

# ENVIRONMENTAL IMPACT ASSESSMENT

A “significant impact” is defined as it is defined in the EIA Regulations (2014): “an impact that may have a notable effect on one or more aspects of the environment or may result non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as by its duration, magnitude, intensity or probability of occurrence”. The objective of this EIA methodology is to serve as framework for accurately evaluating impacts associated with current or proposed activities in the biophysical, social and socio-economical spheres. It aims to ensure that all legal requirements and environmental considerations are met in order to have a complete and integrated environmental framework for impact evaluations.

## 1. IMPACT ASSESSMENT METHODOLOGY

The process of determining impacts to be assessed is one of the most important parts of the environmental impact assessment process. It is of such high importance because the environmental impacts identified can and are often linked to the same impact stream.

In this method all impacts on the biophysical environment are assessed in terms of the overall integrity of ecosystems, habitats, populations and individuals affected. The Environmental Impact Assessment (EIA) 2014 Regulations promulgated in terms of Sections 24 (5), 24M and 44 of the National Environmental Management Act (NEMA) (Act No. 107 of 1998) [as amended] requires that all identified potential impacts associated with the proposed project be assessed in terms of their overall potential significance on the natural, social and economic environments.

The criteria identified in the EIA Regulations (2014) include the following:

- Nature of the impact;
- Extent of the impact;
- Duration of the impact;
- Frequency of the Impact;
- Probability of the impact occurring;
- Degree to which impact can be reversed;
- Degree to which impact may cause irreplaceable loss of resources;
- Degree to which the impact can be mitigated; and
- Cumulative impacts.

Greenmined Environmental has developed an impact assessment methodology (as defined below) whereby the significance of a potential impact is determined through the assessment of the relevant temporal and spatial scales determined of the extent, magnitude and duration criteria associated with a particular impact.

This method does not explicitly define each of the criteria but rather combines them and results in an indication of the overall significance.

**DEFINITIONS AND CONCEPTS:**

**Environmental significance:**

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

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

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

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

**1.1. Nature of the impact**

The nature of an impact can be defined as “a brief description of the impact being assessed, in terms of the proposed activity or project, including the socio-economic or environmental aspect affected by this impact”.

**1.2. Extent of the impact**

The extent of an impact can be defined as “a brief description of the spatial influence of the impact or the area that will be affected by the impact”.

Table 1: Determining the extent of an impact

<b>EXTENT</b>  Extent or spatial influence of impact	<b>Footprint</b>	Only as far as the activity, such as footprint occurring within the total site area
	<b>Site</b>	Only the site and/or 500m radius from the site will be affected
	<b>Local</b>	Local area / district (neighbouring properties, transport routes and adjacent towns) is affected
	<b>Region</b>	Entire region / province is affected
	<b>National</b>	Country is affected

### 1.3. Severity of the impact

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

Table 2: Rating of Severity

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

### 1.4. Duration of the impact

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

Table 3: Rating of Duration

Rating	Description
1	Very Short Term
2	Short Term
3	Medium Term
4	Long Term
5	Permanent

### 1.5. Probability of the impact occurring

The probability of an impact can be defined as “the estimated chance of the impact happening”. Probability refers to how often the activity or aspect has an impact on the environment.

Table 4: Determining the probability of an impact

PROBABILITY	1	Description
	Almost never / almost impossible	Impossible to occur (0 – 20% probability of occurring)

	2	Very seldom / highly unlikely	<i>Unlikely</i> to occur (20 -40% probability of occurring)
	3	Infrequent / unlikely / seldom	<i>May</i> occur (40-60% chance of occurring)
	4	Often / regularly / likely / possible	<i>Likely</i> to occur (60-80% chance of occurring)
	5	Daily / highly likely / definitely	Will <i>certainly</i> occur (80-100% chance of occurring)

### 1.6. Degree to which impact can be reversed

The reversibility of an impact can be defined as “the ability of an impact to be changed from a state of affecting aspects to a state of not affecting aspects”.

Table 5: Determining the reversibility of an impact

<b>REVERSIBILITY</b>	<b>Reversible</b>	Impacts can be reversed through the implementation of mitigation measures
	<b>Irreversible</b>	Impacts are permanent and can't be reversed by the implementation of mitigation measures

### 1.7. Determination of Likelihood:

The irreplaceability (likelihood) of an impact can be defined as “the amount of resources that can/can't be replaced”. The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described below and in tables 6 and 7.

### 1.8. Overall Likelihood

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

#### Example of calculating Overall Likelihood

Consequence	Rating
Duration	Example 4
Probability	Example 2
<b>SUBTOTAL</b>	<b>6</b>
<b>TOTAL LIKELIHOOD</b> (Subtotal divided by 2)	<b>3</b>

#### Determination of Frequency

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

#### Rating of Frequency:

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

**1.9. Determination of Overall Environmental Significance:**

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

**Environmental Significance = Overall Consequence X Overall Likelihood**

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

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

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

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

### 1.10. Determination of Overall Consequence

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

### 1.11. Degree to which the impact can be mitigated

The degree to which an impact can be mitigated can be defined as “the effect of mitigation measures on the impact and its degree of effectiveness”.

Table 6: Determining the mitigation rating of an impact

<b>MITIGATION RATING</b>	<b>MITIGATED Degree impact can be mitigated</b>	High	<i>Impact 100% mitigated</i>
		Medium	<i>Impact &gt;50% mitigated</i>
		Low	<i>Impact &lt;50% mitigated</i>

### 1.12. Cumulative Impacts

The effect of cumulative impacts can be described as “the effect the combination of past, present and “reasonably foreseeable” future actions have on aspects”.

Table 7: Determining the confidence rating of an impact

<b>CUMULATIVE RATING</b>	<b>CUMULATIVE EFFECTS</b>	Low	<i>Minor cumulative effects</i>
		Medium	<i>Moderate cumulative effects</i>
		High	<i>Significant cumulative effects</i>

## 2. The positive and negative impacts that the proposed activity will have on the environment and the community that may be affected.

No other alternative sites needed to be investigated as this is an amendment of the current EMPR.

The site was identified during the assessment phase of the environmental impact assessment, by the applicant and project team, and was therefore selected as the **preferred alternative** due to the following:

#### Positive Impacts:

- The mining site offers the mineral sought after;
- The proposed footprint area was previously used for mining therefore very little indigenous vegetation needs to be disturbed in order to establish the mining area;
- The site is located within an industrial area, and will minimally affect the community with regards to dust and noise;

- The mining area can be reached by an existing access; no new road infrastructure need to be constructed;
- Due to the small size of the activity and the remote location of the mining area the potential impacts on the surrounding environment, associated with mining is deemed to be of low significance; and
- No residual waste as a result of the mining activity will be produced that needs to be treated on site. Any general waste that may be produced on-site will be contained in sealed refuse bins to be transported to the local municipal landfill site (Prieska). The amount of hazardous waste to be produced at the site will be minimal and will mainly be as a result of accidental leakage. Contaminated soil will be removed to the depth of the spillage and contained in sealed bins until removed from site by a hazardous waste handling contractor to be disposed of at a registered hazardous waste handling site.

Negative Impacts:

- Due to the remote location of the mining area very little negative impacts on the community could be identified that were deemed to be of significant importance. The dust and noise impacts that may emanate from the mining area during the operational phase could have a negative impact on the surrounding community if the mitigation measures proposed in this document is not implemented and managed on-site; and
- Negative impacts with regard to the environment include potential contamination of the area due to spillage of hydrocarbon products.

