Agric)
- Provincial Heritage Resources Agency (NC PHRA)
- Department of Roads and Public Works (NC DRPW)
- NC Department of Mineral Resources (NC DMR)

- Pixley Ka Seme District Municipality
- The Wildlife and Environment Society of South Africa (WESSA)
- Siyathemba Local Municipality
- Land Owner: Wonderdraai trust
- Leopont 474 Prop (Pty) Ltd (Charl Johan de Villiers)
- Rondon Water Boerdery (Pty) Ltd
- Uitdraai Boerdery CC
- Green Valley Nuts (Pty) Ltd
- Anna Jacoba De Villiers
- Connie Coetzee Familie Trust (Coenraad Nolte Coetzee)
- Hentiq 2338 Pty Ltd
- Schalk Theron Familie Trust (Schalk Willem Petrus Theron)
- Williams Romeo Daniel David Stanley
- Tedo Beleggings 86 (Pty) Ltd (Charl Johan de Villiers)
- Oldewage Trust
- Mahoebe Eiendomme Pty Ltd
- Cypher Boerdery Trust

The meeting were attended by:

Milnex representative:

- Anica Nieuwoudt
- Mr Danie Labuschagne

I&AP

- H. Morobisi (Municipality of Siyathemba)

No objections were raised

Circulation of EIR

The following registered I&APs and State Department were informed via a written notice, on the 30 May 2016 and informed about the availability of the EIR (refer to Appendix 6)

3. Issues Raised by Interested and Affected Parties

All comments received during the review period of the draft Scoping report, as well as response provided will be captured and recorded within the comment and response report and attached in the final Scoping Report (**Appendix 6**).

iii) Summary of issues raised by I&APs

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

Interested and Affected Parties		Date Comments Received	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, and Mark with an X where those who must be consulted were in fact consulted.					
Organisation	Contact person				
Land Owner					
Farm: Uitdraai 1/RE/33	Wonderdraai trust		No comments raised		
Landowners or lawful occupiers on adjacent properties					
Uitdraai 5/33	Leopont 474 Prop (Pty) Ltd Charl Johan de Villiers	14/03/2016	The EAP received a call from Mr Charl Johan de Villiers requesting that the draft Scoping report should be emailed to him	Pursuant the telephonic conversation the Draft Scoping report was emailed as per request (on the 14/03/2016)	
				The EAP called Mr Johan on the 15 March 2016 to verify if he received the Draft scoping report and he confirmed that he did.	
		17/03/2016	<p>Insake: Kommentaar van omliggende grondeienaar 1 en 5 van Restant van Gedeelte 1 van die plaas Uitdraai 33</p> <p>Met verwysing na u brief, gedateer 17 Februarie 2016, rig ons die volgende skrywe aan u:</p> <p>1 Mynreg houers het 'n geskiedenis van onvermoë om rehabilitasie in die gebied te doen soos te Zilverstroom. Wie gaan toesien dat rehabilitasie gedoen word. Die Departement van Minerale en Engergie (DME) is disfunksioneel in die opsig om regulering toe te pas, ten spyte van versoeke van</p>	<p>Beste Johan,</p> <p>Hiermee bevestig ek net dat ek wel dié e-pos ontvang het.</p>	

			<p>die grondeienaar om dit aan te spreek. Sanddrif is ook 'n voorbeeld van laasgenoemde.</p> <p>2 Geen sliksdamme mag gemaak word nie. Slik van bestaande sliksdamme moet ook eweredig verspreid teruggepomp word in opgevolde gate voordat die bogrond teruggeplaas word – mynreg houers kon dit nie voorheen nakom nie, alhoewel dit aanvanklik ooreengekom was met die grondeienaar by toestemming tot myn aktiwiteite op die plaas Zilverstroom.</p> <p>3 Geen gruis mag buite die mynarea gestort word vir gerief soos by Zilverstroom, Remhoogte, Sanddrif, Makoenskloof en Wouterspan nie. By Zilverstroom is die natuurlike loopplek van die wild totaal belemmer deur gruis wat geriefshalwe net oor die afgrond gestoot is. Dieselfde het by Sanddrif gebeur waar die gruis oor die kranse heen na die rivier gestoot is en die broeiplekke van diere permanent verlore gegaan het. Laasgenoemde is skriftelik by DME aangemeld wat dit toe gestop het, maar hulle het gesê ons moet kyk as dit klaar gerehabiliteer is, wat nooit gebeur het nie – bewys dat DME disfunksioneel is soos in punt 1 na verwys is.</p> <p>4 Onvermoë van DME om rehabilitasie te monitor en beheer in die omgewing, soos bleik uit die ondervinding van en geskiedenis van Remhoogte, Zilverstroom, Sanddrif, Nuwejaarskraal, Brakfontein, Sonop, Wouterspan, Saxendrift en Makoenskloof, moet aangespreek word. In die lig van hierdie nalatigheid, onvermoë en disfunksionering van die DME sou dit hoogs onverantwoordelik wees</p>		
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			<p>om verdere mynregte uit te reik omdat die probleem net gaan vergroot en die eienaar gelaat gaan word met die probleme van myne wat nie by hul omgewingsimpakstudies hou. Die departement het met die toestaan van die mynreg op Remhoogte, geensins hieraan aandag gegee tot op datum nie ten spyte van skrywes aan die departement voor die toekenning van die mynreg op Remhoogte in hierdie verband en latere versoeke om dit te stop.</p> <p>5 Waarom sal die myn winsgewend bedryf kan word as Zilverstroom, Wouterspan, Nuwejaarskraal, Sonop en Makoenskloof nie winsgewend bedryf kon word nie en nou bloot gelos is om net so te lê sonder dat rehabilitasie gedoen is? Vorige delwers (en Rockwell tans op Remhoogte) was ook nie suksesvol op Zilverstroom en Remhoogte nie en kon nie ekonomies 'n bestaan uit die diamante hier maak nie. Telkens word die reg aan 'n nuwe maatskappy verkoop tesame met die rehabilitasie verantwoordelikheid, maar die rehabilitasie wat nie gedoen word nie, eskaleer net met tyd.</p> <p>6 Die aansoekers het nie bewys dat die myn van diamante ekonomies regverdigbaar en lewensvatbaar is nie. Geen prospektering is gedoen om die graad van die diamantgruis te bepaal nie.</p> <p>7 Vorige uitstaande skuld aan die grondeienaar is nooit betaal deur die vorige twee mynreghourers op Zilverstroom nie en op die oomblik kom Rockwell nie hulle kontrak na op Remhoogte nie.</p>		
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			<p>Die oppervlaksgebruiksooreenkoms is nie nagekom nie.</p> <p>8 Wie gaan verantwoordelik wees vir ongedierte beheer op die beplande mynarea om te keer dat dit nie 'n teelarea vir die diere word nie? Dit moet deurlopend gedoen word, ons doen dit tans deurlopend op ons aangrensende grond.</p> <p>9 Wie gaan verantwoordelik wees vir indringer plantspesies (Prosopis, olieboom en boetebos byvoorbeeld) beheer in die beplande mynarea?</p> <p>10 Hoe gaan mikro habitate versteuring en vernietiging binne die groter biodiversiteits omgewing beperk of verhoed word? Myne en aansoekers hou nie by die omgewingsbestuursplan se voorstelle nie en die DME kontroleer en beheer dit nie.</p> <p>11 Die biodiversiteits opname moet volledig wees in terme van grond, diere, plante en insekte en gedoen word deur 'n geakkrediteerde omgewingskundige wat vertrou is met die plaaslike fauna en flora. Die huidige verslag is afgewater en stel impakte as minimaal voor, terwyl dit duidelik uit ander myne in die omgewing bleik dat dit presies die teenoorgestelde is. Ook wat geskiedkundige belange betref – wat van bestaande boesmantekeeninge waarvan geen melding gemaak word nie? Dit gaan geensins bewaar word as dit nie vooraf afgebaken word nie en kan nie vanuit die beplande groot masjienerie wat daar gaan werk, raakgesien word nie en is die punt van om dit te bewaar soos dit gevind word, irrelevant.</p>	
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			<p>12 Stoffbesoedeling – wat gaan hieromtrent gedoen word? Ons het ondervinding dat niks by huidige en vorige myne hieromtrent gedoen word nie. Wat gaan van ons aangrensende wildkamp word as die diere nie daar kan vreet nie, weens stof. Ons het foto's wat toon dat plante totaal met stof bedek is. Die probleem hier is dat myne net beloftes maak, maar niks daaromtrent doen nie.</p> <p>13 Stoffbesoedeling op gewasse wat oesverlies tot gevolg het, hoe gaan dit aangespreek word? Foto's van dit beskikbaar.</p> <p>14 Geraasbesoedeling – hoe gaan dit beperk word, veral in die nag. Vragmotors se trurat sirenes moet gedemp word.</p> <p>15 Effek op grondwater – besoedeling van grondwater weens olie lekke en plofstof.</p> <p>16 Die aangrensende grond word as wildkamp en vir graanproduksie gebruik en gaan nadelig beïnvloed.</p> <p>17 Myn werknemers mag nie op die perseel hout maak nie.</p> <p>18 Ongemagtigde skietery deur sekuriteit soos in die verlede op Zilverstroom voorgekom het, mag nie gebeur nie.</p> <p>19 Geen paaie mag gemaak word wat nie noodsaaklik is vir die mynproses nie. Geen grid paaie mag gemaak word soos op Zilverstroom en Sonop wat nooit eers gebruik word nie en nou net kaal stroke in die veld is.</p> <p>20 Rehabilitasie van paaie na die tyd en deurlopend sodat dit nie meer sigbaar sal wees na die tyd nie.</p> <p>21 Pad – wie gaan die infrastruktuur in stand hou waarvoor die boere 'n deel betaal het, nl.</p>	
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			<p>Muishoek pad. Verkeer word as minimaal genoem – die teendeel is waar en myne het geen beheer oor onverskillige ry van hul werknemers nie en spreek dit nie aan nie.</p> <p>22 Die finale Omgewingsbestuursplan en Omgewingsimpakstudie moet aan ons beskikbaar gestel word voor die aansoek en gevolglike toekenning van die mynreg om dit na te gaan vir volledigheid en verdere insette. Dit is omdat die Departement Mineraal en Energie disfunksioneel en afwesig is in hierdie verband en dus nie die vermoë het om dit uit te reik of te polisieer nie – wat op sig self beteken dat die mynreg nie toegeken mag word nie – veral nie alvorens die departement bewys dat die foute van bogenoemde myne reggestel is nie.</p> <p>23 Geen behuising mag aan mynwerkers op die plaas gegee word nie en mag werkers slegs op die plaas kom vir hulle skofte. Die rede hiervoor is om te verhoed dat mynwerkers buite hulle skofte rondloop in die gebied om hout te maak, strikke te stel vir diere en veiligheid in die algemeen.</p> <p>24 Indien daar verdere samesprekings met ons nodig is in verband met die mynreg aansoek en daarna tydens die myn periode, moet dit plaasvind op die plaas Remhoogte, Prieska, 8940.</p> <p>25 Hiermee word versoek dat toekomstige besware ook in aanmerking geneem sal word, omdat dit onmoontlik is om vooruit te sien watter probleme nog mag opduik rondom die myn en ook omdat verdere probleme met verloop van tyd mag</p>	
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			<p>opduik, soos bewys uit die geskiedenis van die aansoekers en ander myne in die omgewing, wat voorheen nie by reëls kon hou nie.</p> <p>26 Ons stel dit weer duidelik dat DME nie met die Remhoogte mynreg toekenning enigsins op soortgelyke kommentaar reageer het nie of hul verantwoordelikheid nagekom het nie en dat ons daarom geen toekomstige mynreg toekennings deur die departement kan erken nie, alvorens die foute by bogenoemde myne nie aangespreek en ten volle gerehabiliteer is nie. Ons kan nie toelaat dat die DME die voortgesette vernietiging van landbougrond toelaat nie, wat gevolglik voedselproduksie permanent op daardie grond in die toekoms verhoed.</p> <p>Ons vertrou dat u aandag sal gee aan hierdie kommentaar en ook dat u dit onder die aandag van die DME sal bring wat geensins op soortgelyke kommentaar rakende die Remhoogte mynreg aansoek gereageer het nie.</p>		
Uitdraai 8/33	Wonderdraai Trust		No comments raised		
Uitdraai 9/33	J.J. Botma (Van der Wall & Vennote)		<p>Letter received on the 04/04/2016 states that Van De Wall Incorporates' client, Mr. J.J. Botma, objects against the application and he have questions that he wants answered.</p> <p>Please find the questions in the attached documents.</p>	<p>Proof of letter and email correspondence on the 16/05/2016.</p> <p>The letter dated 16/05/2016 answers all Mr. J.J. Botma's questions and kindly request access to the property to enable the appointed specialist to do an Ecological Habitat Survey; biodiversity and wetland assessment; air quality monitoring' baseline report; heritage impact assessment; a generic engineers design to determine where</p>	

