



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

**ENVIRONMENTAL IMPACT ASSESSMENT REPORT
AND
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

**PROSPECTING RIGHT APPLICATION FOR THE PROSPECTING OF
DIAMONDS ALLUVIAL AND DIAMONDS GENERAL PROSPECTING RIGHT
NEAR WOLMARANSSTAD ON THE REMAINING EXTENT OF PORTION 15
(PORTION OF PORTION 1) OF THE FARM RIETKUIL 155, PORTION 3 OF THE
FARM KATDOORNPLAAT 1, REMAINING EXTENT OF PORTION 12 (PORTION
OF PORTION 4), PORTION 36 (PORTION OF PORTION 12) &THE REMAINING
EXTENT OF PORTION 15 (PORTION OF PORTION 2) OF THE FARM
SYFERFONTEIN 2, REGISTRATION DIVISION HP, NORTH WEST 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 | DMJ van der Merwe |
| PREPARED BY | Milnex 189 CC |
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| FILE REFERENCE NUMBER SAMRAD: | NW30/5/1/1/2/11930PR |

CLAUSE

This report has been compiled by Milnex 189 CC, using information provided by **DMJ van der Merwe** the client as well as third parties, which information has been presumed to be correct. While Milnex 189 CC have made every endeavour to supply accurate information, and exercised all care, skill and diligence in the drafting of this report, errors and omissions may occur. Accordingly, Milnex 189 CC does not warrant the accuracy or completeness of the materials in this report. Milnex 189 CC does not accept any liability for any loss or damage which may directly or indirectly result from any advice, opinion, information, representation or omission, whether negligent or otherwise, contained in this report. Milnex 189 CC does not accept any liability for any loss or damage, whether direct, indirect or consequential, arising out of circumstances beyond the control of Milnex 189 CC, including the use and interpretation of this report by the client, its officials or their representatives or agents. This document contains information proprietary to Milnex 189 CC and as such should be treated as confidential unless specifically identified as a public document by law. Milnex 189 CC owns all copyright and all other intellectual property rights in this report. The document may not be copied, reproduced in whole or in part, or used for any manner without prior written consent from Milnex 189 CC. Copyright is specifically reserved in terms of the Copyright Act 98 of 1987 including amendments thereto. By viewing this disclaimer and by accepting this document, you acknowledge that you have read and accepted these Terms of Use and undertake to keep the information contained herein confidential and not to do any act or allow any act which is in breach of these Terms of Use.

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 Practitioner: Percy Sehaole

Tel No.: (018) 011 1925

Fax No. : (053) 963 2009

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

Name of Practitioner: Danie Labuschagne

Tel No.: (018) 011 1925

Fax No. : (053) 963 2009

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

ii) Expertise of the EAP.

(1) The qualifications of the EAP

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

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

Danie Labuschagne holds a Master's Degree in Environmental Management and Geography (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 DMJ van der Merwe as the independent environmental consultant to undertake the Scoping and EIA process for a prospecting right for the prospecting of Diamond Alluvial & Diamonds General, near Wolmaransstad on the remaining extent of portion 15 (portion of portion 1) of the farm Rietkuil 155, Portion 3 of the farm Katdoornplaat 1, remaining extent of portion 12 (portion of portion 4), Portion 36 (Portion of Portion 12) & the remaining extent of portion 15 (portion of portion 2) of the farm Syferfontein 2, Registration Division HP, North West 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 & Percy Sehaole have experience consulting in the environmental field. Their key focus is on environmental assessment, advice and management and ensuring compliance to legislation and guidelines. They are currently involved in undertaking EIAs for several projects across the country (refer to **Appendix 2** for CV)

b) **Description of the property.**

| | | |
|---|---|-----------------------------|
| Farm Name: | 1. The remaining extent of portion 15 (portion of portion 1) | of the farm Rietkuil 155 |
| | 2. Portion 3 | of the farm Katdoornplaat 1 |
| | 3. The remaining extent of portion 12 (portion of portion 4) 4. The remaining extent of portion 15 (portion of portion 2) 5. Portion 36 (Portion of Portion 12) | of the farm Syferfontein 2 |
| Application area (Ha) | 840.2939 hectares | |
| Magisterial district: | HP | |
| Distance and direction from nearest town | The farm Rietkuil is approximately 21km North of Wolmaransstad adjacent to the R505 on route to Ottosdal; The farm Katdoornplaat is approximately 29km North East of Wolmaransstad adjacent to the R505 on route to Ottosdal. The farm Syferfontein is located approximately 15 km North East of Wolmaransstad adjacent to the N12. | |
| 21 digit Surveyor General Code for each farm portion | 1. T0HP0000000000200015 2. T0HP0000000000100003 3. T0HP0000000000200012 4. T0HO00000000015500015 5. T0HP0000000000200036 | |

c) **Locality map**

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

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

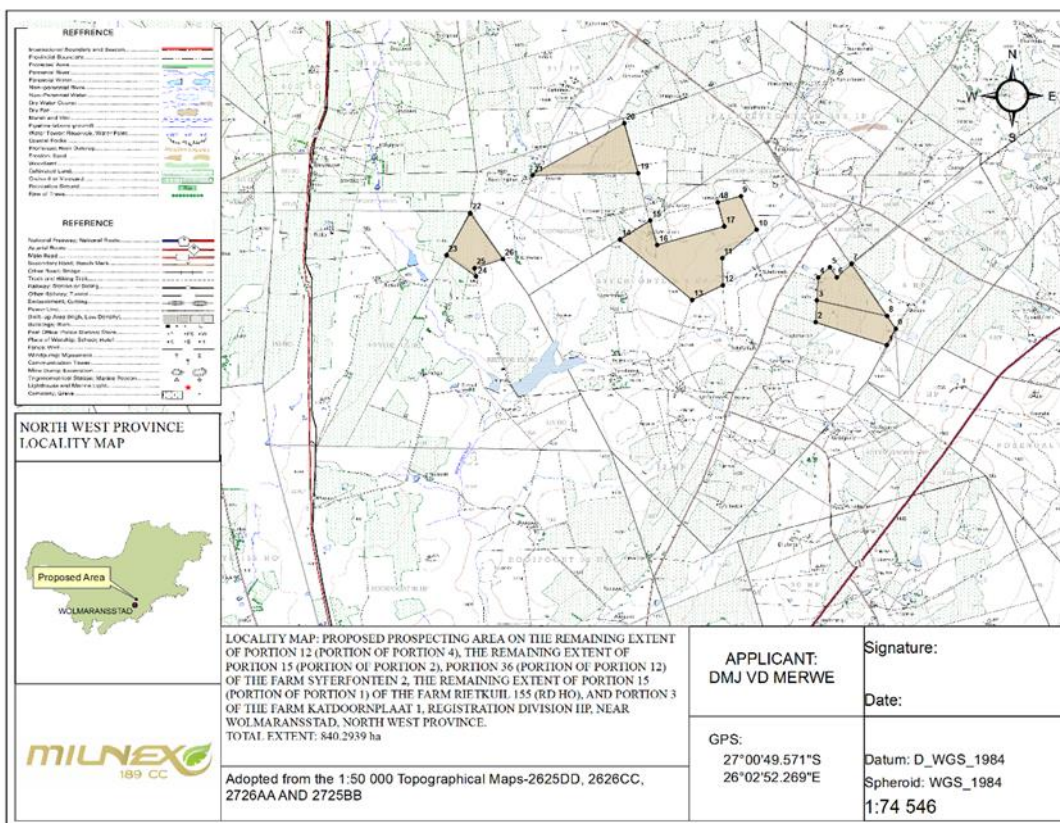


Figure 1: Locality Map

Coordinates:

| Farms | Longitude | Latitude |
|---|------------------|-------------------|
| 1. The remaining extent of portion 15 (portion of portion 1) of the farm Rietkuil 155 | 26° 5' 51,625" E | 27° 1' 54,376" S |
| | 26° 5' 44,040" E | 27° 2' 8,190" S |
| 2. Portion 3 of the farm Katdoornplaat 1 | 26° 4' 44,224" E | 27° 1' 48,791" S |
| | 26° 4' 45,063" E | 27° 1' 30,486" S |
| 3. The remaining extent of portion 12 (portion of portion 4) of the farm Syferfontein 2 | 26° 4' 46,086" E | 27° 1' 11,052" S |
| | 26° 4' 56,021" E | 27° 1' 2,536" S |
| 4. The remaining extent of portion 15 (portion of portion 2) of the farm Syferfontein 2 | 26° 5' 1,800" E | 27° 1' 11,061" S |
| | 26° 5' 14,089" E | 27° 0' 59,707" S |
| 5. Portion 36 (Portion of Portion 12) of the farm Syferfontein 2 | 26° 5' 44,200" E | 27° 1' 43,480" S |
| | 26° 3' 40,975" E | 27° 0' 2,709" S |
| | 26° 3' 54,442" E | 27° 0' 30,958" S |
| | 26° 3' 25,486" E | 27° 0' 54,663" S |
| | 26° 3' 25,803" E | 27° 1' 17,843" S |
| | 26° 2' 59,962" E | 27° 1' 30,069" S |
| | 26° 1' 59,135" E | 27° 0' 39,142" S |
| | 26° 2' 24,706" E | 27° 0' 23,285" S |
| | 26° 2' 30,432" E | 27° 0' 43,828" S |
| | 26° 3' 26,951" E | 27° 0' 28,160" S |
| | 26° 3' 21,544" E | 27° 0' 7,770" S |
| | 26° 2' 14,531" E | 26° 59' 43,233" S |

| | | |
|--|-------------------|-------------------|
| | 26° 2' 2,843" E | 26° 59' 1,193" S |
| | 26° 0' 45,347" E | 26° 59' 45,219" S |
| | 25° 59' 52,956" E | 27° 0' 16,917" S |
| | 25° 59' 32,921" E | 27° 0' 52,488" S |
| | 25° 59' 57,842" E | 27° 1' 10,162" S |
| | 25° 59' 56,682" E | 27° 1' 3,375" S |
| | 26° 0' 20,550" E | 27° 0' 55,693" S |

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

i) Listed and specified activities

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site and attach as **Appendix 4**

Refer to Site Plan included within **Appendix 4** and on figure 2 below.

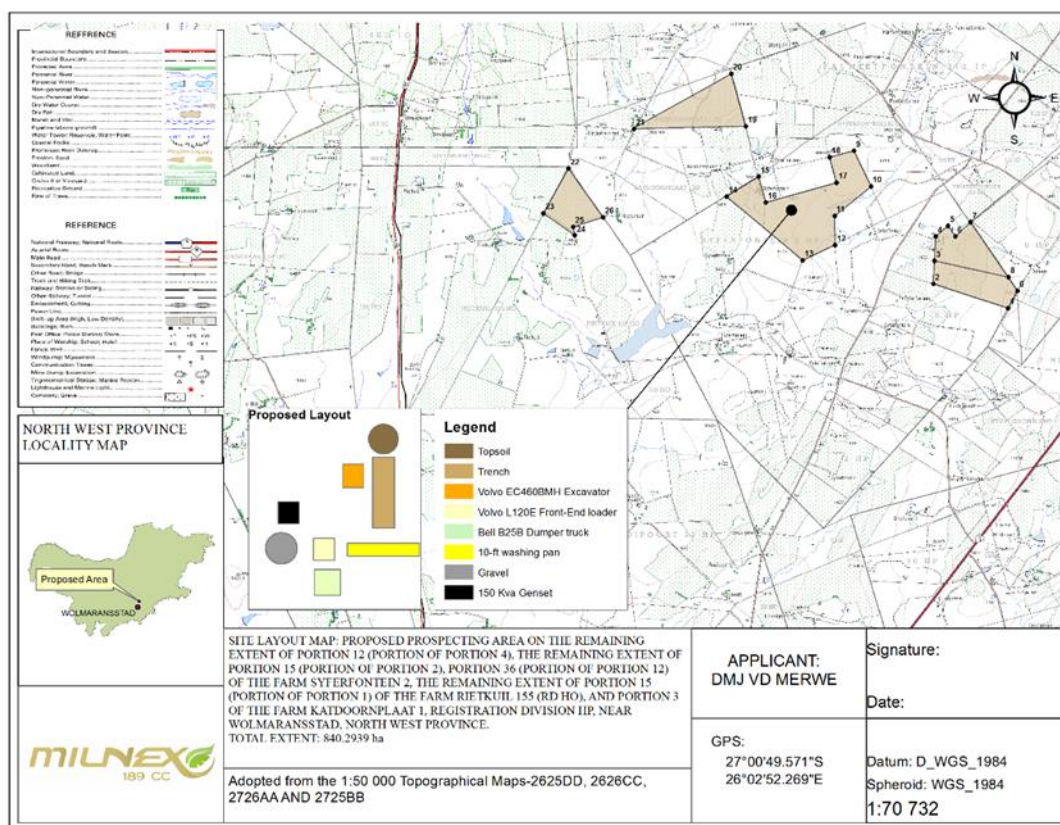


Figure 2: Site Plan Map

Listed activities

| | |
|--|---|
| <p>Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right,</p> | <p>1. Listing Notice GNR 984, Activity 15:"The clearance of an area of 20 hectares or more, of indigenous vegetation." – Random indigenous vegetation clearance of over 840.2939 ha area.</p> |
|--|---|

| | |
|--|---|
| <p>Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)</p> | <p>2. Listing Notice GNR 984, Activity 19: “The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to prospecting 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)” – Prospecting right with bulk samples for the mining of Diamond Alluvial and diamond general, including associated infrastructure, structure and earthworks.</p> <p>3. 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> <p>4. Listing Notice GNR 983, Activity 20: “Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource...” – Prospecting right with bulk samples for the mining of Diamond Alluvial and diamond general, including associated infrastructure, structure and earthworks.</p> |
|--|---|

| 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 983, GNR 984 or GNR 985)/NOT LISTED |
|--|--|---|---|
| Clearance of indigenous vegetation | 840.2939 hectares Hectares - Only the areas where prospecting takes place, will be cleared. Concurrent backfilling | X | GNR. 984 |

| | | | |
|---|---|---|----------|
| | will take place in order to rehabilitate. | | |
| Office and Workshop | 50m ² | - | - |
| Roads | + - 4 km | - | - |
| Stockpiling op topsoil | 840.2939 hectares– 3m x 2m x 3m (150 pits), 20m x 20m x 3m (50 trenches) | - | - |
| Prospecting of Diamond Alluvial - Excavations | 840.2939 hectares– 3m x 2m x 3m (150 pits), 20m x 20m x 3m (50 trenches) | X | GNR. 984 |
| Processing Plant | 10 feet washing pans – 36 000 tons to be washed | X | - |