Most of the land is used for grazing, by sheep (for mutton, wool and pelts) and goats, which can be commensurate with conservation. However, under conditions of overgrazing, many indigenous species may proliferate, including *Threethorn Rhigozum trichotomum*, *BitterbosChrysocoma ciliata* and Sweet Thorn Acacia karroo, and many grasses and other palatable species may be lost. There are very few rare or Red Data Book plant species in the Nama Karoo Biome.

The current land use can be identified as for grazing. Woodland/Open bush is scattered throughout the site covering Low shrub land which covers majority of the site, there is also evidence of isolated Grasslands.





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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Fauna	loss of food, nest sites and refugia	Neg	Reversible	1	1	3	1,7	5	3	4	7	Low-Med	Inform staff, contractors and visitors to not harm fauna in the area. Consider the use of bird flappers and balls on the power lines to reduce risk of birds colliding with power lines. Relocate larger animals with the aid of specialists. Ensure relevant permits are in place. Utilize directional lighting and use yellow and orange lighting where possible to reduce impacts on insects. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Conduct annual surveys to monitor faunal biodiversity. Negative impact on fauna that may enter the area: <ul style="list-style-type: none"> <li>• The site manager must ensure that no fauna is caught, killed, harmed, sold or played with.</li> <li>• Workers must be instructed to report any animals that may be trapped in the working area.</li> <li>• No snares may be set or nests raided for eggs or young.</li> </ul>	1	2	5	2,7	2	5	3,5	9	Low-Med
Fauna	Potential damage to or destruction of sensitive faunal habitats: Pans & Watering Points	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Inform staff, contractors and visitors to not harm fauna in the area. Consider the use of bird flappers and balls on the power lines to reduce risk of birds colliding with power lines. Relocate larger animals with the aid of specialists. Ensure relevant permits are in place. Utilize directional lighting and use yellow and orange lighting where possible to reduce impacts on insects. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Conduct annual surveys to monitor faunal biodiversity. Negative impact on fauna that may enter the area: <ul style="list-style-type: none"> <li>• The site manager must ensure that no fauna is caught, killed, harmed, sold or played with.</li> <li>• Workers must be instructed to report any animals that may be trapped in the working area.</li> <li>• No snares may be set or nests raided for eggs or young.</li> </ul>	1	2	3	2	2	3	2,5	5	Low-Med
Flora	Loss of biodiversity.	Neg	Reversible	1	3	4	2,7	3	3	3	8	Low-Med	All vehicles will be regularly serviced to ensure they are in proper working condition and to reduce risk of leaks. All leaks will be cleaned up immediately using an absorbent material.	1	2	3	2	2	2	2	4	Low
Noise	Increased noise levels	Neg	Reversible	1	2	4	2,3	3	4	3,5	8	Low-Med	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	2	1	1,3	1	3	2	3	Low

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Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination	Neg	Reversible	1	2	1	1,3	3	3	3	4	Low	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management • Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion. • Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented. • The effectiveness of the storm water infrastructure needs to be continuously monitored. • The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.	1	2	1	1	1	1	1	1	1	1	Low
Sensitive Landscape	Potential for damage or destruction of sensitive faunal habitats: Pans and watering points	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a	3	3	1	2,3	2	2	2	5	Low-Med		

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													reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.									
Surface Water	Potential hydro carbonation contamination form leaks or spills which may reach downstream surface water bodies	Neg	Reversible	3	3	1	2,3	3	5	4	9	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	3	1	2,3	2	5	3,5	8	Low-Med
Traffic and Safety	Road degradation. Increased potential for road incidences Potential distraction to road users	Neg	Reversible	2	2	1	1,7	2	5	3,5	6	Low-Med	All intersections with main tarred roads will be clearly signposted. drivers will be enforced to keep to set speed limits. Trucks will be road-worthy condition. A fund will be set aside to maintain the serviceability of the road verge where the trucks approach or depart from the main road. Ensure directional floodlights are utilized that focus light on the necessary areas and reduce light pollution to surrounding environment.	1	2	1	1,3	2	5	3,5	5	Low-Med
<b>ACTIVITY:</b>	<b>DEMARICATION OF SITE WITH VISIBLE BEACONS.</b>																					
	No impact could be identified other than the beacons being outside the boundaries of the approved processing area.	Neg	Reversible									Low	Demarcation of the site will ensure that all employees are aware of the boundaries of the processing area and that work stay within approved area.									Low
<b>ACTIVITY:</b>	<b>ESTABLISHMENT OF TEMPORARY BUILDINGS AND INFRASTRUCTURE WITHIN BOUNDARIES OF SITE.</b>																					
	If the infrastructure is established within the boundaries of the approved mining area, no impact could be identified.	Neg										Low	None.									Low
Social & Safety	Influx of unsuccessful job seekers which may informally settle in area.  Potential danger to surrounding communities	Neg	Reversible	1	3	5	3	3	5	4	12	Med	Ensure advertising is limited to local and regional areas, and only specifically advertise for Jobs nationally if skills are not available. Ensure that all power-related structures are adequately marked with relevant signs and warnings and fenced off.	1	2	5	2,7	2	5	3,5	9	Low-Med

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Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: <ul style="list-style-type: none"> <li>• Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 liter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal.</li> <li>• Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility.</li> <li>• Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed.</li> <li>• Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste.</li> <li>• Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area.</li> <li>• Biodegradable refuse generated must be handled as indicated above.</li> </ul>	1	3	4	2,7	2	5	3,5	9	Low-Med
Geology	Disturbance of geological strata	Neg	Irreversible	1	3	5	3	5	5	5	15	Medium-High	None.	1	3	5	3	5	5	5	15	Medium-High

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Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management • Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion. • Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented. • The effectiveness of the storm water infrastructure needs to be continuously monitored. • The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.	1	3	4	2,7	2	4	3	8	Low-Med
Flora	Loss of biodiversity. Potential damage to vegetation in neighbouring areas. Alien invasive encroachment	Neg	Reversible	1	2	4	2,3	3	5	4	9	Low-Med	Ensure permits are obtained to remove protected species. Relocate all protected species with aid of specialists. Only remove species in areas designated for activity and do not disturb surrounding areas. Plan activities carefully so that only vegetation that needs to be impacted is impacted. Incorporate herbaceous vegetation into soil stockpiles to maintain a seed bank. Limit activity to area of disturbance and revegetated impacted areas as soon as possible. Eradicate and control all alien invasive species on site. Rehabilitate and	1	4	2	2,3	2	3	2,5	6	Low-Med

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													revegetated all areas where alien invasive species were removed. Management of weed- or invader plants: <ul style="list-style-type: none"> <li>A weed and invader plant management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of the National Environmental Biodiversity Act [NEMBA] (Act No. 10 of 2004) Alien and Invasive Species Regulation GNR 598 and 599 of 2014.</li> <li>Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: <ul style="list-style-type: none"> <li>"The plants can be uprooted, felled or cut off and can be destroyed completely."</li> <li>"The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide."</li> </ul> </li> <li>The temporary topsoil stockpiles needs to be kept free of weeds.</li> </ul>															
Topography	Alteration of topography	Neg	Irreversible	1	2	5	2,7	2	5	3,5	9	Low-Med	Keep mining in footprint	1	2	5	2,7	2	3	2,5	7	Low-Med						
Land Use	Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers). Degrading of grazing potential for livestock farming	Neg	Reversible	1	2	2	1,7	3	5	4	7	Low-Med	Precautionary measures such as fire breaks would be taken into account and the company will join the local FPA. Should it be found that after mining operation have ceased, that the natural vegetation of the area is unacceptable, the area would be re-vegetated with an indigenous s grass seed mix.	1	2	2	1,7	3	3	3	5	Low-Med						
Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: <ul style="list-style-type: none"> <li>The site must have a neat appearance and be kept in good condition at all times.</li> <li>The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment.</li> <li>Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status.</li> </ul> Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med						
Archaeological & cultural sites	Loss of and disturbance to surface archaeological sites	Neg	Irreversible	1	5	5	3,7	1	5	3	11	Med	Should artefacts or archaeological items be observed, then all activity should cease immediately, the area marked off and a specialists consulted prior to any further activity.	1	5	5	3,7	1	3	2	7	Low-Med						
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low						