				<p>the tailings storage facility will be on the property and a 1:100year flood line assessment on the Orange river.</p> <p>Email with attached letter sent on 26/05/2016 to request access to the property to enable the appointed specialist to do an: Ecological Habitat Survey; biodiversity and wetland assessment; air quality monitoring' baseline report; heritage impact assessment; a generic engineers design to determine where the tailings storage facility will be on the property and a 1:100year flood line assessment on the Orange river.</p> <p>Email with attached letter sent 10/06/2016 states:</p> <p>In both our letters send, 16 and 26 May 2016, we requested that you provide us with a suitable date for the proposed round table meeting with both you and your client. We also requested access to the property to enable the appointed specialist to do the studies.</p> <p>We confirm that we still await your response on both of the above mentioned requests.</p>	
Uitdraai 15/33	Uitdraai Boerdery CC		No comments raised		
Muishoek 17/34 & 22/34	Green Valley Nuts (Pty) Ltd		No comments raised		
Remhoogte RE/152	Anna Jacoba De Villiers		Comments addressed by Mr Johan de Villiers above.		

Spitzkop 4/26	Connie Coetzee Familie Trust Coenraad Nolte Coetzee		No comments raised		
Spitzkop 6/26	Hentiq 2338 Pty Ltd		No comments raised		
Spitzkop 10/26	Schalk Theron Familie Trust Schalk Willem Petrus Theron		No comments raised		
Blaauwbanks Fontein RE/25	Williams Romeo Daniel David Stanley		No comments raised		
Hospital RE/365	Tedo Beleggings 86 (Pty) Ltd Charl Johan de Villiers		No comments raised		
Hospital 4/365	Oldewage Trust		No comments raised		
Hospital 7/365 & 9/365	Mahoebe Eiendomme Pty Ltd		No comments raised		
Uitdraai 3/33	Cypher Boerdery Trust		No comments raised		
Hospital 11/365 & 12/365	Does not exist according to Search works		No comments raised		
Spitzkop 5/26 en 9/26	Does not exist		No comments raised		

The Municipality in which jurisdiction the development is located

Siyathemba Local Municipality	Municipal Manager: J.R.M. Alexander		No comments raised		
Municipal councilor of the ward in which the site is located					
Siyathemba Local Municipality	Ward 4 Councilor		No comments raised		
Organs of state having jurisdiction					
Northern Cape Department of Environmental Affairs and Nature Conservation (DEANC)	Mrs. Doreen Werth		No comments raised		
The Department of Water and Sanitation (DWS)	Ms. M. Mei		Letter stamped 05/04/2016 acknowledges the receipt of intent to apply for a water use authorization.	Letter dated 18 March 2016, the EAP submitted a notice of intention to apply for a Water Use License for the proposed mining activities of Prieska Diamond Mining (Pty) Ltd on the Remaining Extent of Portion 1 (Wonderdraai) of the Farm Uirdraai 33, Registration Division Prieska RD, near Prieska in the Northern Cape Province.	
NC Department of Agriculture, Forestry and Fisheries (NC DAFF)	Mr. Viljoen Mothibi		No comments raised		
The Department of Agriculture (Dep. Agric)	Ms. Anneliza Collett/ Ms. Mashudu Marubini		No comments raised		
Provincial Heritage Resources Agency (NC PHRA)	K. Sofoleng		No comments raised		
Department of Roads and Public Works (NC DRPW)	HOD: Ms. Ruth Palm		No comments raised		