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)

DMJ van der Merwe has embarked on a process for applying for a prospecting right for the prospecting of Diamond Alluvial and Diamonds General near Wolmaransstad on the remaining extent of portion 15 (portion of portion 1) of the farm Rietkuil 155, Portion 3 of the farm Katdoornplaat 1, remaining extent of portion 12 (portion of portion 4), Portion 36 (Portion of Portion 12) & the remaining extent of portion 15 (portion of portion 2) of the farm Syferfontein 2, Registration Division HP, North West Province. DMJ van der Merwe requires a prospecting right in terms of NEMA and the Mineral and Petroleum Resources Development Act to mine Diamond Alluvial and Diamonds General on the Farm Syferfontein 2 within the Maquassi Hills Local Municipality, North West Province (refer to a locality map attached in **Appendix 3**). Please find the Prospecting Work Programme attached as **Appendix 8**.

Phase 1 – Desktop Studies, Imagery Analysis and Geological Mapping

Phase 1 – Site Visit

A site visit will be conducted within 3 months after execution of the Prospecting Right. It is envisaged that the information will be obtained from the site visit to do the desktop studies and other prospecting activities.

Phase 2 – Desktop Studies

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

Phase 3 – Pitting

The information obtained from the desktop studies will be used to draw up a pitting map. The location and GPS coordinates of where pits will be dug, will be indicated on this map (pitting location map). Pits will then be dug by an excavator on these mapped coordinated points. If gravel is found the applicant will determine the composition and quality of the gravel. It is envisaged that the pits will determine the location and intersection of mineralization.

It is envisaged that 150 pits will be dug. It may be less depending on results.

840.2939 hectares– 3m x 2m x 3m (150 pits), It is planned that only 30 pits will be excavated in the first year, but it may be more if the process is quicker than planned for. It should be kept in mind that no more than 150 pits will be excavated.

The total area to be disturbed a year will be- 30 pits x (3m x2m) = 0.018Ha per year

Phase 5 – Trenches

The applicant will proceed with this way of prospecting by means of the open cast / trenching method, during and or after pitting and depending on the results. The location where the trenches will be dug, will be determined after the gravel has been located by conducting the desktop studies and the digging of pits. The trenches will be dug on the parts of the property where the gravel is located. Trenches will be sited on the resource map according to the coordinate of each of the trenches made. The trenches will be dug to remove and wash the gravel. It will be washed by 1 x 10 feet washing pan to determine diamond proceeds per 100 ton of gravel. The trenches will be sited to determine the geological representivity. Overburden will be stripped and placed next to the trench as determined in the EMP. Gravel will be removed and transported to the plant to be washed. Tailings will be returned to the excavation to fill it up. Hereafter overburden will be dumped in the excavation where after topsoil will be placed in the excavation.

840.2939 hectares– 20m x 20m x 3m (50 trenches). It is planned that only 10 trenches will be excavated in the first year, but it may be more if the process is quicker than planned for. It should be kept in mind that no more than 50 trenches will be excavated.

The total area to be disturbed a year will be- 10 trenches x (20m x20m) = 0.4Ha per year. No more than 0.418ha will be left as un-rehabilitated in two years. Rehabilitation will be done concurrently.

Phase 6 – Consolidation and interpretation

All data will be consolidated and processed to determine the diamond bearing resource on the property. This will be a continuous process throughout the prospecting work. Each phase of prospecting will be followed by desktop studies involving interpretation and modeling of all data gathered and how the applicant will proceed with the work program in terms of activity, quantity, resources expenditures and duration. A pre-feasibility study will be done to determine the preliminary economic assessment of the resource and to determine whether additional evaluation of the deposit will be warranted to increase confidence in the resource estimation. Prospecting work will be conducted by a multi-disciplinary team to determine whether the resource can be viable exploited and if the results can support an application for a mining right.

Phase 7 – Rehabilitation and Closure

- Remove all prospecting 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 | - |
| North West Province Growth and Development Strategy | - |
| Dr. Kenneth Kaunda District Municipality Integrated Development Plan (IDP) | - |
| Maquassi Hills Local Municipality Integrated Development Plan (IDP) Review | - |
| National Forest Act (Act 84 of 1998) (NFA) | |
| National Veld & Forest Fires Act (Act 101 of 1998) | |

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

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

g) Motivation for the preferred development footprint within the approved site including a full description of the process followed to reach the proposed development footprint within the approved site.

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

Location of the site

The location of the site is preferred due to the presence of shallow diamond. Access to the site will be obtained from a local gravel road off the N12 between Klerksdorp & Wolmaransstad.

Preferred activity

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

Technology alternatives

The preferred technology for the proposed prospecting activity, will be to remove the diamond bearing gravel with an excavator, depositing it in the 14 feet rotary pan(s) to be washed and sorted. The reason for using a Rotary Pan is because it is more cost effective when it comes to the fees made available for the proposed prospecting activities and more work opportunities will be generated. Also the water usage of a Rotary Pan is much less than a DMS plant. Please find the Prospecting Work Programme attached as Appendix 8.

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 centre of the pan as a separate stream of material. The concentrate, representing just a small percentage of the original kimberlite ore or alluvial gravels, is drawn off for final recovery of the diamonds.

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.

Consideration of alternatives

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

• Location alternatives

This alternative asks the question, if there is not, from an environmental perspective, a more suitable location for the proposed activity. No other properties have been secured by DMJ van der Merwe in the Wolmaransstad area to potentially mine alluvial diamonds & diamonds general. Also it is expected that the alluvial diamonds, diamonds general have been deposited on this farm and therefore the applicant would like to commence with their prospecting activities.

The proposed development falls within an area used for grazing as well as historical mining area and the site is therefore considered to have limited environmental sensitivity as a result. The National Department of Agriculture (2006) classified land capability into two broad categories, namely Arable land (Classes I – IV) and non-arable land (Classes V – VIII). The site falls within Class 3 & 4 – arable,

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

- **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 prospecting history. The prospecting activities proposed in the Prospecting Works Programme (**Appendix 9**) is dependent on the preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

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

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

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

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

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

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

In a Rotary Pan plant, crushed ore, when mining kimberlite, or alluvial gravel and soil is mixed with water to create a liquid slurry called “puddle” which has a density in the 1.3 to 1.5 g/cm³ range. The mix is stirred in the pan by angled rotating “teeth”. The heavier minerals, or “concentrate”, settle to the bottom and are pushed toward an extraction point, while lighter waste remains

suspended and overflows out of the centre of the pan as a separate stream of material. The concentrate, representing just a small percentage of the original kimberlite ore or alluvial gravels, is drawn off for final recovery of the diamonds.

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

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

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

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

- **Operational alternatives**

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

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

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

The applicant will proceed with this way of prospecting by means of the open cast/trenching method, simultaneously or after pitting depending on the information obtained from the earlier work done. The trenches will be dug to remove and wash the gravel. It will be washed by a 14 feet washing pan to determine diamond proceeds per 100 tons of gravel.

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

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

- **No-go alternative**

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

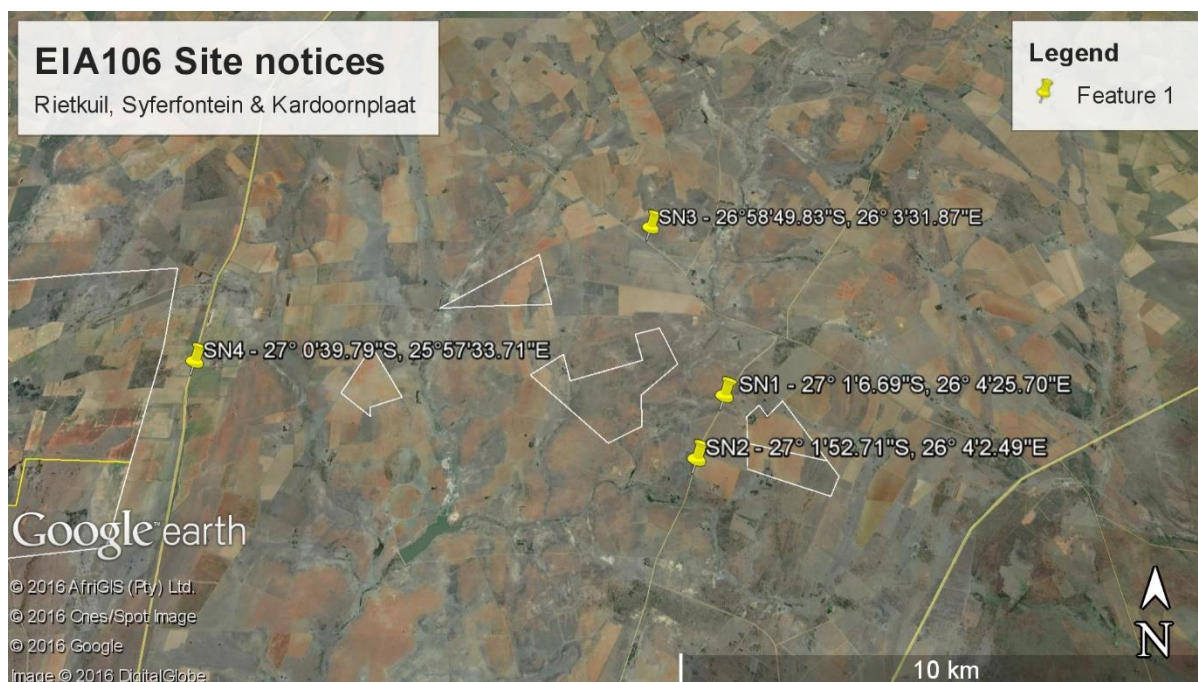
Advertisement and Notices

1. Newspaper advertisement

An advertisement was placed in English in the local newspaper (Stellalander) on the 24 August 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.

2. Site notices

Site notices were placed on site in English on the 31 August 2016 to inform surrounding communities and immediately adjacent landowners of the proposed development. I&APs were given the opportunity to raise comments. Photographic evidence of the site notices is included in **Appendix 6**. Four site notices were placed on site as the below picture.



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

Identified I&APs, including key stakeholders representing various sectors, are directly informed of the proposed development and the availability of the Scoping Report via registered post on 26 August 2016 and were requested to submit comments by 26 September 2016. A copy of the report is also available at the Milnex offices in Schweizer-Reneke, 4 Botha Street, Schweizer-Reneke and Potchefstroom (Waterberry Street, Waterberry Square, 1st floor, Office 5B, Potchefstroom), between 7:30AM and 5PM, Monday to Friday. For a complete list of stakeholder details and for proof of registered post see **Appendix 6**. The consultees included:

- The Department of Rural, Environmental and Agricultural Development (READ), North West
- The Department of Water & Sanitation
- The Department of Mineral Resources
- The North West Department of Agriculture
- The Provincial Heritage Resources Agency (PHRA), North West
- The Wildlife and Environment Society of South Africa (WESSA)
- The Dr. Kenneth Kaunda District Municipality
- The Municipal Manager at the Maquassi Local Municipality
- The Local Councilor at the Maquassi Hills Local Municipality
- The North West Department of Public Works, Roads and Transport
- NW Department of Rural Development & Land Reform: Land Restitution Support

4. Direct notification of surrounding land owners and occupiers

Written notices and the availability of the Scoping Report are also provided to all surrounding land owners and occupiers on 26 August 2016. The surrounding land owners were given the opportunity to raise comments by 26 September 2016. For a list of surrounding land owners see **Appendix 6**.

5. Consultation

All I&AP's are invited to attend the public meeting. The Public Meeting is scheduled for 20 September 2016 at 09:00am–10:00am next to the road at the Rooibult board on the R505/Ottosdal Way

approximately 22km from Wolmaransstad. Please indicate on the comments and response form if you wish to attend the Public Meeting. The coordinates and directions (figure1) of the public meeting follows below.