Environmental Impact Assessment

Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Air quality	Dust nuisance caused by the disturbance of soil.	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Dust Handling: <ul style="list-style-type: none"> <li>The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents.</li> <li>During periods of high wind spells, the stockpiles must be dampened to control dust emission.</li> <li>The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.</li> <li>Speed on the access roads must be limited to 40km/h to prevent the generation of excess dust. All contractors will enforce speed limits.</li> <li>Gravel roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.</li> </ul> Roads will be sprayed with water regularly ,especially during times of high dust generation.	2	2	1	1,7	2	3	2,5	4	Low
Air quality	Emissions caused by vehicles and equipment	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Emission Handling: All vehicles will be regularly services to ensure they are in proper working condition and to reduce risk of excessive emissions.	2	2	1	1,7	2	3	2,5	4	Low
Fauna	Alienation of animals from the area. Potential risk to avifauna. Potential harm through littering. Loss of food, nest sites and refugia Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators. New habitat available to fauna in the area and reduced activity should result in influx of animals to the area. Impact to nocturnal insects and their predators and other nocturnal animals.	Neg	Reversible	2	2	4	2,7	3	5	4	11	Med	Inform staff, contractors and visitors to not harm fauna in the area. Consider the use of bird flappers and balls on the power lines to reduce risk of birds colliding with power lines. Relocate larger animals with the aid of specialists. Ensure relevant permits are in place. Utilize directional lighting and use yellow and orange lighting where possible to reduce impacts on insects. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Conduct annual surveys to monitor faunal biodiversity. Negative impact on fauna that may enter the area: <ul style="list-style-type: none"> <li>The site manager must ensure that no fauna is caught, killed, harmed, sold or played with.</li> <li>Workers must be instructed to report any animals that may be trapped in the working area.</li> <li>No snares may be set or nests raided for eggs or young.</li> </ul>	2	2	4	2,7	2	5	3,5	9	Low-Med
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out	3	2	4	3	1	1	1	3	Low

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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
	Potential impact of mining activities on the runoff and infiltration of storm water.												silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.									
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	2	1	2	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: ABLUTION FACILITIES</b>																						
Groundwater	Portable Toilets Potential harm through sewage leaks	Neg	Reversible	2	3	5	3,3	3	5	4	13	Med	Portable toilets will be managed by reputable contractors and inspected daily for potential leaks	1	2	3	2	2	5	3,5	7	Low-Med
Surface water	Portable Toilets Potential harm through sewage leaks	Neg	Reversible	2	3	5	3,3	3	5	4	13	Med	Portable toilets will be managed by reputable contractors and inspected daily for potential leaks	1	2	3	2	2	5	3,5	7	Low-Med
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low
Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status. Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med
Soils	Portable Toilets Potential harm through sewage leaks	Neg	Reversible	1	3	5	3	3	5	4	12	Med	Portable toilets will be managed by reputable contractors and inspected daily for potential leaks	1	2	5	2,7	2	5	3,5	9	Low-Med
<b>SUB ACTIVITY: ACCESS ROADS</b>																						



Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: <ul style="list-style-type: none"> <li>Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 litter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal.</li> <li>Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility.</li> <li>Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed.</li> <li>Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste.</li> <li>Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area.</li> <li>Biodegradable refuse generated must be handled as indicated above.</li> </ul>	1	3	4	2,7	2	5	3,5	9	Low-Med
Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management <ul style="list-style-type: none"> <li>Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion.</li> <li>Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented.</li> <li>The effectiveness of the storm water infrastructure needs to be continuously monitored.</li> <li>The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: <ul style="list-style-type: none"> <li>Clean water (e.g. rainwater) must be kept clean and be routed to a</li> </ul> </li> </ul>	1	3	4	2,7	2	4	3	8	Low-Med

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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating			
													natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.												
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low			
Air quality	Dust nuisance caused by the disturbance of soil.	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Dust Handling: • The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. • During periods of high wind spells, the stockpiles must be dampened to control dust emission. • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Speed on the access roads must be limited to 40km/h to prevent the generation of excess dust. All contractors will enforce speed limits. • Gravel roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.	2	2	1	1,7	2	3	2,5	4	Low			

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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	
													Roads will be sprayed with water regularly ,especially during times of high dust generation.										
Air quality	Emissions caused by vehicles and equipment	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Emission Handling: All vehicles will be regularly services to ensure they are in proper working condition and to reduce risk of excessive emissions.	2	2	1	1,7	2	3	2,5	4	Low	
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low	
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	2	1	2	1,7	2	3	2,5	4	Low	
<b>SUB ACTIVITY: SITE OFFICES</b>																							

Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: <ul style="list-style-type: none"> <li>Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 litter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal.</li> <li>Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility.</li> <li>Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed.</li> <li>Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste.</li> <li>Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area.</li> <li>Biodegradable refuse generated must be handled as indicated above.</li> </ul>	1	3	4	2,7	2	5	3,5	9	Low-Med
Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management <ul style="list-style-type: none"> <li>Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion.</li> <li>Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented.</li> <li>The effectiveness of the storm water infrastructure needs to be continuously monitored.</li> <li>The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: <ul style="list-style-type: none"> <li>Clean water (e.g. rainwater) must be kept clean and be routed to a</li> </ul> </li> </ul>	1	3	4	2,7	2	4	3	8	Low-Med

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Nature of Impact	Impact	Positive/Negative/ Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating			
													natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.												
Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status. Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med			

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Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	2	1	2	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: VEHICLE SERVICE AREA</b>																						
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: • Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 litter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed. • Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste. • Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area. • Biodegradable refuse generated must be handled as indicated above.	1	3	4	2,7	2	5	3,5	9	Low-Med



Nature of Impact	Impact	Positive/Negative/ Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Soils	<p>Potential compaction of soils in neighbouring areas.</p> <p>Potential contamination through littering.</p> <p>Potential for loss of soil &amp; damage to soil characteristics.</p> <p>Initial increased potential for loss of soils and soil erosion.</p> <p>Potential hydrocarbon contamination to soils.</p>	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	<p>Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.</p> <p>Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage.</p> <p>Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in.</p> <p>Loss of topsoil due to incorrect storm water management</p> <ul style="list-style-type: none"> <li>• Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion.</li> <li>• Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented.</li> <li>• The effectiveness of the storm water infrastructure needs to be continuously monitored.</li> <li>• The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose:                             <ul style="list-style-type: none"> <li>o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.</li> <li>o Dirty water must be collected and contained in a system separate from the clean water system.</li> <li>o Dirty water must be prevented from spilling or seeping into clean water systems.</li> <li>o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns).</li> <li>o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.</li> </ul> </li> </ul>	1	3	4	2,7	2	4	3	8	Low-Med

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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status. Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low
Air quality	Emissions caused by vehicles and equipment	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Emission Handling: All vehicles will be regularly services to ensure they are in proper working condition and to reduce risk of excessive emissions.	2	2	1	1,7	2	3	2,5	4	Low
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	2	1	2	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: WASH BAY</b>																						



Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: <ul style="list-style-type: none"> <li>Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 litter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal.</li> <li>Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility.</li> <li>Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed.</li> <li>Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste.</li> <li>Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area.</li> <li>Biodegradable refuse generated must be handled as indicated above.</li> </ul>	1	3	4	2,7	2	5	3,5	9	Low-Med
Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management <ul style="list-style-type: none"> <li>Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion.</li> <li>Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented.</li> <li>The effectiveness of the storm water infrastructure needs to be continuously monitored.</li> <li>The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: <ul style="list-style-type: none"> <li>Clean water (e.g. rainwater) must be kept clean and be routed to a</li> </ul> </li> </ul>	1	3	4	2,7	2	4	3	8	Low-Med

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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating			
													natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.												
Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status. Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med			

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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low
Air quality	Emissions caused by vehicles and equipment	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Emission Handling: All vehicles will be regularly serviced to ensure they are in proper working condition and to reduce risk of excessive emissions.	2	2	1	1,7	2	3	2,5	4	Low
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will be called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low
Groundwater	Potential hydrocarbon contamination leaching into the water table. Reduction of local groundwater. Potential contamination through littering leaching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Potential hydrocarbon contamination leaching into the water table. Reduction of local groundwater. Potential contamination through littering leaching into the groundwater table	2	1	2	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: WORKSHOP</b>																						
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: • Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 liter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed. • Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste. • Non-biodegradable refuse such as glass bottles, plastic bags, metal	1	3	4	2,7	2	5	3,5	9	Low-Med

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Nature of Impact	Impact	Positive/Negative/ Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	
													scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area. • Biodegradable refuse generated must be handled as indicated above.										
Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management • Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion. • Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented. • The effectiveness of the storm water infrastructure needs to be continuously monitored. • The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water	1	3	4	2,7	2	4	3	8	Low-Med	

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Nature of Impact	Impact	Positive/Negative/ Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
													systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.									
Flora	Loss of biodiversity. Potential damage to vegetation in neighbouring areas. Alien invasive encroachment	Neg	Reversible	1	2	4	2,3	3	5	4	9	Low-Med	Ensure permits are obtained to remove protected species. Relocate all protected species with aid of specialists. Only remove species in areas designated for activity and do not disturb surrounding areas. Plan activities carefully so that only vegetation that needs to be impacted is impacted. Incorporate herbaceous vegetation into soil stockpiles to maintain a seed bank. Limit activity to area of disturbance and revegetated impacted areas as soon as possible. Eradicate and control all alien invasive species on site. Rehabilitate and revegetated all areas where alien invasive species were removed. Management of weed- or invader plants: • A weed and invader plant management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of the National Environmental Biodiversity Act [NEMBA] (Act No. 10 of 2004) Alien and Invasive Species Regulation GNR 598 and 599 of 2014. • Management must take responsibility to control declared invader or exotic species on the habilitated areas. The following control methods can be used: o "The plants can be uprooted, felled or cut off and can be destroyed completely." o "The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of	1	4	2	2,3	2	3	2,5	6	Low-Med

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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	
													such an herbicide." • The temporary topsoil stockpiles needs to be kept free of weeds.										
Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status. Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med	
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low	
Air quality	Emissions caused by vehicles and equipment	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Emission Handling: All vehicles will be regularly services to ensure they are in proper working condition and to reduce risk of excessive emissions.	2	2	1	1,7	2	3	2,5	4	Low	
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low	

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Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	2	1	2	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: SALVAGE YARD</b>																						
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: • Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 liter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed. • Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste. • Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area. • Biodegradable refuse generated must be handled as indicated above.	1	3	4	2,7	2	5	3,5	9	Low-Med



Nature of Impact	Impact	Positive/Negative/ Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Soils	<p>Potential compaction of soils in neighbouring areas.</p> <p>Potential contamination through littering.</p> <p>Potential for loss of soil &amp; damage to soil characteristics.</p> <p>Initial increased potential for loss of soils and soil erosion.</p> <p>Potential hydrocarbon contamination to soils.</p>	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	<p>Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.</p> <p>Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage.</p> <p>Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in.</p> <p>Loss of topsoil due to incorrect storm water management</p> <ul style="list-style-type: none"> <li>• Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion.</li> <li>• Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented.</li> <li>• The effectiveness of the storm water infrastructure needs to be continuously monitored.</li> <li>• The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: <ul style="list-style-type: none"> <li>o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.</li> <li>o Dirty water must be collected and contained in a system separate from the clean water system.</li> <li>o Dirty water must be prevented from spilling or seeping into clean water systems.</li> <li>o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns).</li> <li>o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.</li> </ul> </li> </ul>	1	3	4	2,7	2	4	3	8	Low-Med



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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status. Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low
Air quality	Emissions caused by vehicles and equipment	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Emission Handling: All vehicles will be regularly services to ensure they are in proper working condition and to reduce risk of excessive emissions.	2	2	1	1,7	2	3	2,5	4	Low
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	2	1	2	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: BUNDED DIESEL AND OIL STORAGE FACILITIES</b>																						

Nature of Impact	Impact	Positive/Negative/ Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Soils	<p>Potential compaction of soils in neighbouring areas.</p> <p>Potential contamination through littering.</p> <p>Potential for loss of soil &amp; damage to soil characteristics.</p> <p>Initial increased potential for loss of soils and soil erosion.</p> <p>Potential hydrocarbon contamination to soils.</p>	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	<p>Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.</p> <p>Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage.</p> <p>Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in.</p> <p>Loss of topsoil due to incorrect storm water management</p> <ul style="list-style-type: none"> <li>• Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion.</li> <li>• Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented.</li> <li>• The effectiveness of the storm water infrastructure needs to be continuously monitored.</li> <li>• The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose:                             <ul style="list-style-type: none"> <li>o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.</li> <li>o Dirty water must be collected and contained in a system separate from the clean water system.</li> <li>o Dirty water must be prevented from spilling or seeping into clean water systems.</li> <li>o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns).</li> <li>o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.</li> </ul> </li> </ul>	1	3	4	2,7	2	4	3	8	Low-Med

Environmental Impact Assessment

Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status. Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	3	2	4	3	1	1	1	3	Low
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	2	1	2	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: GENERATOR AREA (BUNDED)</b>																						

Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management • Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion. • Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented. • The effectiveness of the storm water infrastructure needs to be continuously monitored. • The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.	1	3	4	2,7	2	4	3	8	Low-Med
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low

Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	2	1	2	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: WEIGH BRIDGE</b>																						
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: <ul style="list-style-type: none"> <li>Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 litter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal.</li> <li>Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility.</li> <li>Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed.</li> <li>Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste.</li> <li>Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area.</li> <li>Biodegradable refuse generated must be handled as indicated above.</li> </ul>	1	3	4	2,7	2	5	3,5	9	Low-Med

Nature of Impact	Impact	Positive/Negative/ Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Soils	<p>Potential compaction of soils in neighbouring areas.</p> <p>Potential contamination through littering.</p> <p>Potential for loss of soil &amp; damage to soil characteristics.</p> <p>Initial increased potential for loss of soils and soil erosion.</p> <p>Potential hydrocarbon contamination to soils.</p>	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	<p>Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.</p> <p>Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage.</p> <p>Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in.</p> <p>Loss of topsoil due to incorrect storm water management</p> <ul style="list-style-type: none"> <li>• Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion.</li> <li>• Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented.</li> <li>• The effectiveness of the storm water infrastructure needs to be continuously monitored.</li> <li>• The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: <ul style="list-style-type: none"> <li>o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.</li> <li>o Dirty water must be collected and contained in a system separate from the clean water system.</li> <li>o Dirty water must be prevented from spilling or seeping into clean water systems.</li> <li>o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns).</li> <li>o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.</li> </ul> </li> </ul>	1	3	4	2,7	2	4	3	8	Low-Med