NC Department of Mineral Resources (NC DMR)	Mogomotsi Mogale	16/03/2016	Letter dated 16 March 2016 stated that the Application is accepted. <ul style="list-style-type: none"> • Thus scoping needs to be submitted within 44 days, • EMPr within 106 days • Land owner & I&AP be notified • Lodge notice of intent for WUL application 	
	Sunday Mabaso			Letter dated 01/03/2016 is proof of land claims consultation.
	K. Shapo & Sunday Mabaso			Email with attached letter sent on 23/05/2016 proof of land owner consultation.
	Kgaudi Shapo		Letter signed 15/04/2016 states that; <ol style="list-style-type: none"> 1) the SR has been reviewed 2) Milnex 189 CC are there for requested to upload online copy and submit 5 manual copies. 3) EIAR and EMPr must include comments from the relevant state department. (SAHRA, DAFF, DENC and DWS) 4) The public participation process must meet minimum standards 5) Submit detailed itemization of financial provision quantum 6) The EIAR and EMPr must contain all information set out in Appendix 3 of NEMA and EIAR must also contain all information set out in Regulation 23 (1)(a)&(b);(2);(3);(4) and (5) if applicable of EIA regulations. 2014 of NEMA. EMPr must comply with section 24N of the Act. 7) The supporting specialist studies must be compiled in manner which adhere to (NEMA) as amended and the EIA Regulations, 2014. 8) The office reserves the right to revise and/or withdraw this comment and to request further information form the application. 	

			Kindly specified how many equipment of machinery types that are going to be used on the proposed mining.		
NC Department of Rural Development & Land Reform: Land Restitution Support	Mr Ryan Oliver			The office of the regional land claims commissioner in the Northern Cape was consulted on an email dated 15/02/2016 to inquire whether there are any land claims on the proposed farms.	
			The letters dated 22/02/2016 stated that “This communique serves to advise Milnex 189 CC that according to the Northern Cape database there are no restitution claims lodged against the above mentioned property description.”	The letter was submitted to DMR in the Northern Cape on the 01/03/2016 as proof of consultation	
Other–					
Pixley Ka Seme District Municipality	Municipal Manager: Mr R. E. Pieterse		No comments raised		
WESSA	Mr. Lemson Petha		No comments raised		

iv) **The Environmental attributes associated with the sites**

(1) Baseline Environment

The baseline environment is described with specific reference to geotechnical conditions, ecological habitat and landscape features, Soil, land capability and agricultural potential, climate and the visual landscape. A desktop study indicated that there are cultivated lands, water attributes, Perennial River, sand erosion and Non-perennial River. All infrastructure will be temporary and/or mobile. Where applicable a Water Use License Application will be launched for conducting mining operations in or near any water resource.

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

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

The Council for Geo Science describes the gravel found in the area under application as follows:

Geological formation

Stratigraphy

The bedrock consists of Andesitic Ventersdorp lavas overlain by Dwyka Tillites and mudstones of the Ecca group - Karoo Supergroup. To the north the Asbesberge is made up of dolomites and banded iron formations of the Griqualand West Sequence.

Prior to the Karoo period the Orange River cut a network of channels closely approximately the present floodplain. These channels were then utilized by the subsequent glaciers and filled with the Dwyka tillites and shales (250 milion years ago). The post-Karoo Orange River subsequently incised into these formations and deposited gravels of the Rietputs Formation on mainly 3 terraces.

The bedrock consisting of horizontally bedded greenish-grey tillites results in wide, braided channels in comparison to narrow, well-defined channels with potholes as found in the Ventersdorp lava bedrock.

Gravel deposit

The older gravels known as "Rooikoppie" is a reworked residual of the calcreted basal older gravels and does not occur on the Wonderdraai deposit. Only a rudaceous red plalaesol developed on the surface of the current gravel deposit that is calcreted.

The terrace being explored on Wonderdraai is classified as the Rietputs A gravels and is located 60 meters above the current Orange River.

In general these gravels can be decribed as follows: It comprises a crudely stratified granule-boulder conglomerate with a pale brown sandy matrix overlain by a 3m calcreted layer. The gravels have a maximum thickness of 15 m on Wonderdraai on top of the bedrock consisting of greenish Dwyka tillites (Fig 7.) The gravels are composed largely of rounded fragments of Ventersdorp andesite and iron formation, with smaller amounts of resistant material such as chalcedony, quartz and quartzite. The gravels are

almost invariably calcified and sometimes contain partings or lenses of sand and fine-grained gravel. In some places the gravels have a thin covering of Hutton sand.

Ecological habitat and landscape features

In terms of vegetation type the site falls within the The proposed area falls within vegetation unit NKu 3 and AZa 4, which is known as the Northern Upper Karoo and Upper Gariiep Alluvial Vegetation: 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 conservation of the Northern Upper Karoo, is Least Threatened with a target of 21%. About 4% has been cleared for cultivation (the highest proportion of any type in the Nama-Karoo) or irreversibly transformed by building of dams (Houwater, Kalkfontein and Smart Syndicate Dams). Areas of human settlements are increasing in the north-eastern part of this vegetation types.

The Gariiep Alluvial Vegetation covers the Free State and Northern Cape Province: Broad alluvia of the Orange River, lower Caledon as well as lower stretches of the Vaal, Riet and Modder rivers as far as Groblershoop. These river stretches are surrounded by vegetation units of broad transitional regions between the dry facies of the Savanna and Grassland and northern regions of the Nama-Karoo Biome. Altitude ranging from 1 000 – 1 500 m. The area has flat alluvial terraces supporting complex of riparian thickets (gallery forests) dominated by native *Acacia karroo* and *Diospyros lycioides*, flooded grasslands, reed beds and ephemeral herblands populating mainly sand banks within the river and on its banks. Gariiep Alluvial Vegetation has a conservation which is vulnerable with a target of 31%. Only about 3% statutorily conserved in Tussen Die Riviere, Gariiep Dam and Oviston Nature Reserve. More than 20% transformation for cultivation (vegetable grapes) and building of dams. Exotic woody species such as *Salix babylonica*, *Eucalyptus camaldulensis*, *E. sideroxylon*, *Prosopis* and *Populus* species have become common dominants in patches of heavily disturbed alluvial vegetation (Mucina and Rutherford, 2006:639-640).

See figure 3 below & Appendix 7 for the attached Ecological Desktop Study.

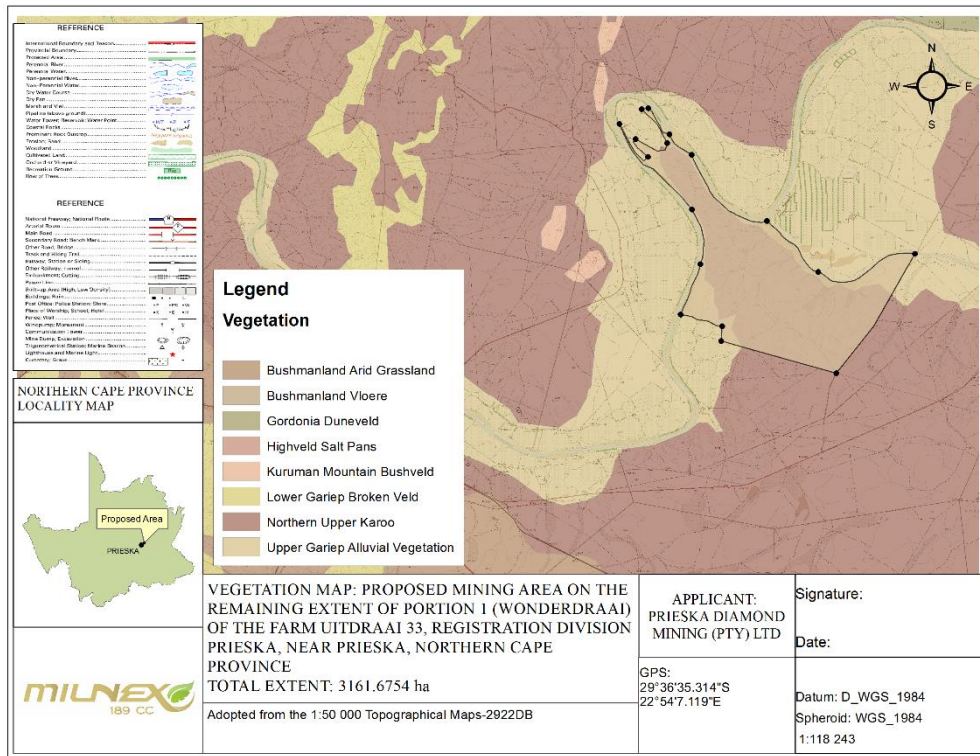
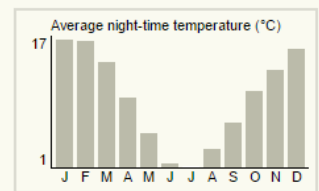
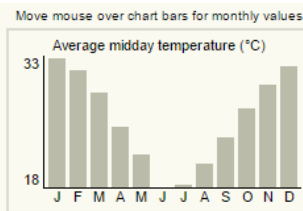
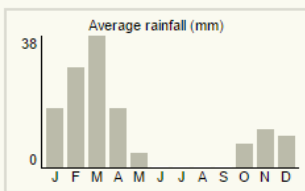