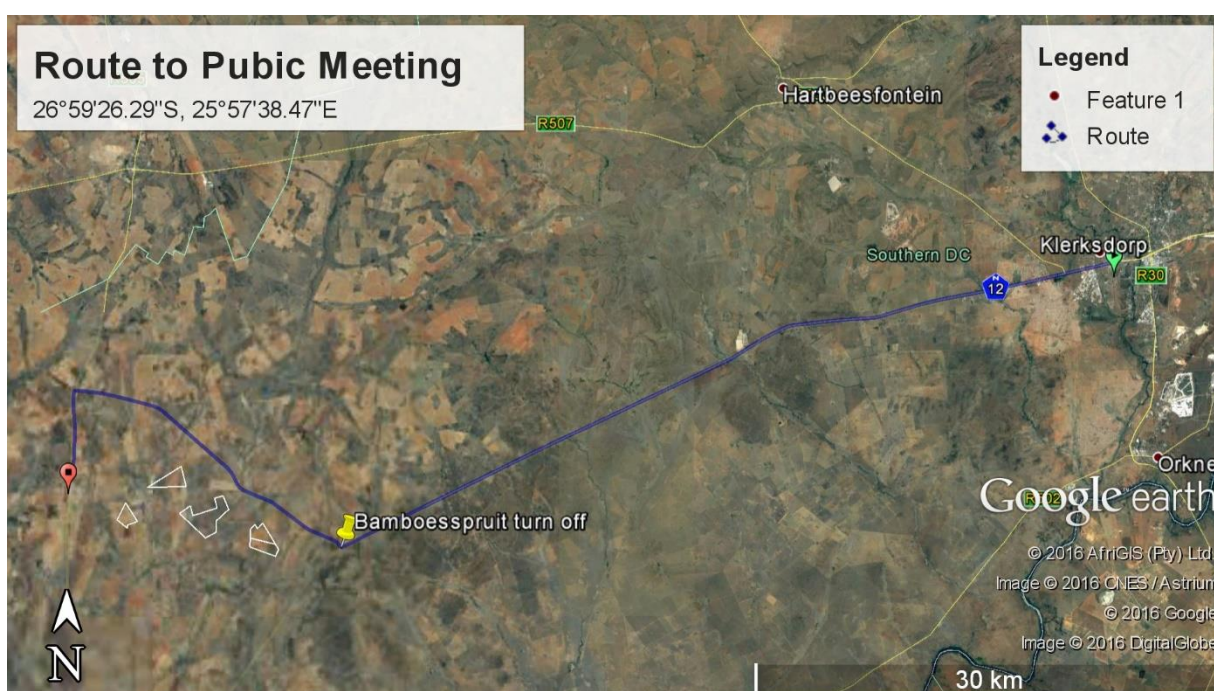
Coordinates

26°59'26.29"S

25°57'38.47"E

Directions from Wolmaransstad (N12)

- Coming from the Klerksdorp direction on the N12 head towards Wolmaransstad.
- Turn right at the Bamboesspruit turn off.
- Keep driving straight until you reach a 4-way stop and turn left.
- Drive for approximately 6km and look out for Milnex personnel waiting next to the road at the Rooibult board.



Directions from Klerksdorp (N12) to the public meeting

The public meeting is an opportunity to share information regarding the proposed development and provide I&APs with an opportunity to raise any issues and provide comments. The following key stakeholders and surrounding land owners were also directly informed of the public meeting via registered post 26 August 2016:

- The Department of Rural, Environmental and Agricultural Development (READ), North West
- The Department of Water & Sanitation (DWS)
- The Department of Mineral Resources
- The North West Department of Agriculture
- The Provincial Heritage Resources Agency (PHRA), North West
- The Wildlife and Environment Society of South Africa (WESSA)
- The Dr. Kenneth Kaunda District Municipality
- The Municipal Manager at the Maquassi Local Municipality
- The Local Councilor at the Maquassi Hills Local Municipality

- The North West Department of Public Works, Roads and Transport
- NW Department of Rural Development & Land Reform: Land Restitution Support
- Land Owner: Mr Willem Abraham Paul Stephanus Pretorius Deceased Date 04/08/2013
- Land Owner: Mrs Hester Dorothea Susanna Janse Van Vuren
- Mr Deon Nel
- Mr Matthys Machiel Grobbelaar
- Mr Frederik Johannes Anton Brink
- Mr Johannes Jacobus Pieterse
- Mr Petrus Jacobus De Beer
- Mr Paul Jacobus Du Plessis
- Mrs Igna Smit
- Mr Victor Loraine Labuschagne
- Mr Frans Engelbert Marx
- Lizelle Brink Trust (Mr Daniel Hendrik Brink)
- Pierre Kruger Familie Trust (Kruger P F)
- Saamtrek Trust (Trustee Info - Not Available)

6. Public meeting

Please note:

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

Public meeting was held 20 September 2016 at 09:00am–10:00am next to the road at the Rooibult board on the R505/Ottosdal Way approximately 22km from Wolmaransstad. Milnex representative Mr Hennie Kotzee attended the meeting & no one attended the meeting.

Attached as appendix 6 is the attendance register for the meeting.

7. Issues Raised by Interested and Affected Parties

When the comment period ends, comments received will be included in the comments and response table/form (See Appendix 6 for comments and response form).

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 | | | | | |
| Rietkuil RE/15/155, Syferfontein RE/12/2, RE/15/2, 36/2 | Mr Willem Abraham Paul Stephanus Pretorius Deceased Date 04/08/2013 | | No comments received yet | | |
| Katdoornplaat 3/1 | Mrs Hester Dorothea Susanna Janse Van Vuren | | No comments received yet | | |
| Landowners or lawful occupiers on adjacent properties | | | | | |
| Katdoornplaat 4/1, 5/1, 11/1 | Mr Willem Abraham Paul Stephanus Pretorius Deceased Date 04/08/2013 | | No comments received yet | | |
| Rietkuil RE/1/155 | Mr Deon Nel | | No comments received yet | | |
| Rietkuil 3/155, 18/155 | Mr Matthys Machiel Grobbelaar | | No comments received yet | | |
| Rietkuil 19/155 | Mr Frederik Johannes Anton Brink | | No comments received yet | | |

| | | | | | |
|--|---|--|--------------------------|--|--|
| Katdoornplaat RE/2/1, 6/1, | Mr Johannes Jacobus Pieterse | | No comments received yet | | |
| Palmietfontein RE/312 Katdoornplaat RE/7/1, 9/1 | Mr Petrus Jacobus De Beer | | No comments received yet | | |
| Palmietfontein 4/312, Syferfontein 16/2 | Mr Paul Jacobus Du Plessis | | No comments received yet | | |
| Uitval 2/6, Denoon 4 & Smuts 1/5 | Mrs Igna Smit | | No comments received yet | | |
| Syferfontein RE/1/2 & 31/2 | Mr Victor Loraine Labuschagne | | No comments received yet | | |
| Syferfontein RE/4/2, 14/2, 22/2 & 35/2 | Mr Frans Engelbert Marx | | No comments received yet | | |
| Syferfontein 24/2 & 29/2 | Lizelle Brink Trust Mr Daniel Hendrik Brink | | No comments received yet | | |
| Syferfontein 19/2, 20/2 & RE/2/2, Palmietfontein 7/312 & 10/312 | Pierre Kruger Familie Trust Kruger P F | | No comments received yet | | |
| Strydpoort 5/403 | Saamtrek Trust Trustee Info - NOT AVAILABLE | | No comments received yet | | |
| Katdoornplaat RE/1/1 | *** No Longer Exists - See Endorsements *** | | No comments received yet | | |
| Syferfontein 3/2 | *** No Longer Exists - See Endorsements *** | | No comments received yet | | |
| The Municipality in which jurisdiction the development is located | | | | | |
| Maquassi Hills Local Municipality | Mun Manager: Mr I. R. Jonas | | No comments received yet | | |
| Municipal councillor of the ward in which the site is located | | | | | |
| Maquassi Hills Local Municipality | Councillor: Ward | | No comments received yet | | |
| Organs of state having jurisdiction | | | | | |

| | | | | | |
|--|------------------------|------------|--|--|--|
| NW Department of Economic Development, Environment, Conservation and Tourism | Ouma Skosana | | No comments received yet | | |
| The Department of Water & Sanitation (DWS) | Mchunu Dumisani | 27/09/2016 | Email receive on the 27/09/2016 with “comments and response” letter attached request that a hard copy be sent to DWS. | The draft hard copy was couriered to the department on the 28 September 2016 | |
| | S. Mdhuli | | Comments received from the department where the applicant is requested to heed the following water uses (a-j). | | |
| NW Department of Agriculture | Ms. Bonolo Mohlakoana | | No comments received yet | | |
| Provincial Heritage Resources Agency (PHRA) North West | Mr. Motlhabane Mosiane | | No comments received yet | | |
| Department of Public Works, Roads and transport in NW | K.A. Sitase | | No comments received yet | | |
| Department of Mineral Resources – North West | Mr. Pieter Swart | 26/08/2016 | Letter dated 26/08/2016 acknowledges the receipt of the application and request the following: a) Consultation with every organ of state, this include but is not limited to National DAFF, READ, DWS and submit the record and results thereof. b) Consult with the landowner and I&APs and submit the record of the public participation undertaken and results thereof. | | |
| | Tshilidzi Phalala | 10/10/2016 | Letter dated 10/10/2016 states the following, The department has evaluated the submitted SR and Plan of Study for EIA dated 06/10/2016 and is satisfied that the documents comply with the minimum requirements, the SR is hereby accepted. 3. | | |

| | | | | | |
|---|---------------------------------------|--|--|---|--|
| | | | <p>a). Draft EIAR/EMPr must be submitted to relevant state & I&AP for comments</p> <p>b). Application is subject to provision of Chapter 2, section 38 of NHRA</p> <p>c). All maps must be provided in A3 paper size and must be having a legend and printed in colour</p> <p>d. EIAR/EMPr should comply with appendix 3</p> <p>e. Determine the financial provision</p> <p>4. No activity may commence prior to an environmental authorisation being granted by the competent authority</p> <p>5. You are requested to submit four (3) hard copies of the EIAR and EMPr and at least one electronic copy of the complete EIAR and EMPr</p> <p>6. Failure to submit the application will be considered as lapsed</p> | | |
| Department of Rural, Environmental and Agricultural Development, North West | Mr. Robert Nemanashi | | | | |
| Department of Agriculture and Forestry (Potchefstroom) (DAF) | Mr. Maurice Vugeya Mrs Mpho Gumula | | No comments received yet | | |
| NW Department of Rural Development & Land Reform: Land Restitution Support | Chief Director NW: Mr Lengane Bogatsu | | Email received 02/09/2016 states that the enquiry is receiving attention and the office will revert back to Milnex 189 CC with a response within 14 working days. | Email sent 01/09/2016 is proof of land claims consultation. | |

| | | | | | |
|---|-----------------|--|--|--|--|
| | | | <p>Syferfontein: There is an existing claim on remaining extent of portion 12, Portion 36 and the remaining extent of portion 15</p> <p>Ruitkuil: There is an existing claim on remaining extent of portion 15</p> <p>Katdoornplaat: No claims lodged</p> | | |
| Other– | | | | | |
| Dr Kenneth Kaunda District Municipality | M.I Matthews | | The department has no comments against the proposed activity | | |
| WESSA | Mr. John Wesson | | | | |

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) Type of environment affected by the proposed activity.

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

Geology and Soils

From the geological map, the following geological information is obtained:

Qw: Aeolian sand

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

Gordonia formation

It is practically impossible to define the eastern limit of the Gordonia formation in the Vryburg area. The formation thins towards the east and there appears to be a transition from it to the other Quaternary deposits (sand and soil). The boundary shown on the Vryburg sheet is thus largely arbitrary.

The Gordonia Formation comprises red and yellow fine-grained sand. Although the formation is an Aeolian deposit no dunes are present in the area. Any dunes that might have been present must have become destroyed during reworking of the sand.

Mineralogy

The original mineralogy of the lava consisted of lath-like feldspar and pyroxene set in a glassy groundmass, but this composition has been fundamentally changed to mineralogy comparable to that of a greenschist. The feldspars have been partly or completely saussuritized. The pyroxene, which probably consisted of augite, has been uraltized and the glassy groundmass has been devitrified. Thus the rocks now chiefly consist of secondary minerals such as chlorite, epidote, clinozoisite, calcite, sericite and uralite.

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

Rb – Quartzite, grit, conglomerate; proclastic breccia, tuffaceous sediments, cherty or calcareous in places

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

Classification

The Ventersdorp Supergroup, most commonly found in the districts of the Northwest Province, consists of 2 groups namely the Klipriviersberg Group and the Platberg Group. The latter will be discussed seeing as the area under application falls directly into this specific geological group.

The formation relevant to this discussion, namely the Rietgat Formation, comprises mainly amygdaloidal and non-amygdaloidal lava and agglomerate which occur interbedded with quartzite and tuffaceous sedimentary rocks. The lava, which is medium grained and nearly devoid of amygdales, occurs interbedded with sedimentary and pyroclastic rocks.

Mineralogy

The original mineralogy of the lava consisted of lath-like feldspar and pyroxene set in a glassy groundmass, but this composition has been fundamentally changed to a mineralogy comparable to that of a greenschist. The feldspars have been partly or completely saussuritised. The pyroxene, which probably consisted of augite has been uralitised and the glassy groundmass has been devitrified. Thus the rocks now chiefly consist of secondary minerals such as chlorite, epidote, clinozoisite, calcite, sericite and uralite.

Sedimentary Rocks

The sedimentary rocks of the Rietgat formation consist of a mixture of tuffaceous and clastic sediments. At the top of this sequence tuffs and tuffaceous sediments prevail while the top half mainly consists of tuffaceous sedimentary rocks and quartzites. Ripple marks on the bedding planes of some of the tuffaceous units indicate that the reworking and deposition of the tuffaceous material by fluvial processes have taken place.