Environmental Impact Assessment

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Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: <ul style="list-style-type: none"> <li>The site must have a neat appearance and be kept in good condition at all times.</li> <li>The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment.</li> <li>Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status. Screens will be considered if I&amp;AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&amp;AP complains are received.</li> <li>Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.</li> </ul>	2	1	3	2	2	3	2,5	5	Low-Med
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low
Air quality	Dust nuisance caused by the disturbance of soil.	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Dust Handling: <ul style="list-style-type: none"> <li>The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents.</li> <li>During periods of high wind spells, the stockpiles must be dampened to control dust emission.</li> <li>The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.</li> <li>Speed on the access roads must be limited to 40km/h to prevent the generation of excess dust. All contractors will enforce speed limits.</li> <li>Gravel roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.</li> </ul> Roads will be sprayed with water regularly ,especially during times of high dust generation.	2	2	1	1,7	2	3	2,5	4	Low
Air quality	Emissions caused by vehicles and equipment	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Emission Handling: All vehicles will be regularly services to ensure they are in proper working condition and to reduce risk of excessive emissions.	2	2	1	1,7	2	3	2,5	4	Low

Environmental Impact Assessment

Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. All leaks will be cleaned up immediately using an absorbent material. Rigs will be regularly serviced to reduce risk of leaks. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan. Utilize water on site responsibly. Ensure all pipelines and water containment facilities are adequately sealed to prevent leaks. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company.	2	1	2	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: PARKING AREA</b>																						



Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management • Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion. • Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented. • The effectiveness of the storm water infrastructure needs to be continuously monitored. • The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.	1	3	4	2,7	2	4	3	8	Low-Med
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low

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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Air quality	Emissions caused by vehicles and equipment	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Emission Handling: All vehicles will be regularly services to ensure they are in proper working condition and to reduce risk of excessive emissions.	2	2	1	1,7	2	3	2,5	4	Low
<b>SUB ACTIVITY: WASTE AREA</b>																						
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: <ul style="list-style-type: none"> <li>Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 litter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal.</li> <li>Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility.</li> <li>Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed.</li> <li>Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste.</li> <li>Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area.</li> <li>Biodegradable refuse generated must be handled as indicated above.</li> </ul>	1	3	4	2,7	2	5	3,5	9	Low-Med

Nature of Impact	Impact	Positive/Negative/ Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Soils	<p>Potential compaction of soils in neighbouring areas.</p> <p>Potential contamination through littering.</p> <p>Potential for loss of soil &amp; damage to soil characteristics.</p> <p>Initial increased potential for loss of soils and soil erosion.</p> <p>Potential hydrocarbon contamination to soils.</p>	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	<p>Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.</p> <p>Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants.</p> <p>Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage.</p> <p>Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in.</p> <p>Loss of topsoil due to incorrect storm water management</p> <ul style="list-style-type: none"> <li>• Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion.</li> <li>• Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented.</li> <li>• The effectiveness of the storm water infrastructure needs to be continuously monitored.</li> <li>• The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose:                             <ul style="list-style-type: none"> <li>o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.</li> <li>o Dirty water must be collected and contained in a system separate from the clean water system.</li> <li>o Dirty water must be prevented from spilling or seeping into clean water systems.</li> <li>o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns).</li> <li>o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.</li> </ul> </li> </ul>	1	3	4	2,7	2	4	3	8	Low-Med

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Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: <ul style="list-style-type: none"> <li>The site must have a neat appearance and be kept in good condition at all times.</li> <li>The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment.</li> <li>Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status.</li> </ul> Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med
Fauna	Alienation of animals from the area. Potential risk to avifauna. Potential harm through littering. Loss of food, nest sites and refugia Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators. New habitat available to fauna in the area and reduced activity should result in influx of animals to the area. Impact to nocturnal insects and their predators and other nocturnal animals.	Neg	Reversible	2	2	4	2,7	3	5	4	11	Med	Inform staff, contractors and visitors to not harm fauna in the area. Consider the use of bird flappers and balls on the power lines to reduce risk of birds colliding with power lines. Relocate larger animals with the aid of specialists. Ensure relevant permits are in place. Utilize directional lighting and use yellow and orange lighting where possible to reduce impacts on insects. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Conduct annual surveys to monitor faunal biodiversity. Negative impact on fauna that may enter the area: <ul style="list-style-type: none"> <li>The site manager must ensure that no fauna is caught, killed, harmed, sold or played with.</li> <li>Workers must be instructed to report any animals that may be trapped in the working area.</li> <li>No snares may be set or nests raided for eggs or young.</li> </ul>	2	2	4	2,7	2	5	3,5	9	Low-Med
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low

Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. All leaks will be cleaned up immediately using an absorbent material. Rigs will be regularly serviced to reduce risk of leaks. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan. Utilize water on site responsibly. Ensure all pipelines and water containment facilities are adequately sealed to prevent leaks. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company.	2	1	2	1,7	2	3	2,5	4	Low
<b>ACTIVITY:</b>		<b>STRIPPING AND STOCKPILING OF TOPSOIL</b>																				
Geology	Disturbance of geological strata	Neg	Irreversible	1	3	5	3	5	5	5	15	Medium-High	None.	1	3	5	3	5	5	5	15	Medium-High
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: <ul style="list-style-type: none"> <li>Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 litter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal.</li> <li>Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility.</li> <li>Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed.</li> <li>Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste.</li> <li>Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area.</li> <li>Biodegradable refuse generated must be handled as indicated above.</li> </ul>	1	3	4	2,7	2	5	3,5	9	Low-Med

Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: • Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 litter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed. • Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste. • Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area. • Biodegradable refuse generated must be handled as indicated above.	1	3	4	2,7	2	4	3	8	Low-Med
Flora	Loss of biodiversity. Potential damage to vegetation in neighbouring areas. Alien invasive encroachment	Neg	Reversible	1	2	4	2,3	3	5	4	9	Low-Med	Ensure permits are obtained to remove protected species. Relocate all protected species with aid of specialists. Only remove species in areas designated for activity and do not disturb surrounding areas. Plan activities carefully so that only vegetation that needs to be impacted is impacted. Incorporate herbaceous vegetation into soil stockpiles to maintain a seed bank. Limit activity to area of disturbance and revegetated impacted areas as soon as possible. Eradicate and control all alien invasive species on site. Rehabilitate and revegetated all areas where alien invasive species were removed. Management of weed- or invader plants: • A weed and invader plant management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of the National Environmental Biodiversity Act [NEMBA] (Act No. 10 of 2004) Alien and Invasive Species Regulation GNR 598 and 599 of 2014. • Management must take responsibility to control declared invader or exotic species on the habilitated areas. The following control methods can be used: o "The plants can be uprooted, felled or cut off and can be destroyed completely." o "The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide." • The temporary topsoil stockpiles needs to be kept free of weeds.	1	4	2	2,3	2	3	2,5	6	Low-Med
Topography	Alteration of topography	Neg	Irreversible	1	2	5	2,7	2	5	3,5	9	Low-Med	Keep mining in footprint	1	2	5	2,7	2	3	2,5	7	Low-Med
Land Use	Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers). Degrading of grazing potential for livestock farming	Neg	Reversible	1	2	2	1,7	3	5	4	7	Low-Med	Precautionary measures such as fire breaks would be taken into account and the company will join the local FPA. Should it be found that after mining operation have ceased, that the natural vegetation of the area is unacceptable, the area would be re-vegetated with an indigenous s grass seed mix.	1	2	2	1,7	3	3	3	5	Low-Med