Figure 3: Vegetation Map

Land capability and agricultural potential

• **Climate and water availability**

Prieska normally receives about 132mm of rain per year, with most rainfall occurring mainly during autumn. The chart below (lower left) shows the average rainfall values for Prieska per month. It receives the lowest rainfall (0mm) in June and the highest (38mm) in March. The monthly distribution of average daily maximum temperatures (centre chart below) shows that the average midday temperatures for Prieska range from 17.9°C in June to 32.7°C in January. The region is the coldest during July when the mercury drops to 1.3°C on average during the night. Consult the chart below (lower right) for an indication of the monthly variation of average minimum daily temperatures.



- Agricultural / land capability

Land capability is the combination of soil suitability and climate factors. The site and surrounds has a land capability classification, on the 8 category scale, of Class 7 – non-arable and not suited for crop production (refer to Land capability map attached as **Appendix 5** and figure 4 below.

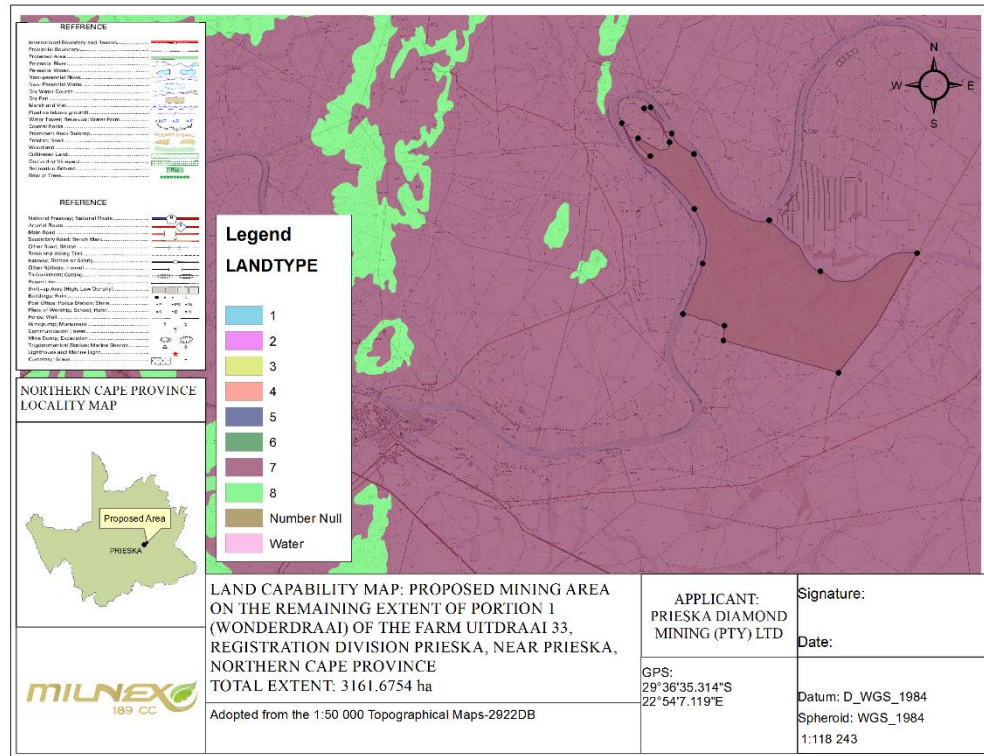


Figure 4: Land capability map

Description of the socio-economic environment

- Socio-economic conditions

According to the Siyathemba Local Municipality's IDP, the Municipality had a local population of just more than 21,000 people during 2010. In regional context, this meant that the Siyathemba Municipality contributed 11.9% to the District population (i.e. the second largest Local Municipality in the District by population) and 1.9% to the population of the Northern Cape.

The most dominant population group is Coloured⁴. This group represents 80% of the total population in the municipal area. The other groups are black (12%) and white (8%). Afrikaans is the most widely spoken language (78%). There are an insignificant number of people which speaks other languages. A total of 824 people indicated that IsiNdebele is their first language and 91 people speak Setswana.

There were slightly more females (51.4%) than males (48.6%) among the local population during 2010. It was, however, noted that the population became slightly less female dominant since 2000, when 52.4% of the population were female. The working age group (15 to 64) contributed 64.4% to the local population in 2010. This age group has increased proportionately (from 58.6% to 64.4%) in relation to the other age groups. Since 2000, this group increased by approximately 1,210 people. The working age population is slightly male dominant. Since 2000, male working age population increased by around 928 men in absolute terms while the number of women increased by about 282.

In the Draft LED Strategy for Siyathemba Municipality, reference is made to the HIV/AIDS prevalence in the area. It is indicated that data from the Actuarial Society of South Africa was used. During 2010, the HIV/AIDS prevalence rate of the Siyathemba population was 6.0% compared to the District rate of 6.5%. These rates compared well to the Northern Cape (7.6%) and South African (12.6%) averages in the same year.

Significant progress has been made regarding the provision of water but backlogs still exist. 95% of the households in the district are provided with free basic water (FBW) which is above the provincial average of 87, 7%. Only 3% of households had NO access to piped water 46% had piped water inside dwelling by 2011. Piped Water inside Dwelling is about 47.00%.

Pixley Ka Seme has Flush Toilet Connected to Sewerage at 65.70% households, Emthanjeni being the highest with 85.06% and Thembelihle being the east with 64.41%. However it must be mentioned that a project is currently in progress through funds from the Pixley Ka Seme District Municipality to replace buckets with the UDS system. The final 68 toilets have been finalised during this current financial year in Campbell. Full water borne sanitation is currently being constructed in Schmidtsdrift and the sanitation system will be completed with the completion of the house structures.

The proportion of households using electricity for lighting has increased from 57% in 1996 to 84% in 2011. South Africa aims to ensure that by 2030 at least 90% of people have access to grid electricity. Increase in both demand and tariffs may slow down this last effort. Households using electricity as a source of energy for cooking increased from 47,5% in 1993 to 73,9% in Census 2011.

All local municipalities are composed of various residential components varying from formal housing units to informal dwelling units as indicated in the table above. Within the District, 82, 8% of households live in formal housing, 10,8% in informal housing and only 2% in traditional houses. Households in the whole PKSD is about 49 193 in respect to the Census 2011, where the average Household Size is about 3.70%, female headed households is about 36.90%, formal dwellings at 86.30% and the housing owned is at 52.00%

There has been an 8,3% increase in the number of learners that have accessed education between 1996 and 2001. There has been a 27,1% increase in the number of learners that have matriculated.

- Heritage aspects

Special attention will be given to the identification of possible cultural or heritage resources on site.

(b) Description of the current land uses.

The site survey revealed that land uses on and in the immediate vicinity of the proposed development are essentially comprised of some crop cultivation and trees plantations. The landscape is uneven with diamonds deposits and streams.

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

The infrastructure on site consist of farm roads and basic farm infrastructure together with previous prospecting infrastructure. 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. The proposed prospecting area consists of cultivated lands, water attributes, Perennial River, sand erosion and Non-perennial River. All infrastructure will be temporary and/or mobile. Where applicable a Water Use License Application will be launched for conducting mining operations in or near any water resource.

A Locality map is attached in **Appendix 3**.