More about the Rietgat formation

The Rietgat formation consists of greenish or dark grey arkostic quartzite, micaceous flagstone, siltstone, shale and amygdaloidal lava. The sedimentary rocks dip at a low angle to the south. The quartzite and flagstone consist of subangular to rounded grains of quartz, orthoclase, microcline, and lithic fragments and flakes of biotite. The orthoclase, microcline and biotite in the quartzite and flagstone indicate a granite origin for the sediments. Lithic grains, which comprise mostly lava particles, indicate that some of the material was derived from the Ventersdorp itself.

Ecological habitat and landscape features

In terms of vegetation type the site falls within the Klerksdorp Thornveld (Mucina and Rutherford, 2006). The Klerksdorp Thornveld vegetation type is described by Mucina and Rutherford (2006) as 'Vulnerable. Klerksdorp Thornveld vegetation covers the North West Province: In two patches, one in the Wolmaransstad, Ottosdal and Hartbeesfontein region, and the other from the Botsolano Game Park north of Mafikeng to the vicinity of Madibogo in the south. At an altitude 1260-1580m. The area often has plains or slightly irregular plains with open to dense Acacia Erioloba bush clumps in dry grassland.

Some other important Taxa found on in the area: *Ziziphus mucronata*, *Diospyros lycioides subsp. Lycioides* and *Asparagus africanus*

See **Appendix 7** for the Ecological desktop study done.

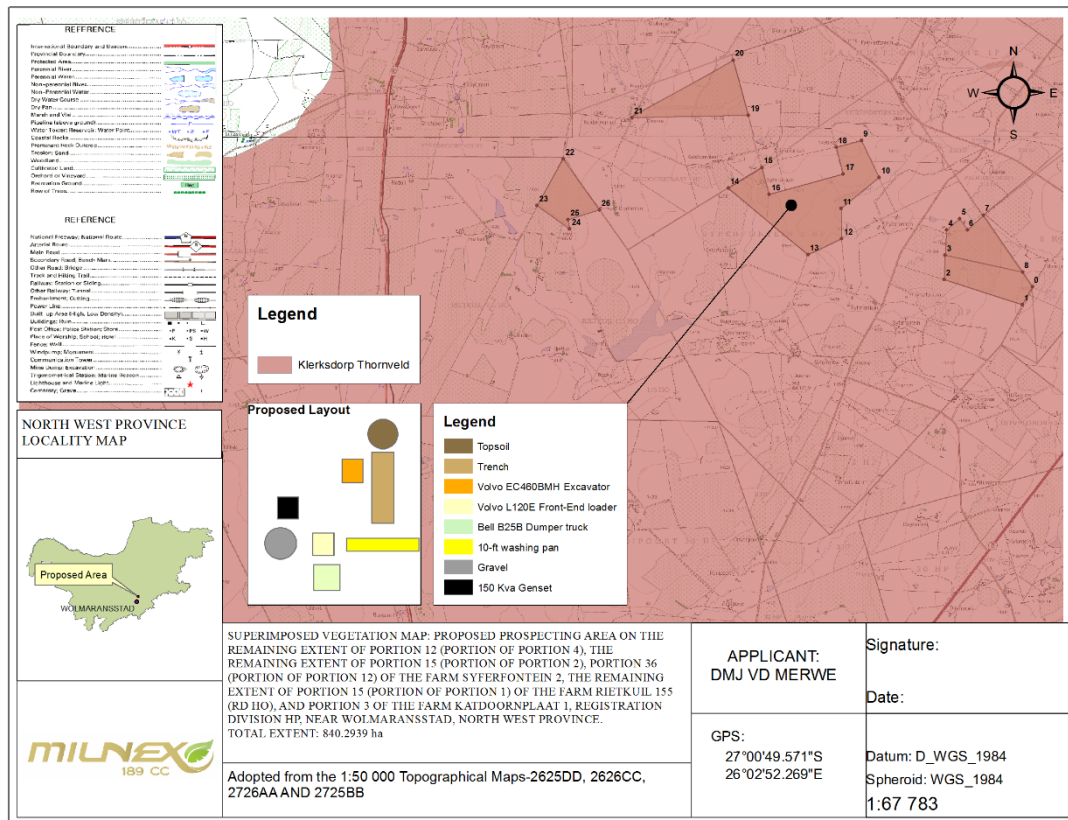


Figure 4: Vegetation Map

Sensitive area for Mine

The proposed area falls within type B & C category, which mean it is of highest biodiversity importance and is of highest risk for mining (B) for Portion 3 of the farm Katdoornplaat 1 & high biodiversity importance and is of high risk for mining on some parts of the remaining extent of portion 12 (portion of portion 4), Portion 36 (Portion of Portion 12) & the remaining extent of portion 15 (portion of portion 2) of the farm Syferfontein 2. These areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being thus according to SANBI (data from online SANBI:2012) an environmental screening, EIAs and their associated specialist studies should focus on confirming the presence and significance of these biodiversity features, and to provide site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision making for mining, water use licences, and environmental authorisations.

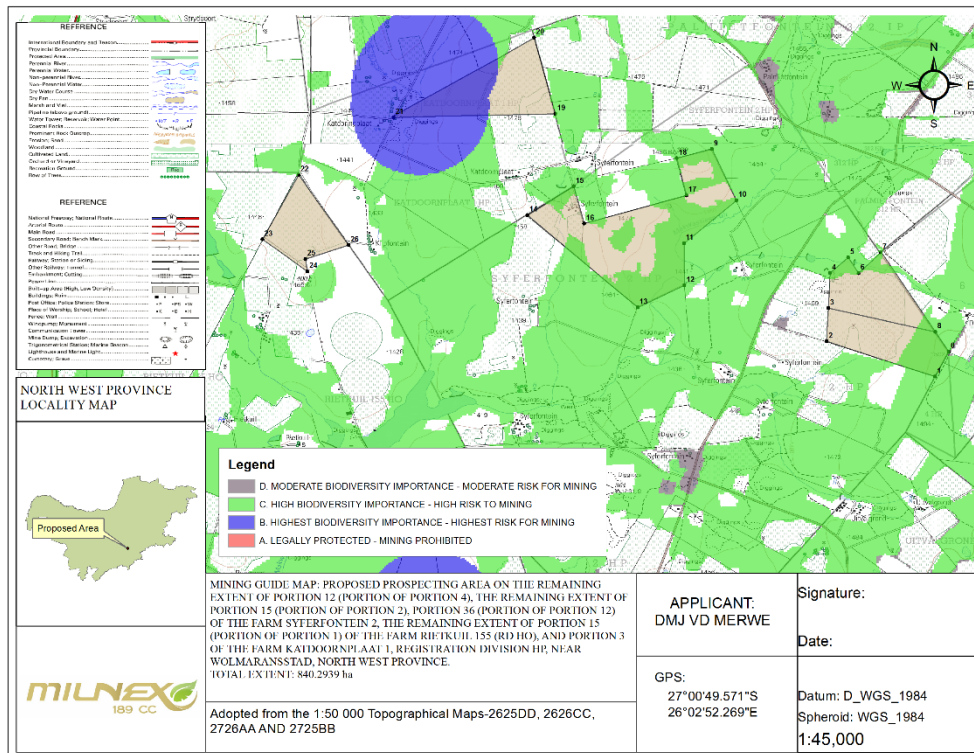


Figure 5: Sensitive area for mine

Wetland Areas

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

Map below depicts all wetland areas on the proposed area. According to the map the proposed area consists Unchannelled valley-bottom wetlands, Depression & a Seep. The wetland vegetation type falls within the Dry Highveld Grassland Group 5.

Unchannelled valley-bottom wetlands are characterised by their location on valley floors, an absence of distinct channel banks, and the prevalence of diffuse flows. These wetlands are generally formed when a river channel loses confinement and spreads out over a wider area, causing the concentrated flow associated with the river channel to change to diffuse flow (i.e. the river becomes an unchannelled valley-bottom wetland).

A depression is defined as a wetland or aquatic ecosystem with closed (or near-closed) elevation contours, which increases in depth from the perimeter to a central area of greatest depth and within which water typically accumulates.

A seep is a wetland area located on gently to steeply sloping land and dominated by colluvial (i.e. gravity-driven), unidirectional movement of water and material down-slope.

Agriculture only contributed 2.3% towards GDP in the District.

The Economically Active Population in the LM is 61.8%. The high proportion of potentially economically active persons implies that there is a larger human resource base for development projects to involve the local population. The unemployment rate within the LM is high at 33.4% compared to the national (25.2%) and provincial (26.2%) unemployment rate.

Social aspects

Population: According to Statistics South Africa (Census 2011), the population of the DKKDM (based on 2010 boundaries) is 695 933, which increased from 599 670 in 2001. The population is unevenly distributed among the four Local Municipalities and the average annual growth rate of the district is 1.49%. The MHLM has a population of 77 794 people and a population density of 17/km².

Age composition and gender differentiation: The dependency ratio indicates the amount of individuals that are below the age of 15 and over the age of 64, that are dependent on the Economically Active Population (EAP) (Individuals that are aged 15-64 that are either employed or actively seeking employment). 61.8% of the MHLM comprise the Economically Active Population (EAP) while 33% of the MHLM population are dependent on the EAP. The working age demographic (age 15-65) in the MHLM made up, 61.8% of the population. The high proportion of potentially economically active persons implies that there is a larger human resource base for development projects to involve the local population. However, the youth still represents a large proportion of the population, which means that focus still needs to be placed on youth development.

Education levels: Education plays a critical role in the development of communities and impacts greatly on economies. The type of education and training received by individuals equally determines the occupation or career they would eventually pursue. It provides a set of basic skills for development, creativity and innovative abilities. The level of education influences growth and economic productivity of a region. There is a positive correlation between a higher level of education and the level of development and standard of living.

The North West Municipal Report Census 2011 indicates that majority of the population aged 20 years and older have completed matric at a provincial, district and local level. A small percentage of the population have higher education. However a significant number of the Maquassi Hills LM population have no schooling meaning that the majority of the population have a low-skill level and would either need job employment in low-skill sectors, or better education opportunities in order to improve the skills level of the area, and therefore income levels. Education alone cannot eradicate poverty; rather, education coupled with greater job opportunities in the economy will be the roadmap out of poverty (Stats SA, 2014).

Annual household income levels:

The average household incomes of the LM are as follows:

- » 77.3% of households are classified as low income earners.
- » 20.6% of households are classified as middle income earners;
- » 2.2% of households are classified as high income earners.

The majority of the population is dependent on forms of assistance either from government and or non-government organisations (MHLM IDP 2014-2016). The high poverty level has social

consequences such as not being able to pay for basic needs and services. However skill levels are less likely to improve unless education levels improve which will lead to more skilled people which will in turn lead to the opportunity to earn higher income levels. This means that there should be less focus on the quantity of job creations and more focus on the quality of jobs created.

Cultural and heritage aspects

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

However heritage resources including archaeological and paleontological sites over 100 years old, graves older than 60 years, structure older than 60 years are protected by the National Heritage Resources Act no 25 of 1999. Therefore if such resources are found during the prospecting or development activities, they shall not be disturbed without a permit from the relevant heritage resource Authority, which means that before such sites are disturbed by development it is incumbent on the developer to ensure that a heritage impact assessment is done and the Provincial Heritage Resources Authority and SAHRA must be contacted immediately and work must stop.

(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 crop cultivation and grazing land.

Below is the land cover of the farm

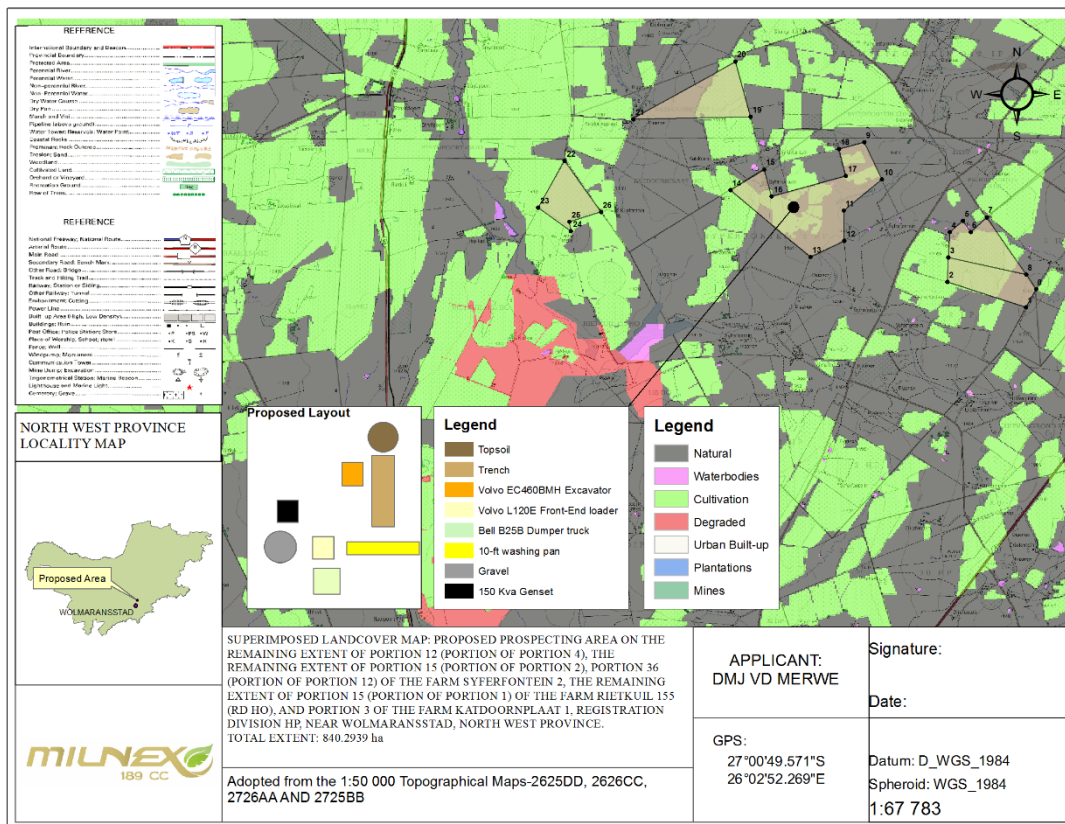


Figure 7: Land cover

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

The infrastructure on site consist of farm roads, dam and houses. The farm consist of cultivated land and row of trees.