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Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: <ul style="list-style-type: none"> <li>The site must have a neat appearance and be kept in good condition at all times.</li> <li>The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment.</li> <li>Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status.</li> </ul> Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med
Archaeological & cultural sites	Loss of and disturbance to surface archaeological sites	Neg	Irreversible	1	5	5	3,7	1	5	3	11	Med	Should artefacts or archaeological items be observed, then all activity should cease immediately, the area marked off and a specialists consulted prior to any further activity.	1	5	5	3,7	1	3	2	7	Low-Med
Noise	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. Trucks, machinery and equipment will be regularly serviced to ensure acceptable noise levels are not exceeded. Point sources will be enclosed where possible. Silencers will be utilized where possible. Screens will be considered if I&AP complaints are received.	1	1	3	1,7	2	3	2,5	4	Low
Air quality	Dust generation	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Dust Handling: <ul style="list-style-type: none"> <li>The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents.</li> <li>During periods of high wind spells, the stockpiles must be dampened to control dust emission.</li> <li>The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.</li> <li>Speed on the access roads must be limited to 40km/h to prevent the generation of excess dust. All contractors will enforce speed limits.</li> <li>Gravel roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.</li> </ul> Roads will be sprayed with water regularly ,especially during times of high dust generation.	2	2	1	1,7	2	3	2,5	4	Low



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Air quality	Emissions caused by vehicles and equipment	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Medium	Emission Handling: All vehicles will be regularly serviced to ensure they are in proper working condition and to reduce risk of excessive emissions.	2	2	1	1,7	2	3	2,5	4	Low
Fauna	Alienation of animals from the area. Potential risk to avifauna. Potential harm through littering. Loss of food, nest sites and refugia Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators. New habitat available to fauna in the area and reduced activity should result in influx of animals to the area. Impact to nocturnal insects and their predators and other nocturnal animals.	Neg	Reversible	2	2	4	2,7	3	5	4	11	Med	Inform staff, contractors and visitors to not harm fauna in the area. Consider the use of bird flappers and balls on the power lines to reduce risk of birds colliding with power lines. Relocate larger animals with the aid of specialists. Ensure relevant permits are in place. Utilize directional lighting and use yellow and orange lighting where possible to reduce impacts on insects. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Conduct annual surveys to monitor faunal biodiversity. Negative impact on fauna that may enter the area: • The site manager must ensure that no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set or nests raided for eggs or young.	2	2	4	2,7	2	5	3,5	9	Low-Med
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will be called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	3	2	4	3	1	1	1	3	Low
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will be called in. All leaks will be cleaned up immediately using an absorbent material. Rigs will be regularly serviced to reduce risk of leaks. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan. Utilize water on site responsibly. Ensure all pipelines and water containment facilities are adequately sealed to prevent leaks. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality. All	2	1	2	1,7	2	3	2,5	4	Low

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													hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company.									
<b>OPERATIONAL PHASE</b>																						
<b>ACTIVITY:</b>		<b>DRILLING FOR CONTINUED RESOURCE EVALUATION</b>																				
Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management • Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion. • Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented. • The effectiveness of the storm water infrastructure needs to be continuously monitored. • The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns).	1	3	4	2,7	2	3	2,5	7	Low-Med

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													o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.									
Noise	Noise nuisance generated by drilling equipment and blasting	Neg	Reversible	2	2	1	1,7	1	3	2	3	Low	Blasting alternatives will be considered to reduce noise and associated vibrations	2	1	1	1,3	1	3	2	3	Low
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Contamination of surface or groundwater due to hazardous spills not cleaned: • Regular vehicle maintenance may only take place at the workshop on site. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 liter closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed. • Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste. • Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from	1	3	4	2,7	2	5	3,5	9	Low-Med

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Nature of Impact	Impact	Positive/Negative/Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	
													being dumped on or near the processing area. • Biodegradable refuse generated must be handled as indicated above.										
Flora	Loss of biodiversity. Potential damage to vegetation in neighbouring areas. Alien invasive encroachment	Neg	Reversible	1	4	2	2,3	2	5	3,5	8	Low-Med	Ensure permits are obtained to remove protected species. Relocate all protected species with aid of specialists. Only remove species in areas designated for activity and do not disturb surrounding areas. Plan activities carefully so that only vegetation that needs to be impacted is impacted. Incorporate herbaceous vegetation into soil stockpiles to maintain a seed bank. Limit activity to area of disturbance and revegetated impacted areas as soon as possible. Eradicate and control all alien invasive species on site. Rehabilitate and revegetated all areas where alien invasive species were removed. Management of weed- or invader plants: • A weed and invader plant management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of the National Environmental Biodiversity Act [NEMBA] (Act No. 10 of 2004) Alien and Invasive Species Regulation GNR 598 and 599 of 2014. • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: o "The plants can be uprooted, felled or cut off and can be destroyed completely." o "The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide." • The temporary topsoil stockpiles needs to be kept free of weeds.	1	4	2	2,3	2	3	2,5	6	Low-Med	
Topography	Alteration of topography	Neg	Irreversible	1	2	5	2,7	2	5	3,5	9	Low-Med	Keep mining in footprint	1	2	5	2,7	2	3	2,5	7	Low-Med	
Geology	Disturbance of geological strata	Neg	Irreversible	1	3	5	3	5	5	5	15	Med	None.	1	3	5	3	5	1	3	9	Low-Med	
Land Use	Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers). Degrading of grazing potential for livestock farming	Neg	Reversible	1	2	2	1,7	3	5	4	7	Low-Med	Precautionary measures such as fire breaks would be taken into account and the company will join the local FPA. Should it be found that after mining operation have ceased, that the natural vegetation of the area is unacceptable, the area would be re-vegetated with an indigenous s grass seed mix.	1	2	2	1,7	3	3	3	5	Low-Med	

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Nature of Impact	Impact	Positive/Negative/ Neutral Impact	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating
Visual aspect	Deterioration in visual aesthetics of the area	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: <ul style="list-style-type: none"> <li>The site must have a neat appearance and be kept in good condition at all times.</li> <li>The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment.</li> <li>Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status.</li> </ul> Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med
Archaeological & cultural sites	Loss of and disturbance to surface archaeological sites	Neg	Irreversible	1	5	5	3,7	1	5	3	11	Med	Should artefacts or archaeological items be observed, then all activity should cease immediately, the area marked off and a specialists consulted prior to any further activity.	1	5	5	3,7	1	3	2	7	Low-Med
Noise	Noise nuisance generated by drilling equipment and blasting	Neg	Reversible	2	2	1	1,7	1	3	2	3	Low	Blasting alternatives will be considered to reduce noise and associated vibrations	1	1	1	1	1	3	2	2	Low
Air quality	Dust generation	Neg	Reversible	1	2	1	1,3	1	3	2	3	Low	Dust Handling: <ul style="list-style-type: none"> <li>The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents.</li> <li>During periods of high wind spells, the stockpiles must be dampened to control dust emission.</li> <li>The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.</li> <li>Speed on the access roads must be limited to 40km/h to prevent the generation of excess dust. All contractors will enforce speed limits.</li> <li>Gravel roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.</li> </ul> Roads will be sprayed with water regularly ,especially during times of high dust generation.	1	1	1	1	1	3	2	2	Low