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

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

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 basic assessment 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** – In terms of vegetation type the site falls within the The proposed area falls within vegetation unit NKu 3 and AZa 4, which is known as the Northern Upper Karoo and Upper Gariep Alluvial Vegetation: 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 conservation of the Northern Upper Karoo, is Least Threatened with a target of 21%. About 4% has been cleared for cultivation (the highest proportion of any type in the Nama-Karoo) or irreversibly transformed by building of dams (Houwater, Kalkfontein and Smart Syndicate Dams). Areas of human settlements are increasing in the north-eastern part of this vegetation types.
- The Gariep Alluvial Vegetation covers the Free State and Northern Cape Province: Broad alluvia of the Orange River, lower Caledon as well as lower stretches of the Vaal, Riet and Modder rivers as far as Groblershoop. These river stretches are surrounded by vegetation units of broad transitional regions between the dry facies of the Savanna and Grassland and northern regions of the Nama-Karoo Biome. Altitude ranging from 1 000 – 1 500 m. The area has flat alluvial terraces supporting complex of riparian thickets (gallery forests) dominated by native Acacia karroo and Diospyros lycioides, flooded grasslands, reed beds and ephemeral herblands populating mainly sand banks within the river and on its banks. Gariep Alluvial Vegetation has a conservation which is vulnerable with a target of 31%. Only about 3% statutorily conserved in Tussen Die Riviere, Gariep Dam and Oviston Nature Reserve. More than 20% transformation for cultivation (vegetable grapes) and building of dams. Exotic woody species such as Salix babylonica, Eucalyptus camaldulensis, E. sideroxylon, Prosopis and Populus species have become common dominants in patches of heavily disturbed alluvial vegetation (Mucina and Rutherford, 2006:639-640).

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	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Low (1)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Significant loss of resource (3)	Marginal loss of resource (2)
Cumulative impact	Negligible cumulative impacts (2),	
Significance	Negative low (28)	Negative low (14)
Can impacts be mitigated?	If the development is approved, contractors must ensure that no mammalian species are disturbed,	

	<p>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; • 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 low probability of resident threatened species occurring at the footprint site, the low probability of any significant conservation corridor or buffer zone at the footprint site. If it deems necessary a Water Use License Application will be lodged. The site proposed for development could be viewed as less sensitive in the region.

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	Medium term (2)	Medium term (2)
Magnitude	Low (1)	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	Negligible cumulative impacts (1).	
Significance	Negative low (12)	Negative low (12)

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.
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- 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	Medium (2)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal (2)	Marginal (2)
Cumulative impact	Negligible cumulative impact (1).	
Significance	Negative low (20)	Negative low (18)
Can impacts be mitigated?	<p>The following mitigation or management measures are provided:</p> <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. • 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. 	

	<ul style="list-style-type: none"> • 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)	Unlikely (1)
Duration	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	Medium (2)
Reversibility	Partly reversible (2)	Partly reversible (2)
Irreplaceable loss of resources	Marginal (2)	Marginal (2)
Cumulative impact	Negligible cumulative impact (1).	
Significance	Negative low (20)	Negative low (18)
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)	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	The impact would result in negligible to no cumulative effects (1).	
Significance	Negative low (20)	Negative low (9)
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	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 if services become unstable or unavailable, which in turn would negatively impact on the local community.	
Significance	Negative medium (13)	Negative low (13)
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 – Special attention will be given to the identification of possible cultural or heritage resources on site.

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	Medium (2)	Low (1)
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 low (24)	Negative low (12)
Can impacts be mitigated?	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.	

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 mining 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 gravel road off the R357/R386 to Prieska. 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.

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	Medium (1)	Medium (3)
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 low (22)	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 R357/R386 is 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. • Speed limits of vehicles inside the application area must be strictly controlled to avoid excessive dust or the excessive deterioration of the roads to be used. <p>Also refer section (f) of the EMP. 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	Short term (1)	Short term (1)
Magnitude	Medium (2)	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 low (22)	Negative low (11)
Can impacts be mitigated?	<p>Key mitigation measures include:</p> <ul style="list-style-type: none"> • Prieska Diamond Mining (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 Prieska Diamond Mining (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; • Prieska Diamond Mining (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 by Prieska Diamond Mining (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 Prieska Diamond Mining (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.
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OPERATIONAL PHASE

Direct impacts: During the operational phase the study area will serve as an mining 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 mining activity ensues and soil is left bare until rehabilitation is initiated. Erosion will be localised within the site. This will ultimately lead to the irretrievable commitment of this resource. The measurable effect of reducing erosion by utilizing mitigation measures may reduce possible erosion significantly.

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.	

- **Change in land-use** – The use of the area for the operation of the mining activity will result in the area not being used for livestock grazing anymore. The impact on farm income due to the loss of grazing will be more than offset by the income from Prieska Diamond Mining (Pty) Ltd

Change in land use	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	medium term (2)	medium term (2)
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	Low cumulative impacts (2).	
Significance	Negative low (15)	Negative low (14)
Can impacts be mitigated?	<p>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.</p> <p>Also refer to section (f) of the EMPr.</p>	

- 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)	Medium (2)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	No loss of resources (1)	No loss of resources (1)
Cumulative impact	Low cumulative impact (2).	
Significance	Positive Low (24)	Positive Low (24)
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?	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	

- Increased consumption of water - Approximately 18 000 liters of water per hour will be required for the washing of the gravel in the rotary 16 feet pan. The water will be sourced from groundwater sources.

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	Medium (2)	Medium (2)
Reversibility	Irreversible (4)	Irreversible (4)
Irreplaceable loss of resources	Marginal loss of resources (2)	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 medium (40)	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 mining 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 - Mining activities will result in the generation of noise over a period of 3-5 years. Sources of noise are likely to include vehicles, the use of machinery such as backactors, rotary pans and people working on the site, as well as occasional blasting. The noise impact is unlikely to be significant as the closest homestead is more than 1km from the site; but mining activities should be limited to normal working days and some Saturdays 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	Medium term (2)	Medium term (2)
Magnitude	Medium (2)	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	The impact would result in negligible to no cumulative effects (1).	
Significance	Negative low (22)	Negative low (10)
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 tourism sector is regarded as an important economic sector in the NCP. The tourism potential of the area is linked to the areas natural resources, including the relatively undisturbed scenery and landscape. The impact of the proposed mining of diamond alluvial on the areas sense of place with mitigation is likely to be low. In addition, the site will not be visible from the R357/R386. The impact of the proposed mine on the tourism potential of the area and the NCP is therefore likely to be low.

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	Low (1)	Low (1)
Reversibility	Completely reversible (1)	Completely reversible (1)
Irreplaceable loss of resources	N/a	N/a
Cumulative impact	N/a	
Significance	Negative low (6)	Negative low (6)
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 8/10 year period, the site will be returned to its natural state. Therefore the physical environment will benefit from the closure of the mining facility.

- Rehabilitation of the physical environment – The physical environment will benefit from the closure of the mining facility 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?	<p>The following mitigation measures are recommended:</p> <ul style="list-style-type: none"> • All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning; • Prieska Diamond Mining (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.

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

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

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		
<p>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:</p> <p>(Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity.</p> <p>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.</p>		
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) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

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

- Increased ambient noise levels resulting from geophysics 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.
- 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.
- Mining 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.

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

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

No adverse environmental or social impacts associated with the mining 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) Motivation where no alternative sites were considered.

This alternative asks the question, if there is not, from an environmental perspective, a more suitable location for the proposed activity. As discussed in the previous section, based on outcomes of previous prospecting activities on the proposed site, the possibility to encounter further Diamond Reserves on Remainder of Portion 1 of the farm Uitdraai 33, Registration Division Prieska RD, Northern Cape Province.

From a local perspective, the farm Uitdraai 33 is preferred due to the sites underlying alluvial diamond bearing gravel (i.e. to facilitate the movement of machinery, equipment, infrastructure and).