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

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 Environmental Impact 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 Klerksdorp Thornveld (Mucina and Rutherford, 2006). The Klerksdorp Thornveld vegetation type is described by Mucina and Rutherford (2006) as 'Vulnerable. Klerksdorp Thornveld vegetation covers the North West Province: In two patches, one in the Wolmaransstad, Ottosdal and Hartbeesfontein region, and the other from the Botsolano Game Park north of Mafikeng to the vicinity of Madibogo in the south. At an altitude 1260-1580m. The area often has plains or slightly irregular plains with open to dense Acacia Erioloba bush clumps in dry grassland. Some other important Taxa found on in the area: *Ziziphus mucronata*, *Diospyros lycioides subsp. Lycioides* and *Asparagus africanus*

•

| 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 (1), since the pitting and trenching will only be 0.418ha in extent per year. It could be more if the process is quicker than planned. | |
| Significance | Negative low (26) | Negative low (12) |
| Can impacts be mitigated? | <p>If the development is approved, contractors must ensure that no mammalian species are disturbed, trapped, hunted or killed. If the development is approved, every effort should be made to confine the footprint to the blocks allocated for the development and have the least possible edge effects on the surrounding area. The EMPr also provides numerous mitigation measures – refer to section (f) of the EMPr.</p> <p>The potential impacts associated with damage to and loss of farm land 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. | |

- Loss or fragmentation of habitats – Given the medium probability of resident threatened species occurring at the footprint site, relevant permits will be acquired if and threatened

species will be identified on site. 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 | 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 | Low cumulative impacts (2), since the pitting and trenching will only be 0.418ha in extent per year. It could be more if the process is quicker than planned. | |
| Significance | Negative Medium (39) | Negative low (26) |
| 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 EMP also provides numerous mitigation measures related to fauna and flora. | |

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

| Loss of topsoil | Pre-mitigation impact rating | Post mitigation impact rating |
|---------------------------------|---|-------------------------------|
| Status (positive or negative) | Negative | Negative |
| Geographical extent | Site (1) | Site (1) |
| Probability | Possible (2) | Unlikely (1) |
| Duration | Medium term (2) | Medium term (2) |
| Magnitude | High (3) | Medium (2) |
| Reversibility | Partly reversible (2) | Partly reversible (2) |
| Irreplaceable loss of resources | Marginal (2) | Marginal (2) |
| Cumulative impact | Medium cumulative impacts (3) | |
| Significance | Negative medium (36) | Negative low (22) |
| Can impacts be mitigated? | The following mitigation or management measures are provided: <ul style="list-style-type: none"> • If an activity will mechanically disturb below surface in any way, then any available topsoil should first be stripped from the entire surface and stockpiled for re-spreading during rehabilitation. | |

| | |
|--|--|
| | <ul style="list-style-type: none"> • 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. • 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 EMP also provide mitigation measures related to topsoil management.</p> |
|--|--|

- 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 EMP are implemented. | |

- Impacts on heritage objects –

| 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 EMP. | |

Indirect impacts: The nuisance aspects generally associated with the installation of infrastructure or ground preparation will also be applicable to this development, which relates primarily to the increase in vehicle traffic associated with prospecting practices, the influx of job seekers to the area, risk to safety, livestock and farm infrastructure, and increased risk of veld fires.

- Increase in vehicle traffic – The movement of heavy vehicles during the clearance of vegetation and topsoil has the potential to damage local farm roads and create dust and safety impacts for other road users in the area. Access will be obtained from gravel road off the N12 between Wolmaransstad and Klerksdorp as well as R505. 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. There is already high vehicle traffic along the N12 as well as R505. The movement of additional heavy vehicle

traffic is will add significantly to the current traffic load on the road. The impact on the N12 as well as R505 is therefore likely to be moderate.

| Increase in vehicle traffic | Pre-mitigation impact rating | Post mitigation impact rating |
|---------------------------------|--|-------------------------------|
| Status (positive or negative) | Negative | Negative |
| Extent | Local (2) | Local (2) |
| Probability | Probable (3) | Probable (3) |
| Duration | Short term (1) | Short term (1) |
| Magnitude | High (3) | Medium (2) |
| Reversibility | Completely reversible (1) | Completely reversible (1) |
| Irreplaceable loss of resources | No loss of resource (1) | No loss of resource (1) |
| Cumulative impact | Medium cumulative impact (3). If damage to roads is not repaired then this will affect the farming activities in the area and result in higher maintenance costs for vehicles of local farmers and other road users. The costs will be borne by road users who were no responsible for the damage. | |
| Significance | Negative medium impacts (33) | Negative low (11) |
| Can impacts be mitigated? | <p>The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation measures include:</p> <ul style="list-style-type: none"> • The contractor must ensure that damage caused by construction N12 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. <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"> • DMJ van der Merwe 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 DMJ van der Merwe 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; • DMJ van der Merwe 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 DMJ van der Merwe 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 DMJ van der Merwe 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 | |

| | |
|--|--|
| | <p>Conduct. All dismissals must be in accordance with South African labour legislation;</p> <ul style="list-style-type: none"> 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; | |

| | |
|--|---|
| | <ul style="list-style-type: none"> As per the conditions of the Code of Conduct, in the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the firefighting costs borne by farmers and local authorities. |
|--|---|

OPERATIONAL PHASE

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

- Soil erosion – The largest risk factor for soil erosion will be during the operational phase when the prospecting activity ensues and soil is left bare until rehabilitation is initiated. Erosion will be localised within the site. This will ultimately lead to the irretrievable commitment of this resource. The measurable effect of reducing erosion by utilizing mitigation measures may reduce possible erosion significantly.

| Soil erosion | Pre-mitigation impact rating | Post mitigation impact rating |
|---------------------------------|--|--------------------------------------|
| Status (positive or negative) | Negative | Negative |
| Extent | Local/Regional (2) | Local/Regional (2) |
| Probability | Definite (4) | Unlikely (1) |
| Duration | Long term (3) | Long term (3) |
| Magnitude | High (3) | Medium (2) |
| Reversibility | Partly reversible (2) | Partly reversible (2) |
| Irreplaceable loss of resources | Significant loss of resource (3) | Marginal loss of resource (2) |
| Cumulative impact | Medium cumulative impact (3). Should these impacts occur, there will be a cumulative impact on the air and water resources in the study area in terms of pollution. | |
| Significance | Negative High (51) | Negative Low (26) |
| Can impacts be mitigated? | Yes, to avoid soil erosion it will be a good practice to not remove all the vegetation at once but to only clear the area as it becomes necessary and to implement concurrent rehabilitation. Also refer to section (f) of the EMP. | |

- Change in land-use – The use of the area for the operation of the prospecting 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 DMJ van der Merwe

| 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 | Low (1) | Low (1) |
| Reversibility | Completely reversible (1) | Completely reversible (1) |
| Irreplaceable loss of resources | Marginal loss of resource (2) | Marginal loss of resource (2) |
| Cumulative impact | Negligible cumulative impacts (1). | |
| Significance | Negative low (10) | Negative low (10) |
| 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 EMP.</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 EMP. are implemented to ensure that these impacts do not occur | |

- Increased consumption of water - Approximately 10 000 liters of water per hour will be required for the washing of the gravel in the rotary 14 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 EMP. | |

- 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 EMP. | |

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

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

- Noise disturbance - Prospecting activities will result in the generation of noise over a period of 3-5 years. Sources of noise are likely to include vehicles, the use of machinery such as backactors, rotary pans and people working on the site, as well as occasional blasting. The noise impact is unlikely to be significant as the closest homestead is more than 1km from the site; but prospecting 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 EMP. | |

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 NWP and Maquassi Hills LM. 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 prospecting of Diamond Alluvial, Diamonds General on the areas sense of place with mitigation is likely to be low. In addition, the site will not be visible from the road. The impact of the proposed mine on the tourism potential of the area and the Maquassi Hills LM and NWP 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 a 3/5 year period, the site will be returned to its natural state. Therefore the physical environment will benefit from the closure of the prospecting facility.

- Rehabilitation of the physical environment – The physical environment will benefit from the closure of the prospecting 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; • DMJ van der Merwe 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 | | |
| Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The calculation of the significance of an impact uses the following formula: | | |
| (Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity. | | |
| The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating. | | |
| Points | Impact significance rating | Description |
| 6 to 28 | Negative low impact | The anticipated impact will have negligible negative effects and will require little to no mitigation. |

| | | |
|----------|---------------------------|--|
| 6 to 28 | Positive low impact | The anticipated impact will have minor positive effects. |
| 29 to 50 | Negative medium impact | The anticipated impact will have moderate negative effects and will require moderate mitigation measures. |
| 29 to 50 | Positive medium impact | The anticipated impact will have moderate positive effects. |
| 51 to 73 | Negative high impact | The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact. |
| 51 to 73 | Positive high impact | The anticipated impact will have significant positive effects. |
| 74 to 96 | Negative very high impact | The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws". |
| 74 to 96 | Positive very high impact | The anticipated impact will have highly significant positive effects. |

vii) 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 surveys site fly-overs and increased traffic movement during all prospecting phases.
- Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on environmental resources utilized by communities, landowners and other stakeholders.
- Potential water and soil pollution impacts resulting from hydrocarbon spills and soil erosion which may impact on ecosystem functioning.
- Increased vehicle activity within 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.
- Prospecting will be undertaken by specialist sub - contractors and it is not anticipated that employment opportunities for local and / or regional communities will result from the prospecting activities.

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 prospecting activity have been identified through the Scoping & EIR process. Mitigation measures as set out in the Environmental

Management Programme (EMPr) attached in Part B must be implemented in order to minimise any potential impacts.

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

ix) Motivation where no alternative sites were considered.

As discussed in the previous section, based on outcomes of previous studies in the vicinity of the proposed site, the possibility to encounter further Diamond Reserves on the farm Rietkuil 155, farm Katdoornplaat 1 & the farm Syferfontein 2 were identified.

Furthermore, no other properties have been secured by the applicant, DMJ van der Merwe.

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.

h) 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 site visit was conducted to ensure a proper analysis of the site specific characteristics of the study area. The table below provides a checklist, which is designed to stimulate thought regarding possible consequences of specific actions and so assist scoping of key issues. It consists of a list of structured questions related to the environmental parameters and specific human actions. They assist in ordering thinking, data collection, presentation and alert against the omission of possible impacts. The table highlights certain issues, which are further analysed in matrix format.

Table: Environmental checklist

| QUESTION | YES | NO | Un-sure | Description |
|--|-----|----|---------|---|
| 1. Are any of the following located on the site earmarked for the development? | | | | |
| I. A river, stream, dam or wetland | × | | | The farm consist of Non-perennial River, perennial water and Makwassiespruit form part of the remaining extent of Portion 15 (portion of Portion 2) of the farm Syferfontein 2. Water Use licence will be applied for in cases where the development will impede on the watercourse |
| II. A conservation or open space area | | × | | None. |
| III. An area that is of cultural importance | | | × | |
| IV. Site of geological significance | | × | | None. |
| V. Areas of outstanding natural beauty | | × | | None. |
| VI. Highly productive agricultural land | × | | | The proposed area falls within Class 3 & 4 – arable land with agricultural potential: This class has very severe limitations that restrict the choice of plants, require very careful management, or both. |
| VII. Floodplain | | × | | None. |
| VIII. Indigenous forest | | × | | None. |
| IX. Grass land | | | × | None. |
| X. Bird nesting sites | | | × | None. |
| XI. Red data species | | | × | |
| XII. Tourist resort | | × | | None. |
| 2. Will the project potentially result in potential? | | | | |
| I. Removal of people | | × | | None. |
| II. Visual Impacts | × | | | The visual impact will be managed by placing stockpiles on the boundaries closer to the road As much existing vegetation as possible may be retained, specifically bushes and trees This will assist to conceal the development |
| III. Noise pollution | | × | | Seeing that the surrounding area is used for mining. Cumulative impacts may be significant. However, the noise impact is unlikely to be significant. |
| IV. Construction of an access road | | × | | None. Access will be obtained from gravel roads off the N12 |
| 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. | × | | | 10 ft washing pan which utilise approximately 7 000 L 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. 840.2939 hectares– 3m x 2m x 3m (150 pits). The total area to be disturbed a year will be- 30 pits x (3m x2m) = 0.018Ha per year. 840.2939 hectares– 20m x 20m x 3m (50 trenches). The total area to be disturbed a year will be- 10 trenches x (20m x20m) = 0.4Ha per year. No more than 0.418ha will be left as un-rehabilitated in two years. Rehabilitation will be done concurrently. |
| 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 | × | | | Makwassiespruit |
| 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 | × | | | Land is suitable for crop cultivation |
| VII. A tourist resort | | × | | None. |
| VIII. A formal or informal settlement | | × | | None. |

Matrix analysis

The matrix describes the relevant listed activities, the aspects of the development that will apply to the specific listed activity, a description of the environmental issues and potential impacts, the significance and magnitude of the potential impacts, and the mitigation of the potential impacts. The matrix also highlights areas of particular concern, which requires more in depth assessment. Each cell is evaluated individually in terms of the nature of the impact, duration and its significance – should no mitigation measures be applied. This is important since many impacts would not be considered insignificant if proper mitigation measures were implemented. The matrix also provides an indication if mitigation measures are available.