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Fauna	Alienation of animals from the area. Potential risk to avifauna. Potential harm through littering. Loss of food, nest sites and refugia Hindrance to nocturnal animals and change in behaviour of nocturnal prey and predators. New habitat available to fauna in the area and reduced activity should result in influx of animals to the area. Impact to nocturnal insects and their predators and other nocturnal animals.	Neg	Reversible	2	2	4	2,7	3	5	4	11	Low-Med	Inform staff, contractors and visitors to not harm fauna in the area. Consider the use of bird flappers and balls on the power lines to reduce risk of birds colliding with power lines. Relocate larger animals with the aid of specialists. Ensure relevant permits are in place. Utilize directional lighting and use yellow and orange lighting where possible to reduce impacts on insects. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Conduct annual surveys to monitor faunal biodiversity. Negative impact on fauna that may enter the area: • The site manager must ensure that no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set or nests raided for eggs or young.	2	2	4	2,7	2	5	3,5	9	Low
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	2	1	2	1,7	2	5	3,5	6	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	2	1	2	1,7	2	3	2,5	4	Low
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. All leaks will be cleaned up immediately using an absorbent material. Rigs will be regularly serviced to reduce risk of leaks. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan. Utilize water on site responsibly. Ensure all pipelines and water containment facilities are adequately sealed to prevent leaks. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company.	3	3	4	3,3	1	1	1	3	Low
Social & Safety	Health and Safety Risk by Blasting Activities. Potential danger to surrounding communities	Neg	Reversible	1	3	1	1,7	1	3	2	3	Low	Ensure baseline photographs are taken of all structures which may be impacted for photographic evidence prior to any blasting. Ensure procedures in place to compensate for damage. All neighbours need to be notified of each blasting activity. The R33 roads needs to be beacons off during the blasting event.	1	3	1	1,7	1	3	2	3	Low



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													Ensure that all power-related structures are adequately marked with relevant signs and warnings and fenced off.										
<b>ACTIVITY: GENERAL ACTIVITIES</b>																							
<b>SUB ACTIVITY: CREATION OF JOBS</b>																							
Social & Safety	Potential for more employment	Pos	Reversible	2	2	1	1,7	4	5	4,5	8	Low-Med	#REF!	2	1	2	1,7	2	3	2,5	4	Low	
<b>SUB ACTIVITY: ABLUTION FACILITIES</b>																							
Groundwater	Portable Toilets Potential harm through sewage leaks	Neg	Reversible	2	3	5	3,3	3	5	4	13	Med	Portable toilets will be managed by reputable contractors and inspected daily for potential leaks	1	2	3	2	2	5	3,5	7	Low-Med	
Surface water	Portable Toilets Potential harm through sewage leaks	Neg	Reversible	2	3	5	3,3	3	5	4	13	Med	Portable toilets will be managed by reputable contractors and inspected daily for potential leaks	1	2	3	2	2	5	3,5	7	Low-Med	
Noise	Portable Toilets Potential harm through sewage leaks	Neg	Reversible	1	2	4	2,3	5	5	5	12	Medium	Portable toilets will be managed by reputable contractors and inspected daily for potential leaks	1	1	3	1,7	2	3	2,5	4	Low	
Visual aspect	Portable Toilets Potential harm through sewage leaks	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Portable toilets are to be emptied and cleaned regularly. Ensure reputable contractors are utilize for management of facilities. Portable toilets will be managed by a reputable contractor and inspected daily for any potential leaks. Water should not be released into the surrounding environment unless relevant permission obtained from DAW	2	1	3	2	2	3	2,5	5	Low-Med	
Soils	Portable Toilets Potential harm through sewage leaks	Neg	Reversible	1	3	5	3	3	5	4	12	Med	Portable toilets will be managed by reputable contractors and inspected daily for potential leaks	1	2	5	2,7	2	5	3,5	9	Low-Med	
<b>SUB ACTIVITY: WASTE GENERATION</b>																							
Fauna	Potential harm through littering	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.	1	3	4	2,7	2	5	3,5	9	Low-Med	
GROUNDWATER	Potential contamination through littering	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.	1	3	4	2,7	2	4	3	8	Low-Med	
soils	Potential contamination through littering	Neg	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.	2	1	3	2	2	3	2,5	5	Low-Med	
Sensitive Landscape	Potential contamination through littering	Neg	Reversible	2	2	4	2,7	3	5	4	11	Med	Pans and artificial watering points must be cordoned off with at least 100m horizontal distance buffer zones and no activity is too take place within these areas. Consideration should be given to create alternative watering point if existing artificial water point will be disturbed.	2	2	4	2,7	2	5	3,5	9	Low-Med	
Surface water	Potential contamination through littering	Neg	Reversible	3	3	4	3,3	2	1	1,5	5	Low-Med	Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.	3	2	4	3	1	1	1	3	Low	
Groundwater	Potential contamination through littering	Neg	Reversible	2	3	3	2,7	3	5	4	11	Med	Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality.	2	1	2	1,7	2	3	2,5	4	Low	
<b>DECOMMISSIONING PHASE</b>																							
<b>ACTIVITY: SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA (FINAL REHABILITATION)</b>																							



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Soils	Potential compaction of soils in neighbouring areas. Potential contamination through littering. Potential for loss of soil & damage to soil characteristics. Initial increased potential for loss of soils and soil erosion. Potential hydrocarbon contamination to soils.	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Waste generated on site should be recycled as far as possible and sold/ given to interested contractors. Recycled waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recycle waste for disposal at the municipality. Vegetate rehabilitated area as soon as possible. Vegetable berms and stockpiles. Activity should be limited to area of disturbance. Where required the compacted soils should be disked to an adequate depth and re-vegetated with indigenous plants. Re-vegetate any bare soil immediately. Inspect, especially after first heavy rain falls to ensure adequate surface water drainage. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. Loss of topsoil due to incorrect storm water management • Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion. • Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles and should any signs of erosion become apparent soil erosion protection measures must be implemented. • The effectiveness of the storm water infrastructure needs to be continuously monitored. • The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose: o Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. o Dirty water must be collected and contained in a system separate from the clean water system. o Dirty water must be prevented from spilling or seeping into clean water systems. o Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). o The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.	1	2	1	1,3	2	3	2,5	3	Low
Soils	Soils replaced and ameliorated	Pos	Reversible	1	3	4	2,7	3	5	4	11	Med	Ensure activities occur only within the designated areas and stockpile and revegetated soil as soon as possible. Topsoil will be removed before mining activities commence and stored outside of the active mining cell.	1	3	4	2,7	2	3	2,5	7	Low-Med