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

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 independent consultant conducted a site visit. 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 (the checklist was completed by doing a desktop study), 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	×			Water tributaries, Perennial River, sand erosion and Non-perennial River. All infrastructure will be temporary and/or mobile. Where applicable a Water Use License Application will be launched for conducting mining operations in or near any water resource.
II. A conservation or open space area		×		None.
III. An area that is of cultural importance		×		The initial site desktop study concluded that there are no obvious heritage resources located on the site earmarked for development.
IV. Site of geological significance		×		None.
V. Areas of outstanding natural beauty		×		None.
VI. Highly productive agricultural land		×		None.
VII. Floodplain		×		None.
VIII. Indigenous forest		×		None.
IX. Grass land		×		None.
X. Bird nesting sites		×		None.
XI. Red data species		×		None.
XII. Tourist resort		×		None.
2. Will the project potentially result in potential?				
I. Removal of people		×		None.
II. Visual Impacts	×			The visual impact will be managed
III. Noise pollution		×		The noise impact is unlikely to be significant.
IV. Construction of an access road		×		None. Access will be obtained from a gravel road of the R357/R386.
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.	×			4 x 16ft washing pans which utilise approximately 18000 L per pan per hour each from which 30% is re-used.
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 earmarked for prospecting will be cleared. The prospecting 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	×			Perennial River
II. A conservation or open space area		×		None.
III. An area that is of cultural importance		×		None.
IV. A site of geological significance		×		None.
V. An area of outstanding natural beauty		×		None.
VI. Highly productive agricultural land		×		None.
VII. A tourist resort		×		None.
VIII. A formal or informal settlement		×		None.

5.1 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, and the significance and magnitude of the potential impacts. The matrix also highlights areas of particular concern for more in depth assessment during the EIA process. 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.

Matrix Analysis

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										
<p>Listing Notice GNR 983, Activity 14: "The development of facilities or infrastructure, for the storage, or the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres." - The storage of diesel in bunded diesel tanks, exceeding 80 000 litres.</p> <p>Listing Notice GNR 983, Activity 24(ii): "The development of a road with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres." - The development of 10m wide road, with no road reserve.</p> <p>Listing Notice GNR 984, Activity 15: "The clearance of an area of 20 hectares or more, of indigenous vegetation." – Random indigenous vegetation clearance over a 3695.0244 hectare area.</p> <p>Listing Notice GNR 984, Activity 17: "Any activity including the operation of that activity which requires a mining right as contemplated on section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource." – Mining right for the mining of Diamonds General, Diamonds Alluvial, Diamonds and Kimberlite, including associated infrastructure, structure and earthworks.</p> <p>Listing Notice GNR 984, Activity 21: "Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting,</p>	<p><u>Site clearing and preparation</u> Areas earmarked for mining will need to be cleared, topsoil will be stockpiled separately.</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. 		-	S	Yes	-	
			Air	<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"> 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	-	
			SOCIAL/ECONOMIC 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. 	-		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 risk of veld fires. 			-	S	Yes	-			

<p>beneficiation, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.”</p>			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 and people working on the site. 	-		S	Yes	-		
			Tourism industry	<ul style="list-style-type: none"> Since there are no tourism facilities in close proximity to the site, the proposed activities will not have an impact on tourism in the area. 	N/A	N/A	N/A	N/A	-		
			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. 		-	S	Yes	-		
<p>Listing Notice GNR 983, Activity 14: “The development of facilities or infrastructure, for the storage, or the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.” - The storage of diesel in bunded diesel tanks, exceeding 80 000 litres.</p> <p>Listing Notice GNR 983, Activity 24(ii): “The development of a road with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres.” - The development of 10m wide road, with no road reserve.</p> <p>Listing Notice GNR 984, Activity 15: “The clearance of an area of 20 hectares or more, of indigenous vegetation.” – Random indigenous vegetation clearance over a 3695.0244 hectare area.</p> <p>Listing Notice GNR 984, Activity 17: “Any activity including the operation of that activity which requires a mining right as contemplated on section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource.” – Mining right for the mining of Diamonds General, Diamonds Alluvial, Diamonds and Kimberlite, including associated infrastructure, structure and earthworks.</p> <p>Listing Notice GNR 984, Activity 21: “Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying,</p>	<p>Site clearing and preparation Areas earmarked for mining 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>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">BIOPHYSICAL ENVIRONMENT</p>	Fauna & Flora	<ul style="list-style-type: none"> Loss or fragmentation of indigenous natural vegetation. Loss of sensitive species. Loss or fragmentation of habitats. 		-	S	Yes	-		
			Air quality	<ul style="list-style-type: none"> Air pollution due to the increase of traffic. 	-		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). 	-		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. 	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. 	-		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	-		
			<p style="writing-mode: vertical-rl; transform: rotate(180deg);">SOCIAL/ECONOMIC ENVIRONMENT</p>		Local unemployment rate	<ul style="list-style-type: none"> Job creation. Skills development. 		+	S	N/A	-
					Visual landscape	<ul style="list-style-type: none"> Potential visual impact on residents of farmsteads and motorists in close proximity to proposed facility due to dust. 	-		S	Yes	-
					Traffic volumes	<ul style="list-style-type: none"> Increase in construction vehicles. 	-		S	Yes	-

concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.”			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. 	-	-	S	Yes	-
			Tourism industry	<ul style="list-style-type: none"> Since there are no tourism facilities in close proximity to the site, the proposed activity will not have an impact on tourism in the area. 	N/A	N/A	N/A	N/A	-
			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	-
OPERATIONAL PHASE									
Listing Notice GNR 984, Activity 19: “The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resource4s Development Act (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to Mining of a mineral resource, 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 key components of the proposed project are described below: <ul style="list-style-type: none"> Supporting Infrastructure - A control facility with basic services such as water and electricity will be constructed on the site and will have an approximate footprint 100m² or less. Other supporting infrastructure includes a site office and workshop area. Roads – Access will be obtained from a local gravel road off the R34. All site roads will require a width of approximately 10m. Fencing - For health, safety and security reasons, the facility will be required to be fenced off from the surrounding farm. 	BIOPHYSICAL ENVIRONMENT	Fauna & Flora	<ul style="list-style-type: none"> Fragmentation of habitats. Establishment and spread of declared weeds and alien invader plants (operations). 	-	-	L	Yes	-
			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. 	N/A	N/A	N/A	N/A	-
			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. 	-	-	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 municipal sewerage system and the local sewage plant. Increased consumption of water. Approximately 36000 L per 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). 	-	-	L	Yes	-

				<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. 						
		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"> Change in land-use/sense of place. The site is characterized by open veldt with a rural agricultural sense of place. The use of the area for the mining activity will result in the area not being used for livestock grazing anymore until rehabilitated. 			-	L	Yes	-
			Traffic volumes	<ul style="list-style-type: none"> Increase in vehicles collecting gravel and bins 	-			S	Yes	-
			Health & Safety	<ul style="list-style-type: none"> Air/dust pollution. Road safety. 	N/A	N/A	N/A	N/A	N/A	-
			Noise levels	<ul style="list-style-type: none"> The proposed development will result in noise pollution during the operational phase. 	-		-	S	Yes	-
			Tourism industry	<ul style="list-style-type: none"> Since there are no tourism facilities in close proximity to the site, the decommissioning activities will not have an impact on tourism in the area. 	N/A	N/A	N/A	N/A	N/A	-
			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	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	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. 	-			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"> Since there are no tourism facilities in close proximity to the site, the decommissioning activities will not have an impact on tourism in the area. 	N/A	N/A	N/A	N/A	-
			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

a) Summary of specialist reports.

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

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

Specialist Report is attached as **Appendix 11**

j) Environmental impact statement

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

This section provides a summary of the assessment and conclusions drawn from the proposed mining 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: There are no critical biodiversity features (aquatic ecosystems) on the site.
- Potential impacts on land use: The farm is currently utilised for low potential cattle grazing and crop production. The activity which will be subject to concurrent rehabilitation will not have any significant impact on the land use nor will it 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 prospecting of alluvial diamonds 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) Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. Attach as **Appendix 4**

Refer to Locality Map attached in **Appendix 3**.

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

There are regional socio economic benefits due to the alluvial diamonds and general diamonds being prospected in the North West 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. No significantly adverse social or environmental impacts are anticipated.

k) 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 mining activity does not cause pollution to the environment or harm to persons.
- Minimise production of waste.
- All mining 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 mining.
- Compliance with legislative requirements.
- Mine is neat and tidy and well managed.

l) 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. No other properties have been secured by Prieska Diamond Mining (Pty) Ltd in the Prieska area to potentially mine for alluvial diamonds. From a local perspective, the farm Uitdraai 33 is preferred due to the sites underlying alluvial diamond bearing gravel (i.e. to facilitate the movement of machinery, equipment, and infrastructure). No alternative have been identified.

m) Aspects for inclusion as conditions of Authorisation.