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

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

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 | | | | | | | | | |
| <i>Listing Notice GNR 984, Activity 15: "The clearance of an area of 20 hectares or more, of indigenous vegetation."</i> | <u>Site clearing and preparation</u> Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately. | BIOPHYSICAL ENVIRONMENT | Fauna & Flora | <ul style="list-style-type: none"> Loss or fragmentation of indigenous natural vegetation. Loss of sensitive species. Loss or fragmentation of habitats. | | - | 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 | - |

| | | | | | | | | | | | |
|---|--|--|----------------------------------|---|-------------------------|---|-----|-----|------------------------------|-----|---|
| | | | 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"> Burial sites which are retained should be fenced off for the duration of the mining activities, leaving a buffer zone of at least five metres from the outer edge of the graves. If the graves cannot be retained, it should be relocated, but only on condition of following the correct procedures. | | - | S | Yes | Yes, attached as Appendix 11 | | |
| <p><i>Listing Notice GNR 984, Activity 15: "The clearance of an area of 20 hectares or more, of indigenous vegetation."</i></p> | <p><u>Site clearing and preparation</u> Areas earmarked for prospecting will need to be cleared, topsoil will be stockpiled separately. This will inevitably result in the removal of indigenous vegetation located on the site.</p> | <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 | - |

| | | | | | | | | | |
|---|---|--------------------------------|----------------------------------|--|-----|-----|-----|-----|---|
| | | | 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"> Burial sites which are retained should be fenced off for the duration of the mining activities, leaving a buffer zone of at least five metres from the outer edge of the graves. If the graves cannot be retained, it should be relocated, but only on condition of following the correct procedures. | N/A | N/A | N/A | N/A | - |
| OPERATIONAL PHASE | | | | | | | | | |
| <p>Listing Notice GNR 984, Activity 19: "The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resource Development Act (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to prospecting 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)"</p> | <p>The key components of the proposed project are described below:</p> <ul style="list-style-type: none"> <u>Supporting Infrastructure</u> - A control facility with basic services such as water and electricity will be constructed on the site and will have an approximate footprint 50m² or less. Other supporting infrastructure includes a site office and workshop area. <u>Roads</u> – Access will be obtained from gravel road off the N12 as well as R505. All site roads will require a width of approximately 10m. <u>Fencing</u> - 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 prospecting 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 22 500 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 and general laborers will also be required for the cleaning of the panels. 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 prospecting 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 for distribution. | - | | | 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

i) 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. |
|-----------------------------------|--|---|---|
| | | | |

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

- Potential impacts on biodiversity: Removal of vegetation.
- Potential impacts on land use: The farm is currently utilised for low potential cattle grazing. 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, diamonds general will have socio-economic benefit to the area.

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

(ii) 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, 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 prospecting activity does not cause pollution to the environment or harm to persons.
- Minimise production of waste.
- All prospecting activities must be conducted in a manner that minimises noise impact, litter, environmental degradation and health hazards i.e. injuries.
- The mine must be kept neat and tidy during waste handling to prevent unsightliness and accidents.

Expected outcomes include:

- Minimum impacts on the environment as a result of alluvial diamonds, general diamonds prospecting.
- Compliance with legislative requirements.
- Prospecting area 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 at this stage been secured by DMJ van der Merwe in the Wolmaransstad area to potentially prospect for alluvial diamonds, general diamonds. From a local perspective, farm Rietkuil 155, farm Katdoornplaat 1 & the farm Syferfontein are preferred due to the sites underlying alluvial diamond bearing gravel (i.e. to facilitate the movement of machinery, equipment, infrastructure and). 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 and within the Bamboesspruit, the possibility to encounter further Diamond Reserves were identified.

The proposed prospecting area is targeted as, historically, several alluvial diamond, diamond general alluvial diamonds, general diamonds 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 prospecting 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

Rehabilitation & Closure 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 EMP 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 EMP 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.

CALCULATION OF THE QUANTUM

Applicant: DMJ van der Merwe
Evaluator:

Ref No.: NW30/5/1/1/2/1930PR
Date: 08-02-2017

| No. | Description | Unit | A | B | C | D | E=A*B*C*D |
|-------------|---|------|----------|-------------|-----------------------|--------------------|----------------|
| | | | Quantity | Master Rate | Multiplication factor | Weighting factor 1 | Amount (Rands) |
| 1 | Dismantling of processing plant and related structures (including overland conveyors and power lines) | m3 | 140 | 12,84 | 1 | 1 | 1797,6 |
| 2 (A) | Demolition of steel buildings and structures | m2 | 0 | 178,87 | 1 | 1 | 0 |
| 2(B) | Demolition of reinforced concrete buildings and structures | m2 | 0 | 263,59 | 1 | 1 | 0 |
| 3 | Rehabilitation of access roads | m2 | 150 | 32 | 1 | 1 | 4800 |
| 4 (A) | Demolition and rehabilitation of electrified railway lines | m | 0 | 310,66 | 1 | 1 | 0 |
| 4 (A) | Demolition and rehabilitation of non-electrified railway lines | m | 0 | 169,45 | 1 | 1 | 0 |
| 5 | Demolition of housing and/or administration facilities | m2 | 0 | 357,73 | 1 | 1 | 0 |
| 6 | Opencast rehabilitation including final voids and ramps | ha | 0,4 | 182 063,65 | 1 | 1 | 72825,46 |
| 7 | Sealing of shafts adits and inclines | m3 | 0 | 96,02 | 1 | 1 | 0 |
| 8 (A) | Rehabilitation of overburden and spoils | ha | 0 | 125 016,15 | 1 | 1 | 0 |
| 8 (B) | Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential) | ha | 0,1 | 155 705,36 | 1 | 1 | 15570,536 |
| 8 (C) | Rehabilitation of processing waste deposits and evaporation ponds (polluting potential) | ha | 0 | 452 242,17 | 1 | 1 | 0 |
| 9 | Rehabilitation of subsided areas | ha | 0 | 104 682,20 | 1 | 1 | 0 |
| 10 | General surface rehabilitation | ha | 0,2 | 99 033,88 | 1 | 1 | 19806,776 |
| 11 | River diversions | ha | 0 | 99 033,88 | 1 | 1 | 0 |
| 12 | Fencing | m | 50 | 112,97 | 1 | 1 | 5648,5 |
| 13 | Water management | ha | 0 | 37 655,47 | 1 | 1 | 0 |
| 14 | 2 to 3 years of maintenance and aftercare | ha | 0,1 | 13 179,41 | 1 | 1 | 1317,941 |
| 15 (A) | Specialist study | Sum | 0 | | | 1 | 0 |
| 15 (B) | Specialist study | Sum | | | | 1 | 0 |
| Sub Total 1 | | | | | | | 121766,813 |

| | | | | |
|-------------|-------------------------|-------------|-------------------------|-------------|
| 1 | Preliminary and General | 14612,01756 | weighting factor 2 1 | 14612,01756 |
| 2 | Contingencies | 12176,6813 | | 12176,6813 |
| Subtotal 2 | | | | 148555,51 |
| VAT (14%) | | | | 20797,77 |
| Grand Total | | | | 169353 |

It is envisaged that 150 pits will be dug. It may be less depending on results.

840.2939 hectares– 3m x 2m x 3m (150 pits). The total area to be disturbed a year will be- 30 pits x (3m x2m) = 0.018Ha per year. 840.2939 hectares– 20m x 20m x 3m (50 trenches). The total area to be disturbed a year will be- 10 trenches x (20m x20m) = 0.4Ha per year. No more than 0.418ha will be left as un-rehabilitated in two years. Rehabilitation will be done concurrently.

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 Prospecting Work Programme as the case may be).

Financial Guarantee

The financial guarantee for the rehabilitation for land disturbed by DMJ van der Merwe was submitted together with the application for a prospecting right.

Rehabilitation Fund

DMJ van der Merwe 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, diamond general prospecting will not impact directly on any socio-economic aspects. Indirect socio-economic benefits are expected to be associated with the creation of employment.

(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).

The alluvial diamond and diamond general prospecting will not impact on any heritage estate referred to in section 3(2) of the National Heritage Resources Act.

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 on the remaining extent of portion 15 (portion of portion 1) of the farm Rietkuil 155, Portion 3 of the farm Katdoornplaat 1, remaining extent of portion 12 (portion of portion 4), Portion 36 (Portion of Portion 12) & the remaining extent of portion 15 (portion of portion 2) of the farm Syferfontein 2, Registration Division HP, North West Province. No other properties have been secured by DMJ van der Merwe for the purpose of prospecting. 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, general diamond alluvial diamonds, general diamonds mine will aim to ensure that the residual post-closure impacts be minimized and be acceptable to relevant parties. To achieve these closure objectives, the following will be implemented:

- All prospecting related infrastructure, foundations and concrete areas will be decommissioned, removed from the site and appropriately disposed of. Reclaimable structures such as metal, electrical installations or equipment will be sold for re-use or as scrap.

- All disturbed areas within the site not already vegetated will be re-vegetated with appropriate indigenous, ecologically adapted species appropriate to the area and the final land use as soon as possible after operation ceases. Progress of vegetation growth/establishment, stability and drainage/erosion will be monitored and, in the event of adverse trends being identified, corrective measures will be implemented.
- Vegetation monitoring will consider, inter alia, the establishment of perennial ground cover and infestation by alien invasive plant species. The encroachment of indigenous vegetation into the area will be used as an indication of a stable, self-sustaining vegetation cover with little risk of retrogressing to a situation where are and water pollution may occur.

Alien invasive management plan

The following are the identified mitigation measures for Alien invasive management plan under table 4.2 of the report.

- To replace bare soil at impacted areas with vegetation and functioning as similar as possible to the adjacent natural veld and riparian zones to an ecosystem functioning as self-sufficient as possible.
- Possible additional impacts by using exotic plant species are avoided as a pre-caution.
- Rationale: This aim almost approaches restoration and the idea is that the area immediate to the proposed impacts would approach self-sufficient and impacted areas a little further away be self-sufficient as soon as possible.

Monitoring is the responsibility of the environmental conservation officer (ECO) or equivalent or contracted specialist.

Table 4.2 Guidelines to monitoring actions during the rehabilitation process

| | |
|---|---|
| 1 | Regularly inspect the impacted zones to note the indigenous vegetation properly establish at hitherto clearings and formerly impacted areas. |
| 2 | Regularly inspect the impacted zones for unwanted damming of water or over-increase of wetness in any particular area as a consequence of land use changes, the relevant impacts or the rehabilitation effort. |
| 3 | Regularly inspect the impacted zones to note establishment of alien invasive species |
| 4 | Monitor and inspect the wetlands if impacts are nearby for release of any unwanted sediments into the wetland system take place. |
| 5 | Regularly inspect and observe if any oil leakages or any other hydrocarbon spillages occur and monitor the servicing of vehicles or other equipment or the identification of any vehicles from which these spillages originate. |

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

Not applicable for this project

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

Not applicable for this project

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

Not applicable for this project

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

Not applicable for this project

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

14 000 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 | MITIGATION MEASURES | COMPLIANCE WITH STANDARDS | TIME PERIOD FOR IMPLEMENTATION |
|---|---|---|--|---|--|
| <p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p> | <p>(of operation in which activity will take place.</p> <p>State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).</p> | <p>(volumes, tonnages and hectares or m²)</p> | <p>(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)</p> | <p>(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p> | <p>Describe the time period when the measures in the environmental management programme must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity.</p> <p>.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>Clearance of vegetation</p> | <p>Pitting and trenching phase- (construction and operation phase)</p> | <p>840.2939 hectares– 3m x 2m x 3m (150 pits), 20m x 20m x 3m (50 trenches) Only the areas where prospecting takes place, will be cleared. Concurrent backfilling will take place in order to rehabilitate.</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 prospected on within two months must not be cleared to reduce erosion risks. 3. The area to be cleared must be clearly demarcated and this footprint strictly maintained. 4. Spoil that is removed from the site must be removed to an approved spoil site or a licensed landfill site. 5. The necessary silt fences and erosion control measures must be implemented in areas where these risks are more prevalent. | <p>Compliance with Duty of Care as detailed within NEMA</p> | <p>Duration of operations on the prospecting activities.</p> |

| | | | | | |
|---|---|---|--|--|---|
| Construction of roads | Pitting and trenching phase- (construction and operation phase) | +- 500m | <ol style="list-style-type: none"> 1. Planning of access routes to the site for construction/prospecting purposes shall be done in conjunction with the Contractor and the Landowner. All agreements reached should be documented and no verbal agreements should be made. The Contractor shall clearly mark all access roads. Roads not to be used shall be marked with a "NO ENTRY for prospecting vehicles" sign. 2. Construction routes and required access roads must be clearly defined. 3. Damping down of the un-surfaced roads must be implemented to reduce dust and nuisance. 4. Soils compacted by construction/prospecting activities shall be deep ripped to loosen compacted layers and re-graded to even running levels. 5. The contractor must ensure that damage caused by related traffic to the gravel access road off the R506 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. | Compliance with Duty of Care as detailed within NEMA | Duration of operations on the prospecting activities. |
| Prospecting of Diamond Alluvial, Diamonds General – Soils and geology | Pitting and trenching phase- (construction and operation phase) | 840.2939 hectares– 3m x 2m x 3m (150 pits), 20m x 20m x 3m (50 trenches) Only the areas where prospecting takes place, will be cleared. Concurrent backfilling will take | <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 | Compliance with Duty of Care as detailed within NEMA | Duration of operations on the mine |

| | | | | | |
|--|---|---|---|--|--|
| | | place in order to rehabilitate. | <p>reused where possible to rehabilitate disturbed areas.</p> <ol style="list-style-type: none"> 2. Care must be taken not to mix topsoil and subsoil during stripping. 3. The topsoil must be conserved on site in and around the pit/trench area. 4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms, trenches or low brick walls around their bases. 6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding. 7. Where contamination of soil is expected, analysis must be done prior to disposal of soil to determine the appropriate disposal route. Proof from an approved waste disposal site where contaminated soils are dumped if and when a spillage/leakage occurs should be attained and given to the project manager. 8. The impact on the geology will be permanent. There is no mitigation measure. | | |
| Prospecting Diamond Alluvial, Diamonds General– excavations and blasting | Pitting and trenching phase- (construction and operation phase) | 840.2939 hectares– 3m x 2m x 3m (150 pits), 20m x 20m x 3m (50 trenches) Only the areas where prospecting takes place, will be cleared. Concurrent backfilling will take place in order to rehabilitate. | <ol style="list-style-type: none"> 1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development. 2. Mine, pans, workshops and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed in to the system. 3. Truck traffic should be routed away from noise sensitive areas, where possible. | Compliance with Duty of Care as detailed within NEMA | Duration of operations on the prospecting area |

| | | | | | |
|--|--|--|--|--|--|
| | | | <ol style="list-style-type: none"> 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. | | |
|--|--|--|--|--|--|

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. |
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| Clearance of vegetation | Loss or fragmentation of habitats | Fauna & flora | Pitting and trenching phase-(construction and operation phase) | Existing vegetation <ol style="list-style-type: none"> 1. Vegetation removal must be limited to the prospecting area. 2. Vegetation to be removed as it becomes necessary rather than removal of all vegetation throughout the site in one step. 3. No vegetation to be used for firewood. 4. Exotic and invasive plant species should not be allowed to establish, if the development is approved. Rehabilitation <ol style="list-style-type: none"> 5. All damaged areas shall be rehabilitated upon completion of the contract. 6. Re-vegetation of the disturbed site is aimed at approximating as near as possible the natural vegetative conditions prevailing prior to construction. 7. All natural areas impacted during construction/prospecting must be rehabilitated with locally indigenous grasses typical of the representative botanical unit. 8. Rehabilitation must take place in a phased approach as soon as possible. | Minimisation of impacts to acceptable limits |

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| | | | | <p>9. Rehabilitation process must make use of species indigenous to the area. Seeds from surrounding seed banks can be used for re-seeding.</p> <p>10. Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas.</p> <p>11. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged.</p> <p>Demarcation of prospecting area</p> <p>12. All plants not interfering with prospecting operations shall be left undisturbed clearly marked and indicated on the site plan.</p> <p>13. The prospecting area must be well demarcated and no construction/prospecting activities must be allowed outside of this demarcated footprint.</p> <p>14. Vegetation removal must be phased in order to reduce impact of construction/prospecting.</p> <p>15. Site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas.</p> <p>16. Strict and regular auditing of the prospecting process to ensure containment of the prospecting and laydown areas.</p> <p>17. Soils must be kept free of petrochemical solutions that may be kept on site during construction/prospecting. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora.</p> <p>Utilisation of resources</p> <p>18. Gathering of firewood, fruit, muti plants, or any other natural material onsite or in areas adjacent to the site is prohibited unless with prior approval of the ECO.</p> <p>Exotic vegetation</p> <p>19. Alien vegetation on the site will need to be controlled.</p> <p>20. The Contractor should be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion.</p> <p>21. The spread of exotic species occurring throughout the site should be controlled.</p> | |
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| | | | | <p>Herbicides</p> <p>22. Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used.</p> <p>23. The use of pesticides and herbicides on the site must be discouraged as these impact on important pollinator species of indigenous vegetation.</p> <p>Fauna</p> <p>24. Rehabilitation to be undertaken as soon as possible after the prospecting activities have been completed.</p> <p>25. No trapping or snaring to fauna on the construction/prospecting site should be allowed.</p> <p>26. No faunal species must be disturbed, trapped, hunted or killed by maintenance staff during any routine maintenance at the development.</p> | |
| Prospecting Diamond Alluvial, Diamonds General – excavations and blasting | Loss of topsoil | Soil | Pitting and trenching phase-(construction and operation phase) | <ol style="list-style-type: none"> 1. The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil, and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2. Care must be taken not to mix topsoil and subsoil during stripping. 3. The topsoil must be conserved on site in and around the pit/trench area. 4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases. | Minimisation of impacts to acceptable limits |

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| | | | | <p>6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding.</p> <p>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> <p>Establish an effective record keeping system for each area where soil is disturbed for prospecting purposes. These records should be included in environmental performance reports, and should include all the records below.</p> <ul style="list-style-type: none"> • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation prospecting activities at the particular site. • Photograph the area on cessation of prospecting activities. • Record date and depth of re-spreading of topsoil. • Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. | |
| | Erosion | Soil Air Water | Pitting and trenching phase-(construction and operation phase) | <p>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> <p>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.</p> <p>3. Wind screening and stormwater control should be undertaken to prevent soil loss from the site.</p> | Minimisation of impacts to acceptable limits |

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| | | | | <ol style="list-style-type: none"> 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/prospecting so that the necessary precautions can be implemented. 7. All erosion control mechanisms need to be regularly maintained. 8. Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces. 9. Retention of vegetation where possible to avoid soil erosion. 10. Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time. 11. Re-vegetation of disturbed surfaces should occur immediately after construction/prospecting activities are completed. This should be done through seeding with indigenous grasses. 12. No impediment to the natural water flow other than approved erosion control works is permitted. 13. To prevent stormwater damage, the increase in stormwater run-off resulting from construction/prospecting activities must be estimated and the drainage system assessed accordingly. 14. Stockpiles not used in three (3) months after stripping must be seeded or backfilled to prevent dust and erosion. | |
| | 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. | Minimisation of impacts to acceptable limits |

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| | | | | <ol style="list-style-type: none"> 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> <ol style="list-style-type: none"> 11. The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks. <p>Fire prevention</p> <ol style="list-style-type: none"> 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. 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. | |
| | Noise | | Pitting and trenching phase-(construction and operation phase) | <ol style="list-style-type: none"> 1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development. 2. Mine, 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 | Minimisation of impacts to acceptable limits |

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| | | | | <p>evaluated in detail and specific measures designed in to the system.</p> <ol style="list-style-type: none"> 3. Truck traffic should be routed away from noise sensitive areas, where possible. 4. Noise levels must be kept within acceptable limits. 5. Noisy operations should be combined so that they occur where possible at the same time. 6. Mine workers to wear necessary ear protection gear. 7. Noisy activities to take place during allocated hours. 8. Noise from labourers must be controlled. 9. Noise suppression measures must be applied to all equipment. Equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from the site. 10. The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour shall be transported to and from the site by the Contractor or his Sub-Contractors by the Contractors own transport. 11. Implementation of enclosure and cladding of processing plants. 12. Applying regular and thorough maintenance schedules to equipment and processes. An increase in noise emission levels very often is a sign of the imminent mechanical failure of a machine. | |
| | Impact on potential cultural and heritage artefacts | Heritage | Pitting and trenching phase-(construction and operation phase) | <ol style="list-style-type: none"> 1. It is recommended that the burial sites are retained and that it should be fenced off for the duration of the mining activities, leaving a buffer zone of at least 50 metres from the outer edge of the graves. If the graves cannot be retained, it should be relocated, but only on condition of following the correct procedures. 2. Any further 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. 3. Local museums as well as the South African Heritage Resource Agency (SAHRA) should be informed if any artefacts are uncovered in the affected area. | Minimisation of impacts to acceptable limits |

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| | | | | <ol style="list-style-type: none"> 4. 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. 5. 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. | |
| Waste management | | Pollution | Pitting and trenching phase-(construction and operation phase) | <p>Litter management</p> <ol style="list-style-type: none"> 1. Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site. 2. The Contractor shall supply waste collection bins where such is not available and all solid waste collected shall be disposed of at registered/licensed landfill. 3. Good housekeeping practices should be implemented to regularly maintain the litter and rubble situation on the construction site. 4. If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled. An independent contractor can be appointed to conduct this recycling. 5. Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite. 6. Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly. 7. All waste must be removed from the site and transported to a landfill site promptly to ensure that it does not attract vermin or produce odours. 8. Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management. 9. A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant. | Minimisation of impacts to acceptable limits |

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| | | | | <p>10. Under no circumstances may solid waste be burnt on site.</p> <p>11. All waste must be removed promptly to ensure that it does not attract vermin or produce odours.</p> <p>Hazardous waste</p> <p>12. All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of offsite at a licensed landfill site, where practical. Incineration may be used where relevant.</p> <p>13. Contaminants to be stored safely to avoid spillage.</p> <p>14. Machinery must be properly maintained to keep oil leaks in check.</p> <p>15. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during construction and any spills shall immediately be cleaned up and all affected areas rehabilitated.</p> <p>Sanitation</p> <p>16. The Contractor shall install mobile chemical toilets on the site.</p> <p>17. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed.</p> <p>18. Toilets shall be serviced regularly and the ECO shall inspect toilets regularly.</p> <p>19. Toilets should be no closer than 50m or above the 1:100 year flood line from any natural or manmade water bodies or drainage lines or alternatively located in a place approved of by the Engineer.</p> <p>20. Under no circumstances may open areas, neighbours fences or the surrounding bush be used as a toilet facility.</p> <p>21. The construction of “Long Drop” toilets is forbidden, but rather toilets connected to the sewage treatment plant.</p> <p>22. Potable water must be provided for all construction staff.</p> <p>Remedial actions</p> | |
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| | | | | <p>23. Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site.</p> <p>24. Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site.</p> <p>25. The ECO must determine the precise method of treatment for polluted soil. This could involve the application of soil absorbent materials as well as oil-digestive powders to the contaminated soil.</p> <p>26. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material.</p> <p>27. If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure.</p> <p>28. Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use.</p> <p>29. Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of petrochemicals to the environment, and stored in adequate containers until appropriate disposal.</p> | |
| Water Use and Quality | Water pollution | Water | Pitting and trenching phase-(construction and operation phase) | <p>Water Use</p> <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. | |

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| | | | | <p>5. Efficient oil and grease traps or sumps should be installed and maintained at refueling facilities, workshops, fuel storage depots, and containment areas and spill kits should be available with emergency response plans.</p> <p>Stormwater</p> <p>6. The site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids and silt or chemical pollutants.</p> <p>7. Silt fences should be used to prevent any soil entering the stormwater drains.</p> <p>8. Temporary cut off drains and berms may be required to capture stormwater and promote infiltration.</p> <p>9. Promote a water saving mind set with construction/prospecting workers in order to Contractor ensure less water wastage.</p> <p>10. Hazardous substances must be stored at least 40m from any water bodies on site to avoid pollution.</p> <p>11. The installation of the stormwater system must take place as soon as possible to attenuate stormwater from the construction phase as well as the operation phase.</p> <p>12. Earth, stone and rubble is to be properly disposed of, or utilized on site so as not to obstruct natural water path ways over the site. i.e. these materials must not be placed in stormwater channels, drainage lines or rivers.</p> <p>13. There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed.</p> <p>14. If a batching plant is necessary, run-off should be managed effectively to avoid contamination of other areas of the site. Untreated runoff from the batch plant must not be allowed to get into the storm water system or nearby streams, rivers or erosion channels or dongas.</p> <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> | |
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| | | | | <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 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/prospecting workers does not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines.</p> <p>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</p> <p>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> |
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| <p>Clearance of vegetation</p> | <p>Loss or fragmentation of habitats</p> | <p>Existing vegetation</p> <ol style="list-style-type: none"> 1. Vegetation removal must be limited to the prospecting site. 2. Vegetation to be removed as it becomes necessary rather than removal of all vegetation throughout the site in one step. 3. No vegetation to be used for firewood. 4. Exotic and invasive plant species should not be allowed to establish, if the development is approved. <p>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 | <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>conditions prevailing prior to construction.</p> <ol style="list-style-type: none"> 7. All natural areas impacted during construction/prospecting must be rehabilitated with locally indigenous grasses typical of the representative botanical unit. 8. Rehabilitation must take place in a phased approach as soon as possible. 9. Rehabilitation process must make use of species indigenous to the area. Seeds from surrounding seed banks can be used for re-seeding. 10. Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas. 11. Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged. <p>Demarcation of prospecting area</p> <ol style="list-style-type: none"> 12. All plants not interfering with prospecting operations shall be left undisturbed clearly marked and indicated on the site plan. 13. The prospecting area must be well demarcated and no construction activities must be allowed outside of this demarcated footprint. 14. Vegetation removal must be phased in order to reduce impact of construction/prospecting. 15. Site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas. 16. Strict and regular auditing of the prospecting process to ensure containment of the prospecting and laydown areas. | | |
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| | | <p>17. Soils must be kept free of petrochemical solutions that may be kept on site during construction/prospecting. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora.</p> <p>Utilisation of resources</p> <p>18. Gathering of firewood, fruit, muti plants, or any other natural material onsite or in areas adjacent to the site is prohibited unless with prior approval of the ECO.</p> <p>Exotic vegetation</p> <p>19. Alien vegetation on the site will need to be controlled.</p> <p>20. The Contractor should be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion.</p> <p>21. The spread of exotic species occurring throughout the site should be controlled.</p> <p>Herbicides</p> <p>22. Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used.</p> <p>23. The use of pesticides and herbicides on the site must be discouraged as these impact on important pollinator species of indigenous vegetation.</p> <p>Fauna</p> | | |
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| | | <p>24. Rehabilitation to be undertaken as soon as possible after prospecting has been completed.</p> <p>25. No trapping or snaring to fauna on the construction/prospecting site should be allowed.</p> <p>26. No faunal species must be disturbed, trapped, hunted or killed by maintenance staff during any routine maintenance at the development.</p> | | |
| Prospecting of Diamond Alluvial, Diamonds General – excavations and blasting | Loss of topsoil | <ol style="list-style-type: none"> 1. The Contractor should, prior to the commencement of earthworks determine the average depth of topsoil, and agree on this with the ECO. The full depth of topsoil should be stripped from areas affected by construction/prospecting and related activities prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil must be reused where possible to rehabilitate disturbed areas. 2. Care must be taken not to mix topsoil and subsoil during stripping. 3. The topsoil must be conserved on site in and around the pit/trench area. 4. Subsoil and overburden in the prospecting area should be stockpiled separately to be returned for backfilling in the correct soil horizon order. 5. If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or geofabric, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases. | Duration of operation | The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA. |

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| | | <p>6. Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding.</p> <p>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> <p>Establish an effective record keeping system for each area where soil is disturbed for prospecting purposes. These records should be included in environmental performance reports, and should include all the records below.</p> <ul style="list-style-type: none"> • Record the GPS coordinates of each area. • Record the date of topsoil stripping. • Record the GPS coordinates of where the topsoil is stockpiled. • Record the date of cessation prospecting activities at the particular site. • Photograph the area on cessation of prospecting activities. • Record date and depth of re-spreading of topsoil. • Photograph the area on completion of rehabilitation and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. | | |
| | Erosion | <p>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 | The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with |

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| | | <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/prospecting so that the necessary precautions can be implemented. 7. All erosion control mechanisms need to be regularly maintained. 8. Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces. 9. Retention of vegetation where possible to avoid soil erosion. 10. Vegetation clearance should be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time. 11. Re-vegetation of disturbed surfaces should occur immediately after construction/prospecting activities are completed. This should be done through seeding with indigenous grasses. | | <p>NEMA and Duty of Care as prescribed by NEMA.</p> |
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| | | <p>12. No impediment to the natural water flow other than approved erosion control works is permitted.</p> <p>13. To prevent stormwater damage, the increase in stormwater run-off resulting from construction/prospecting activities must be estimated and the drainage system assessed accordingly. A drainage plan must be submitted to the Engineer for approval and must include the location and design criteria of any temporary stream crossings.</p> <p>14. Stockpiles not used in three (3) months after stripping must be seeded/backfilled to prevent dust and erosion.</p> | | |
| | Air Pollution | <p>Dust control</p> <p>14. Wheel washing and damping down of un-surfaced and un-vegetated areas.</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> | Duration of operation | The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA. |

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| | | <p>21. Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled.</p> <p>Odour control</p> <p>22. Regular servicing of vehicles in order to limit gaseous emissions.</p> <p>23. Regular servicing of onsite toilets to avoid potential odours.</p> <p>Rehabilitation</p> <p>24. The Contractor should commence rehabilitation of exposed soil surfaces as soon as practical after completion of earthworks.</p> <p>Fire prevention</p> <p>25. No open fires shall be allowed on site under any circumstance. All cooking shall be done in demarcated areas that are safe and cannot cause runaway fires.</p> <p>26. The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process.</p> | | |
| | Noise | <p>1. The prospecting activities must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of dwellings in close proximity to the development.</p> <p>2. Pans, power plants, crushers, workshops and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites</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 NEMA and Duty of Care as prescribed by NEMA. |

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| | | <p>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. | | |
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| | Impact on potential cultural and heritage artefacts | <ol style="list-style-type: none"> 1. It is recommended that the burial sites are retained and that it should be fenced off for the duration of the mining activities, leaving a buffer zone from the outer edge of the graves. If the graves cannot be retained, it should be relocated, but only on condition of following the correct procedures. 2. Any further 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. 3. Local museums as well as the South African Heritage Resource Agency (SAHRA) should be informed if any artefacts are uncovered in the affected area. 4. 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. 5. 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. | Duration of operation | The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA. |
| Waste Management | | <p>Litter management</p> <ol style="list-style-type: none"> 1. Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction/prospecting site. 2. The Contractor shall supply waste collection bins where such is not available and all solid waste collected | Duration of operation | The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA. |

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| | | <p>shall be disposed of at registered/licensed landfill.</p> <ol style="list-style-type: none"> 3. Good housekeeping practices should be implemented to regularly maintain the litter and rubble situation on the construction/prospecting site. 4. If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal and wood and recycled. An independent contractor can be appointed to conduct this recycling. 5. Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite. 6. Skip waste containers should be maintained on site. These should be kept covered and 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/prospecting site, the Contractor shall provide a method statement with regard to waste management. 9. A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant. 10. Under no circumstances may solid waste be burnt on site. 11. All waste must be removed promptly to ensure that it does not attract vermin or produce odours. <p>Hazardous waste</p> | | |
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| | | <p>12. All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of offsite at a licensed landfill site, where practical. Incineration may be used where relevant.</p> <p>13. Contaminants to be stored safely to avoid spillage.</p> <p>14. Machinery must be properly maintained to keep oil leaks in check.</p> <p>15. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during construction/prospecting and any spills shall immediately be cleaned up and all affected areas rehabilitated.</p> <p>Sanitation</p> <p>16. The Contractor shall install mobile chemical toilets on the site.</p> <p>17. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed.</p> <p>18. Toilets shall be serviced regularly and the ECO shall inspect toilets regularly.</p> <p>19. Toilets should be no closer than 50m or above the 1:100 year flood line from any natural or manmade water bodies or drainage lines or alternatively located in a place approved of by the Engineer.</p> <p>20. Under no circumstances may open areas, neighbours fences or the surrounding bush be used as a toilet facility.</p> <p>21. The construction of “Long Drop” toilets is forbidden, but rather toilets connected to the sewage treatment plant.</p> <p>22. Potable water must be provided for all construction staff.</p> | | |
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| | | <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. | | |
| 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. | | |

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| | | <p>Water Quality</p> <ol style="list-style-type: none"> 3. The quality and quantity of effluent streams discharged to the environment including stormwater should be managed and treated to meet applicable effluent discharge guidelines. 4. Discharge to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria outside a scientifically established mixing zone. 5. Efficient oil and grease traps or sumps should be installed and maintained at refueling facilities, workshops, fuel storage depots, and containment areas and spill kits should be available with emergency response plans. <p>Stormwater</p> <ol style="list-style-type: none"> 6. The site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids and silt or chemical pollutants. 7. Silt fences should be used to prevent any soil entering the stormwater drains. 8. Temporary cut off drains and berms may be required to capture stormwater and promote infiltration. 9. Promote a water saving mind set with construction/prospecting workers in order to Contractor ensure less water wastage. 10. New stormwater construction must be developed strictly according to specifications from engineers in order to ensure efficiency. 11. Hazardous substances must be stored at least 20m from any water bodies on site to avoid pollution. | | |
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| | | <p>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.</p> <p>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.</p> <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> | | |
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| | | <p>19. Concrete contaminated water must not enter soil or any natural drainage system as this disturbs the natural acidity of the soil and affects plant growth.</p> <p>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 DMJ van der Merwe
- The remaining impacts be of an acceptable nature with minimal deterioration over time.
- The final outcome of the prospecting 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 prospecting life.

2. Physical stability

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

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

3. Environmental quality

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

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

4. Health and safety

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

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

5. Land capability / land use

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

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

6. Aesthetic quality

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

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

7. Landscape viability

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

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

8. Biodiversity

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

- Stabilising disturbed areas to prevent erosion in the short- to medium term until a suitable vegetation cover has established; and
- Establishing viable self-sustaining vegetation communities of local fauna, as far as possible.

(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 EMP have been presented to the public as part of the public participation process and on-going closure planning for prospecting.

(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 & Closure 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.

CALCULATION OF THE QUANTUM

Applicant: **DMJ van der Merwe**
 Evaluator:

Ref No.: **NW30/5/1/1/2/11930PR**
 Date: **08-02-2017**

| No. | Description | Unit | A | B | C | D | E=A*B*C*D |
|-------------|---|------|----------|-------------|-----------------------|--------------------|----------------|
| | | | Quantity | Master Rate | Multiplication factor | Weighting factor 1 | Amount (Rands) |
| 1 | Dismantling of processing plant and related structures (including overland conveyors and power lines) | m3 | 140 | 12,84 | 1 | 1 | 1797,6 |
| 2 (A) | Demolition of steel buildings and structures | m2 | 0 | 178,87 | 1 | 1 | 0 |
| 2(B) | Demolition of reinforced concrete buildings and structures | m2 | 0 | 263,59 | 1 | 1 | 0 |
| 3 | Rehabilitation of access roads | m2 | 150 | 32 | 1 | 1 | 4800 |
| 4 (A) | Demolition and rehabilitation of electrified railway lines | m | 0 | 310,66 | 1 | 1 | 0 |
| 4 (A) | Demolition and rehabilitation of non-electrified railway lines | m | 0 | 169,45 | 1 | 1 | 0 |
| 5 | Demolition of housing and/or administration facilities | m2 | 0 | 357,73 | 1 | 1 | 0 |
| 6 | Opencast rehabilitation including final voids and ramps | ha | 0,4 | 182 063,65 | 1 | 1 | 72825,46 |
| 7 | Sealing of shafts adits and inclines | m3 | 0 | 96,02 | 1 | 1 | 0 |
| 8 (A) | Rehabilitation of overburden and spoils | ha | 0 | 125 016,15 | 1 | 1 | 0 |
| 8 (B) | Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential) | ha | 0,1 | 155 705,36 | 1 | 1 | 15570,536 |
| 8 (C) | Rehabilitation of processing waste deposits and evaporation ponds (polluting potential) | ha | 0 | 452 242,17 | 1 | 1 | 0 |
| 9 | Rehabilitation of subsided areas | ha | 0 | 104 682,20 | 1 | 1 | 0 |
| 10 | General surface rehabilitation | ha | 0,2 | 99 033,88 | 1 | 1 | 19806,776 |
| 11 | River diversions | ha | 0 | 99 033,88 | 1 | 1 | 0 |
| 12 | Fencing | m | 50 | 112,97 | 1 | 1 | 5648,5 |
| 13 | Water management | ha | 0 | 37 655,47 | 1 | 1 | 0 |
| 14 | 2 to 3 years of maintenance and aftercare | ha | 0,1 | 13 179,41 | 1 | 1 | 1317,941 |
| 15 (A) | Specialist study | Sum | 0 | | | 1 | 0 |
| 15 (B) | Specialist study | Sum | | | | 1 | 0 |
| Sub Total 1 | | | | | | | 121766,813 |

| | | | | |
|--------------------|-------------------------|-------------|---------------------------|---------------|
| 1 | Preliminary and General | 14612,01756 | weighting factor 2 | 14612,01756 |
| | | | 1 | |
| 2 | Contingencies | 12176,6813 | | 12176,6813 |
| Subtotal 2 | | | | 148555,51 |
| VAT (14%) | | | | 20797,77 |
| Grand Total | | | | 169353 |

It is envisaged that 150 pits will be dug. It may be less depending on results.

840.2939 hectares– 3m x 2m x 3m (150 pits). The total area to be disturbed a year will be- 30 pits x (3m x2m) = 0.018Ha per year. 840.2939 hectares– 20m x 20m x 3m (50 trenches). The total area to be disturbed a year will be- 10 trenches x (20m x20m) = 0.4Ha per year. No more than 0.418ha will be left as un-rehabilitated in two years. Rehabilitation will be done concurrently.

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

Financial Guarantee

The financial guarantee for the rehabilitation for land disturbed DMJ van der Merwe was submitted together with the application for the prospecting right.

Rehabilitation Fund

DMJ van der Merwe 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
- l)

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

| | | | | |
|-----------------------|-----------------|--|---|---|
| | | | | should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required. |
| Water Use and Quality | Water pollution | <ul style="list-style-type: none"> • Conduct regular internal audits • Conduct regular external audits | <ul style="list-style-type: none"> • Environmental Manager • Suitable qualified environmental auditor | Monitoring should be undertaken for duration of operations. Internal audits should be undertaken at least every 6 months. External audits should be undertaken by a suitably qualified auditor on an annual basis. Reports should be made available to the competent authority if required. |

m) 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.

n) Environmental Awareness Plan

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

DMJ van der Merwe 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.

DMJ van der Merwe will implement an incident reporting and reporting procedure in order to identify risks timeously and implement actions to avoid or minimise environmental impacts.

o) 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;

F. Schaele

Signature of the environmental assessment practitioner:

Milnex 189 CC – Environmental Consultants

Name of company:

08 – 02 - 2017

Date:

-END-