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Flora	Loss of biodiversity. Potential damage to vegetation in neighbouring areas. Alien invasive encroachment	Neg	Reversible	1	4	2	2,3	2	5	3,5	8	Low-Med	Ensure permits are obtained to remove protected species. Relocate all protected species with aid of specialists. Only remove species in areas designated for activity and do not disturb surrounding areas. Plan activities carefully so that only vegetation that needs to be impacted is impacted. Incorporate herbaceous vegetation into soil stockpiles to maintain a seed bank. Limit activity to area of disturbance and revegetated impacted areas as soon as possible. Eradicate and control all alien invasive species on site. Rehabilitate and revegetated all areas where alien invasive species were removed. Management of weed- or invader plants: • A weed and invader plant management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of the National Environmental Biodiversity Act [NEMBA] (Act No. 10 of 2004) Alien and Invasive Species Regulation GNR 598 and 599 of 2014. • Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: o "The plants can be uprooted, felled or cut off and can be destroyed completely." o "The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide." • The temporary topsoil stockpiles needs to be kept free of weeds.	1	4	2	2,3	2	3	2,5	6	Low-Med
Flora	Area revegetated with indigenous plants	Pos	Reversible	1	2	1	1,3	3	5	4	5	Low-Med	Rehabilitate disturbed areas with natural indigenous flora. Monitor for cover abundance.	1	2	2	1,7	3	4	3,5	6	Low-Med
Topography	Alteration of topography	Neg	Irreversible	1	2	5	2,7	2	5	3,5	9	Low-Med	Keep mining in footprint. Excavation areas will be sloped during rehabilitation to even out depressions.	1	2	5	2,7	2	3	2,5	7	Low-Med
Topography	Eradication of trenches and berms. Re-contouring of area for free surface water drainage. Eradication of stockpiles	Pos	Irreversible	1	2	5	2,7	2	5	3,5	9	Low-Med	Monitor, especially after first heavy rain falls to ensure adequate surface water drainage	1	2	5	2,7	2	3	2,5	7	Low-Med
Land Use	Veldt fire might seriously impact on surrounding land-use (livestock/irrigation of neighbouring farmers). Degrading of grazing potential for livestock farming	Neg	Reversible	1	2	2	1,7	3	5	4	7	Low-Med	Precautionary measures such as fire breaks would be taken into account and the company will join the local FPA. Should it be found that after mining operation have ceased, that the natural vegetation of the area is unacceptable, the area would be re-vegetated with an indigenous s grass seed mix.	1	2	2	1,7	3	3	3	5	Low-Med
Visual aspect	Improved aesthetics through rehabilitation	Pos	Reversible	2	1	3	2	2	5	3,5	7	Low-Med	Visual Mitigation: • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status. Screens will be considered if I&AP complaints are received. Directional lighting and soft lighting will be utilized to ensure that only areas required to be lit are lit. screens will be considered if I&AP complains are received. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental	2	1	3	2	2	3	2,5	5	Low-Med

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													contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality.									
Noise	Noise nuisance caused by machinery	Neg	Reversible	2	2	4	2,7	4	3	3,5	9	Low-Med	Noise Handling: The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. No loud music may be permitted at the processing area. All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.	2	1	4	2,3	3	3	3	7	Low-Med
Air quality	Dust nuisance caused during landscaping activities	Neg	Reversible	2	2	4	2,7	4	5	4,5	12	Med	Dust will be contained within the property boundaries and will therefore affect only the landowner.	2	2	1	1,7	2	3	2,5	4	Low
Air quality	Emission Monitoring: • The emissions generated by the processing activities must be continuously monitored, and addressed by the implementation of dust suppression methods.	Neg	Reversible	1	2	1	1,3	5	5	5	7	Low-Med	#REF!	2	2	1	1,7	2	3	2,5	4	Low
Fauna	Reintroduction of fauna attracted to flora to the area	Pos	Reversible	1	2	4	2,3	3	5	4	9	Low-Med	Inform staff, contractors and visitors to not harm fauna in the area. Conduct annual surveys to monitor faunal biodiversity.	1	2	3	2	1	3	2	4	Low
Social & Safety	Health and safety risk posed by un-sloped areas	Neg	Reversible	1	3	4	2,7	3	3	3	8	Low-Med	Ensure that all staff are made aware of all working conditions on site	2	1	3	2	1	3	2	4	Low
Surface water	Potential silt-loading of drainage lines, downstream and surrounding water bodies. Potential hydrocarbon contamination which may reach downstream surface water bodies. Potential surface water contamination if leaks escape into the environment. Potential impact of mining activities on the runoff and infiltration of storm water.	Neg	Reversible	2	1	2	1,7	2	5	3,5	6	Low-Med	Ensure clean and dirty water separation and storm water management systems are established on site prior to construction taking place. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company. Inspect area for erosion and pooling and rehabilitate if necessary. Continue with surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season. Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will be called in. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan.	2	1	2	1,7	2	3	2,5	4	Low

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Surface water	Containment of dirty water. Improve response to issues relating to deterioration of surface water quality or quantity. free drainage resorted to area. Revegetation of disturbed areas reduces risk of silt loading on downstream water bodies. Large area of surface water runoff return to catchment	Pos	Reversible	3	3	2	2,7	5	1	3	8	Low-Med	Monitor area for erosion and pooling and rehabilitate if necessary. Continue with Surface water monitoring. Ensure water management facilities are operating adequately. Clean out silt build up over dry season.	2	1	2	1,7	2	3	2,5	4	Low
Hazardous Waste	Contamination of area with hydrocarbons or hazardous waste materials	Neg	Reversible	1	3	4	2,7	3	5	4	11	Med	Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. All leaks will be cleaned up immediately using an absorbent material. Rigs will be regularly serviced to reduce risk of leaks. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan. Utilize water on site responsibly. Ensure all pipelines and water containment facilities are adequately sealed to prevent leaks. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company.	1	3	4	2,7	2	5	3,5	9	Low-Med
Groundwater	Potential hydrocarbon contamination leeching into the water table. Reduction of local groundwater. Potential contamination through littering leeching into the groundwater table	Neg	Reversible	2	3	2	2,3	2	5	3,5	8	Low-Med	Truck, machinery and equipment will be regularly serviced to reduce risk of leaks. Any leakages should be reported and treated immediately in a reputable manner. For large spills Hazmat will called in. All leaks will be cleaned up immediately using an absorbent material. Rigs will be regularly serviced to reduce risk of leaks. Pans will be placed under potential leak sites. Any leakages should be reported and treated as per the emergency response plan. Utilize water on site responsibly. Ensure all pipelines and water containment facilities are adequately sealed to prevent leaks. Waste generated on site should be recycled as far as possible and sold/given to interested contractors. Recyclable waste should not be stored on site for excessive periods to reduced risk of environmental contamination. Refuse bins will be placed around site to collect all non-recyclable waste for disposal at the municipality. All hydrocarbons will be stored in mobile bunded containers fitted with taps. Bunded area will have adequate capacity to capacity to contain leaks. Large leaks will be cleared by reputable oil recycling company.	2	1	2	1,7	2	3	2,5	4	Low
Groundwater	Improve response to issues relating to deterioration of groundwater quality or quantity	Pos	Reversible	2	1	2	1,7	2	5	3,5	6	Low-Med	Specialist must be consulted f issues with groundwater are observed and qualities do not fall within the DAW target qualities or water qualities for livestock watering. Any affected registered water user must be compensated if levels an quality are impacted by the mining activities	2	1	2	1,7	2	5	3,5	6	Low-Med

ACTIVITY: Application for Closure Certificate

Cumulative Impacts

Table 9: Cumulative Impact Assessment of Middelwater Prospecting Right

Nature of Impact	Impact	Positive/Negative/ Neutral	Reversibility	Extent	Severity	Duration	Consequence	Probability	Frequency	Likelihood	Significance	Mitigation Rating	Mitigation
<b>CONSTRUCTION AND OPERATIONAL PHASES</b>													
<b>ACTIVITY: Utilization of haul and access roads within the mining right area</b>													
<b>SUB ACTIVITY: Truck and heavy machinery operations</b>													
Traffic & Safety	Increased potential for road incidences	Neg	Reversible	2	3	1	2	3	1	2	4	Low	All intersections with main tarred roads will be clearly signposted. Drivers will be enforced to keep to set speed limits. Trucks will be in road-worthy condition with reflective strips.
Traffic & Safety	Road degradation	Neg	Reversible	1	3	1	1.666667	2	1	1.5	2.5	Low	A fund will be set aside (with the two similar mines in close vicinity of the Tja Naledi) to maintain the serviceability of the road verge where the trucks approach or depart from the main road.