Any aspects which have not formed part of the EMPr that must be made conditions of the Environmental 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.

n) 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 specialist reports provide sufficient information to conduct the significance rating and provide the environmental authority with sufficient information to make an informed decision.

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

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

It is the opinion of the EAP that the activity may be authorised.

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

The proposed mining area is targeted as, historically, several alluvial diamond and diamond general 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.

ii) 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.

(1) Specific conditions to be included into the compilation and approval of EMPr

(2) Rehabilitation requirements

All cleared, disturbed or exposed areas must be re-vegetated as soon as practically possible to prevent the formation of additional sources of dust. Rehabilitation Plan is attached as **appendix 8**

p) Period for which the Environmental Authorisation is required.

For a minimum of 10 years.

q) Undertaking

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

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

r) Financial Provision

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

XXXXXXXXXXXXXXXXXX

i) 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 189 CC.

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

Financial Guarantee

The financial guarantee for the rehabilitation for land disturbed by Prieska Diamond Mining (Pty) Ltd was submitted together with the application for a mining right.

Rehabilitation Fund

Prieska Diamond Mining (Pty) Ltd will also make provision for rehabilitation during closure by establishing a rehabilitation trust.

s) Deviations from the approved scoping report and plan of study.

i) Deviations from the methodology used in determining the significance of potential environmental impacts and risks.

(Provide a list of activities in respect of which the approved scoping report was deviated from, the reference in this report identifying where the deviation was made, and a brief description of the extent of the deviation).

ii) Motivation for the deviation.

t) Other Information required by the competent Authority

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

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

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

The alluvial diamond mine will not impact directly on any socio-economic aspects. Indirect socio-economic benefits are expected to be associated with the creation of employment.

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

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

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

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

From a local perspective, Remainder of Portion 1 of the farm Uitdraai 33, preferred due to the site's mineral resources. No other properties have been secured by Prieska Diamond Mining (Pty) Ltd for the purpose of mining. 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

1) Draft environmental management programme.

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

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

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

c) **Composite Map**

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

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

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

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

Closure objectives for the alluvial diamond and general 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 mining 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.

ii) **The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking a listed activity.**

iii) **Potential risk of Acid Mine Drainage.** (Indicate whether or not the mining can result in acid mine drainage).

The mining activities applied for will not result in acid mine drainage. These activities and methods can be seen as a clean process.

iv) **Steps taken to investigate, assess, and evaluate the impact of acid mine drainage.**

v) **Engineering or mine design solutions to be implemented to avoid or remedy acid mine drainage.**

vi) **Measures that will be put in place to remedy any residual or cumulative impact that may result from acid mine drainage.**

- vii) **Volumes and rate of water use required for the mining, trenching or bulk sampling operation.**

18 000 L per hour required for the rotary pans to operate at the wash plant.

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

A water use license application will be applied for, if required.

ix) Impacts to be mitigated in their respective phases

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

ACTIVITIES	PHASE	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.
<p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p>	<p>(of operation in which activity will take place.</p> <p>State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).</p>	<p>3695.0244ha – The active mining site will be restricted to only 5ha at any given time in order for rehabilitation to take place.</p>	<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 mined 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. 	<p>Compliance with Duty of Care as detailed within NEMA</p>	<p>Duration of operations on the mining activities.</p>
<p>Clearance of vegetation</p>	<p>Pitting and trenching phase- (construction and operation phase)</p>	<p>+ - 500m</p>	<ol style="list-style-type: none"> 1. Planning of access routes to the site for construction/mining purposes shall be done in conjunction with the Contractor and the Landowner. All agreements reached 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 mining vehicles" sign. 2. Construction routes and required access roads must be clearly defined. 	<p>Compliance with Duty of Care as detailed within NEMA</p>	<p>Duration of operations on the mining activities.</p>

			<ol style="list-style-type: none"> 3. Damping down of the un-surfaced roads must be implemented to reduce dust and nuisance. 4. Soils compacted by construction/mining 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 R34 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. 		
Mining of Alluvial Diamonds – Soils and geology	Pitting and trenching phase- (construction and operation phase)	3695.0244ha – The active mining site will be restricted to only 5ha at any given time in order for rehabilitation to take place.	<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 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 mining 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 	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the mine

			<p>be protected by the construction of berms, trenches or low brick walls around their bases.</p> <ol style="list-style-type: none"> 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. 		
Mining Alluvial Diamonds – excavations and blasting	Pitting and trenching phase- (construction and operation phase)	3695.0244ha – The active mining site will be restricted to only 5ha at any given time in order for rehabilitation to take place.	<ol style="list-style-type: none"> 1. The mining 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 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. 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. 	Compliance with Duty of Care as detailed within NEMA	Duration of operations on the mining area

			<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>	
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e) Impact Management Outcomes

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

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 mining 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 without permission. 4. Exotic and invasive plant species should not be allowed to establish, if the development is approved. 	Minimisation of impacts to acceptable limits

				<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/mining 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. 12. <p>Demarcation of mining area</p> <ol style="list-style-type: none"> 13. All plants not interfering with mining operations shall be left undisturbed clearly marked and indicated on the site plan. 14. The mining area must be well demarcated and no construction/mining activities must be allowed outside of this demarcated footprint. 15. Vegetation removal must be phased in order to reduce impact of construction/mining. 16. Site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas. 17. Strict and regular auditing of the mining process to ensure containment of the mining and laydown areas. 18. Soils must be kept free of petrochemical solutions that may be kept on site during construction/mining. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora. 	
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				<p>Utilisation of resources</p> <p>19. 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>20. Alien vegetation on the site will need to be controlled.</p> <p>21. 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>22. The spread of exotic species occurring throughout the site should be controlled.</p> <p>Herbicides</p> <p>23. 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>24. 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>25. Rehabilitation to be undertaken as soon as possible after the mining activities have been completed.</p> <p>26. No trapping or snaring to fauna on the construction/mining site should be allowed.</p> <p>27. No faunal species must be disturbed, trapped, hunted or killed by maintenance staff during any routine maintenance at the development.</p>	
Mining Alluvial Diamonds and diamonds general – excavations and blasting	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 stripped from areas affected by construction and related activities prior to the</p>	Minimisation of impacts to acceptable limits

				<p>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 mining 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 mining 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 mining activities at the particular site. • Photograph the area on cessation of mining activities. • Record date and depth of re-spreading of topsoil. • Photograph the area on completion of rehabilitation and on an annual basis thereafter to 	
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				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"> 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"> o Brush packing with cleared vegetation o Mulch or chip packing o Planting of vegetation o Hydroseeding/hand sowing 6. Sensitive areas need to be identified prior to construction/mining 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. 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/mining activities are completed. This should be done through seeding with indigenous grasses. 	Minimisation of impacts to acceptable limits

				<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/mining 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. <p>Rehabilitation</p>	Minimisation of impacts to acceptable limits

				<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 mining 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. Should the vehicles or equipment not be in good working order, the</p>	Minimisation of impacts to acceptable limits

				<p>Contractor may be instructed to remove the offending vehicle or machinery from the site.</p> <ol style="list-style-type: none"> 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. 	
	Impact on potential cultural and heritage artefacts	Heritage	Pitting and trenching phase-(construction and operation phase)	<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 are uncovered in the affected area. 3. The Contractor must ensure that his workforce is aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken. 4. Any discovered artefacts 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 the SAHRA should the proposed site affect any world heritage sites or if any heritage sites are to be destroyed or altered. 	Minimisation of impacts to acceptable limits
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. 	Minimisation of impacts to acceptable limits

				<ol style="list-style-type: none"> 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. 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 	
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				<p>construction and any spills shall immediately be cleaned up and all affected areas rehabilitated.</p> <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 water bodies or drainage lines or alternatively located in a place approved of by the Engineer. 20. Under no circumstances may open areas, neighbours fences or the surrounding bush be used as a toilet facility. 21. The construction of “Long Drop” toilets is forbidden, but rather toilets connected to the sewage treatment plant. 22. Potable water must be provided for all construction staff. <p>Remedial actions</p> <ol style="list-style-type: none"> 23. Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site. 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. 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. 26. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material. 	
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				<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> <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. 	

				<p>9. Promote a water saving mind set with construction/mining 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> <p>Groundwater resource protection</p> <p>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.</p> <p>Sanitation</p> <p>16. Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers).</p> <p>17. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.</p> <p>Concrete mixing</p> <p>18. Concrete contaminated water must not enter soil or any natural drainage system as this</p>	
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				<p>disturbs the natural acidity of the soil and affects plant growth.</p> <p>Public areas</p> <p>19. 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>20. The Contractor should take steps to ensure that littering by construction/mining workers does not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines.</p> <p>21. No washing or servicing of vehicles on site.</p>	
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f) Impact Management Actions

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

<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> <p>1. Vegetation removal must be limited to the mining site.</p>	<p>Duration of operation</p>	<p>The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable</p>

		<ol style="list-style-type: none"> 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. 5. Thorn trees shall not be removed or damaged without prior approval and permits. <p>Rehabilitation</p> <ol style="list-style-type: none"> 6. All damaged areas shall be rehabilitated upon completion of the contract. 7. Re-vegetation of the disturbed site is aimed at approximating as near as possible the natural vegetative conditions prevailing prior to construction. 8. All natural areas impacted during construction/mining must be rehabilitated with locally indigenous grasses typical of the representative botanical unit. 9. Rehabilitation must take place in a phased approach as soon as possible. 10. Rehabilitation process must make use of species indigenous to the area. Seeds from surrounding seed banks can be used for re-seeding. 11. Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas. 12. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged. <p>Demarcation of mining area</p> <ol style="list-style-type: none"> 13. All plants not interfering with mining operations shall be left undisturbed clearly marked and indicated on the site plan. 14. The mining area must be well demarcated and no construction activities must be allowed outside of this demarcated footprint. 15. Vegetation removal must be phased in order to reduce impact of construction/mining. 16. Site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas. 17. Strict and regular auditing of the mining process to ensure containment of the mining and laydown areas. 18. Soils must be kept free of petrochemical solutions that may be kept on site during construction/mining. Spillage 	<p>standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.</p>
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		<p>can result in a loss of soil functionality thus limiting the re-establishment of flora.</p> <p>Utilisation of resources</p> <p>19. 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>20. Alien vegetation on the site will need to be controlled.</p> <p>21. 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>22. The spread of exotic species occurring throughout the site should be controlled.</p> <p>Herbicides</p> <p>23. 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>24. The use of pesticides and herbicides on the site must be discouraged as these impact on important pollinator species of indigenous vegetation.</p> <p>(Avi) Fauna</p> <p>25. Rehabilitation to be undertaken as soon as possible after mining has been completed.</p> <p>26. No trapping or snaring to fauna on the construction/mining site should be allowed.</p> <p>27. No faunal species must be disturbed, trapped, hunted or killed by maintenance staff during any routine maintenance at the development.</p> <p>28. No impacts on bats are expected since mining will be taking place during the day and not at night, also no cave like structures are found on site.</p>		
Mining of Alluvial Diamonds and Diamonds General (D) – excavations and blasting	Loss of topsoil	<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 stripped from areas affected by construction/mining and related activities prior to the commencement of major</p>	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with

		<p>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 mining 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 mining 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 mining activities at the particular site. • Photograph the area on cessation of mining 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>NEMA and Duty of Care as prescribed by NEMA.</p>
	<p>Erosion</p>	<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. 	<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</p>

		<ol style="list-style-type: none"> 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"> o Brush packing with cleared vegetation o Mulch or chip packing o Planting of vegetation o Hydroseeding/hand sowing 6. Sensitive areas need to be identified prior to construction/mining 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. 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/mining 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/mining 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. 		<p>NEMA and Duty of Care as prescribed by NEMA.</p>
	<p>Air Pollution</p>	<p>Dust control</p> <ol style="list-style-type: none"> 14. Wheel washing and damping down of un-surfaced and un-vegetated 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</p>

		<p>15. Retention of vegetation where possible will reduce dust travel.</p> <p>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.</p> <p>17. Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust.</p> <p>18. The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the neighbouring communities.</p> <p>19. A speed limit of 30km/h must not be exceeded on site.</p> <p>20. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor.</p> <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>		<p>NEMA and Duty of Care as prescribed by NEMA.</p>
	<p>Noise</p>	<p>1. The mining 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. 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</p>	<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>available by the Contractor(s), the sites must be 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. 		
	<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 are uncovered in the affected area. 3. The Contractor must ensure that his workforce is aware of the necessity of reporting any possible historical or archaeological finds to the ECO so that appropriate action can be taken. 4. Any discovered artefacts 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 the SAHRA should the proposed site affect any world heritage sites or if any heritage sites are to be destroyed or altered. 	<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>Waste Management</p>		<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/mining 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/mining 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/mining 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/mining and any spills 	<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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		<p>shall immediately be cleaned up and all affected areas rehabilitated.</p> <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 water bodies or drainage lines or alternatively located in a place approved of by the Engineer. 20. Under no circumstances may open areas, neighbours fences or the surrounding bush be used as a toilet facility. 21. The construction of "Long Drop" toilets is forbidden, but rather toilets connected to the sewage treatment plant. 22. Potable water must be provided for all construction staff. <p>Remedial actions</p> <ol style="list-style-type: none"> 23. Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site. 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. 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. 26. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material. 27. If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure. 28. Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use. 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. 		
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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/mining 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. 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. 		
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		<p>14. There should be a periodic checking of the site’s drainage system to ensure that the water flow is unobstructed.</p> <p>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> <p>Groundwater resource protection</p> <p>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.</p> <p>Sanitation</p> <p>17. Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers).</p> <p>18. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.</p> <p>Concrete mixing</p> <p>19. Concrete contaminated water must not enter soil or any natural drainage system as this disturbs the natural acidity of the soil and affects plant growth.</p> <p>Public areas</p> <p>20. Food preparation areas should be provided with adequate washing facilities and food refuse should be stored in sealed refuse bins which should be removed from site on a regular basis.</p> <p>21. The Contractor should take steps to ensure that littering by construction workers does not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines.</p> <p>22. No washing or servicing of vehicles on site.</p>		
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i) Financial Provision

(1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under Regulation 22 (2) (d) as described in 2.4 herein.

- Final landforms must be resilient to perturbation and also be self-sustaining to obviate/limit further/ongoing interventions and maintenance by Prieska Diamond Mining (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.

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 mining life.

2. Physical stability

To ensure that surface infrastructure and mining 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 mining operations and the mining site after closure. This will be achieved by:

- Avoiding and/or limiting the following during mining 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 mining site.
 - Wash-off and/or mobilisation of chemically contaminated soils and sediments from the mining 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 mining 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 mining 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 mining 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 mining 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 mining site is free draining
- Transferring mining related surface infrastructure to third parties for beneficial use after closure.

6. Aesthetic quality

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

- A mining area that is properly cleared-up with no fugitive/scattered waste piles
- Rehabilitated mining area that is free draining and disturbed areas that are suitably vegetated.
- Rehabilitated mining 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.

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

(c) Closure objectives within the EMPr have been presented to the public as part of the public participation process and on-going closure planning for mining.

(d) 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.

(e) The Rehabilitation Plan is attached as Appendix 8.

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

The rehabilitation plan relates to each closure objective identified for the mine. Therefore, the rehabilitation plan is considered to be compatible with the closure objectives.

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

XXXXXXXXXXXXXXXXXX

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

Financial Guarantee

The financial guarantee for the rehabilitation for land disturbed by Prieska Diamond Mining (Pty) Ltd was submitted together with the application for the mining right.

Rehabilitation Fund

Prieska Diamond Mining (Pty) Ltd will also make provision for rehabilitation during closure by establishing a rehabilitation trust.

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.
Mining of Alluvial Diamonds–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.

l) Indicate the frequency of the submission of the performance assessment report.

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) Environmental Awareness Plan

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

Prieska Diamond Mining (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.

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

Prieska Diamond Mining (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.

2) UNDERTAKING

The EAP herewith confirms

- a) the correctness of the information provided in the reports
- b) the inclusion of comments and inputs from stakeholders and I&APs ;
- c) the inclusion of inputs and recommendations from the specialist reports where relevant; and
- d) 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 189 CC – Environmental Consultants

Name of company:

09-06-2016

Date: