



mineral resources

Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: [EMMANUEL DIAMONDS CC](#)

REFERENCE NUMBER: [NC 30/5/1/3/2/10064 MP](#)

## **ENVIRONMENTAL MANAGEMENT PLAN**

**SUBMITTED  
IN TERMS OF SECTION 39 AND OF REGULATION  
52 OF THE MINERAL AND PETROLEUM  
RESOURCES DEVELOPMENT ACT, 2002,  
(ACT NO. 28 OF 2002) (the Act)**

## **STANDARD DIRECTIVE**

Applicants for prospecting rights or mining permits, are herewith, in terms of the provisions of Section 29 (a) and in terms of section 39 (5) of the Mineral and Petroleum Resources Development Act, directed to submit an Environmental Management Plan strictly in accordance with the subject headings herein, and to compile the content according to all the sub items to the said subject headings referred to in the guideline published on the Departments website, within 60 days of notification by the Regional Manager of the acceptance of such application. This document comprises the standard format provided by the Department in terms of Regulation 52 (2), and the standard environmental management plan which was in use prior to the year 2011, will no longer be accepted.

**IDENTIFICATION OF THE APPLICATION IN RESPECT OF WHICH THE ENVIRONMENTAL MANAGEMENT PLAN IS SUBMITTED.**

<b>ITEM</b>	<b>COMPANY CONTACT DETAILS</b>
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<b>ITEM</b>	<b>CONSULTANT CONTACT DETAILS (If applicable)</b>
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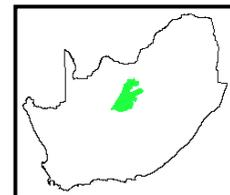
# 1 REGULATION 52 (2): Description of the environment likely to be affected by the proposed prospecting or mining operation

## 1.1 The environment on site relative to the environment in the surrounding area.



The area under application and surrounding environment is relatively flat and featureless, with a gravel road that is used by the farming community to travel to and from the nearest town. Land uses occurring on the applicable area and surrounding areas are; agricultural activities, livestock farming and small to medium scale diamond mining operations (which already have an effect on the air quality of the area).

Open water bodies existent on the farm are a furrow running across the length of the area and manmade farm dams for the storing of water pumped from the ground water system. The soil comprises of deep sandy to loamy sand which is underlain by calcrete. The vegetation of the area is evident of the Kalahari Thornveld (Biome 32 – Low & Rebelo, 1996), but due to disturbance and improper rehabilitation some pioneer species occur within the vegetation.



The area is an open savanna, with Umbrella Thorn (*Acacia tortilis*) and Camel Thorn (*Acacia erioloba*) as the dominant tree species. Scatter individuals of Shepherd's Tree (*Boscia albitrunca*) and Sweet Thorn (*Acacia karroo*) are present while the shrub layer is poorly to moderately developed and individuals of Camphor tree (*Tarchonanthus camphoratus*), Spike-flowered Black Thorn (*Acacia mellifera*), Wild Raisin (*Grewia flava*) and *Lycium hirsutum* occur widely scattered.

The grass layer is will developed and species such as Redgrass (*Themeda triandra*), Common Nine-awn grass (*Enneapogon cenchroides*), Lehmann's Lovegrass (*Eragrostis lehmanniana*), *Elionurus muticuas* and *Cymbopogon plurinodis* are conspicuous.

Wild life species are mainly restricted to small mammal species including Cape spring hare, bat-eared fox, aardvark and several rodent species, but the migrating species such as the Kudu are seen from time to time.

- 1.2 The specific environmental features on the site applied for which may require protection, remediation, management or avoidance.  
There are no specific environmental features that need to be avoided or require any protection.
- 1.3 Map showing the spatial locality of all environmental, cultural/heritage and current land use features identified on site.  
As there is no environmental feature on site that need any avoidance or requires protection, no map is provided for this purpose.
- 1.4 Confirmation that the description of the environment has been compiled with the participation of the community, the landowner and interested and affected parties.  
The description of the environment has not been compiled with the participation on any interested and/or affected parties. All of the above environmental features has been identified and described by in-house personnel of Rock Runner Consultants.

These environmental descriptions will be consulted and dealt with in the public meeting to be held in the near future.

**2 REGULATION 52 (2) (b): Assessment of the potential impacts of the proposed prospecting or mining operation on the environment, socio-economic conditions and cultural heritage.**

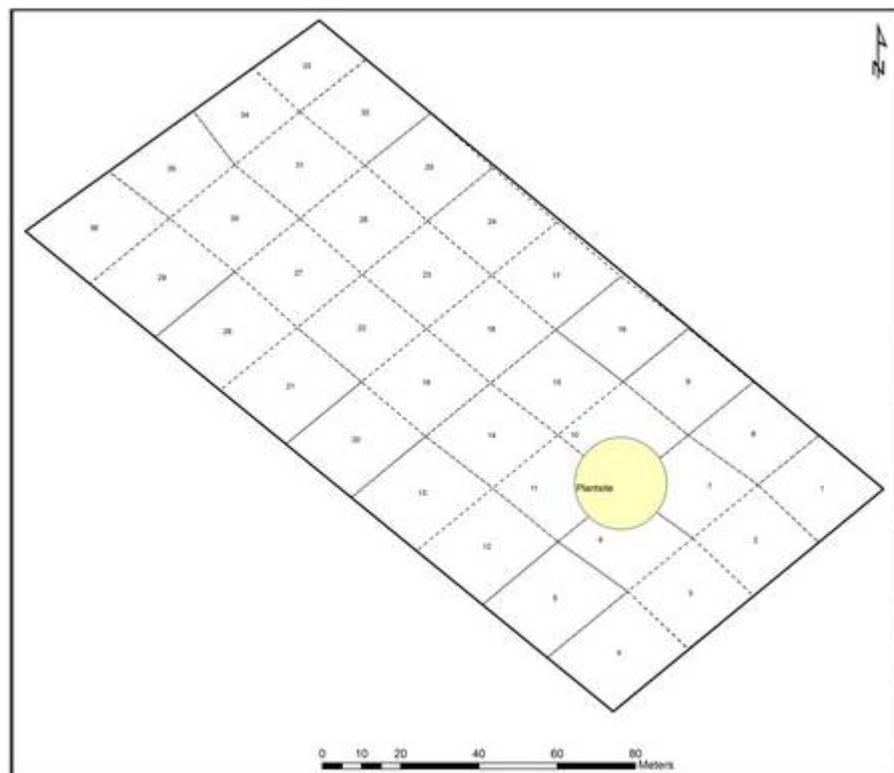
**2.1 Description of the proposed prospecting or mining operation.**

**2.1.1 The main mining activities (e.g. access roads, topsoil storage sites and any other basic prospecting design features)**

The area will be mined by the removal of diamondiferous gravel and processed to recover all the diamonds. The ground is divided into 20 x 20 x 5 m block to be mined during the duration of the right.

While using mobile plant one block will be mined at a time and while a second block is being opened and mined the first will be rehabilitated.

**2.1.2 Plan of the main activities with dimensions.**



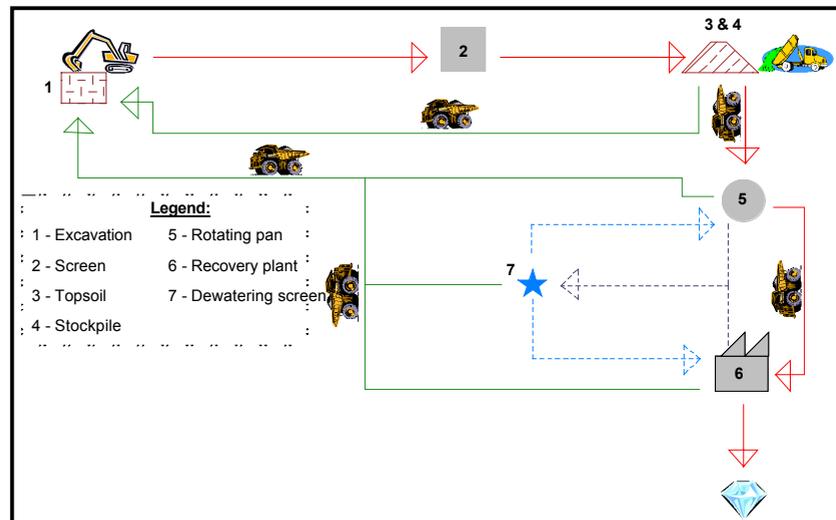
### 2.1.3 Description of construction, operational, and decommissioning phases.

- Construction

During the construction phase all relevant plant equipment, site offices, storage buildings, maintenance and scrap yards, waste management systems and access/mine roads will be planned and erected in such a way that the environment will be minimally affected.

All structures to be erected will comply with the standards as set within the MPRDA regulations and as set out within this document.

- Operational



The mining process will occur systematically starting with the first block and ending with the last, rehabilitating as the mining progresses.

Starting with the first block the topsoil and overburden will be removed and stored next to the block for final rehabilitation purposes. Once the gravel is removed it will be screened to separate the rough material (roughs) from the finer gravels (fines.)

The fines are treated in a rotation pan to form a concentrate of heavy minerals while the lighter minerals are discarded in the form of a puddle.

The concentrate obtained is processed within a sorting plant and the diamonds recovered, while the puddle is treated in a dewatering screen and the 'dry' mud is used

for backfilling. Access water from the dewatering screen is recycled and used in other water requiring mining processes.

The roughs from the screens and 'dry' mud are discarded into the fully excavated area to form a rehabilitation basis. Once completed the surplus from the plant and sorting plant is discarded where after the overburden and topsoil is in their respective order evenly spread over the area to complete rehabilitation.

- **Decommissioning**  
On decommissioning all infrastructure and other related structures as well as all waste will be removed from site and the area rehabilitated.

Final rehabilitation occurs within this phase where the last excavation and all infrastructural sites will be rehabilitated. The roads and areas of compacted soil will be ripped for rehabilitation purposes and left over topsoil will be used in areas where the topsoil was affected.

A maintenance programme will be initiated and all areas will be regularly inspected for the re-growth of indigenous plant species. Should the re-growth not be satisfactory a seed mix should be obtained and sown and monitored. After such a specialist study on the recovery of the environment must be drafted to be submitted with the closure certificate application at the Department of Mineral Resources.

#### **2.1.4 Listed activities (in terms of the NEMA EIA regulations)**

- Possible construction of roads
- Excavating for mining
- Waste management
- Chemical storage and usage
- Water consumption
- Rehabilitation

## 2.2 Identification of potential impacts

(Refer to the guideline)

### 2.2.1 Potential impacts per activity and listed activities.

- Vegetation loss – an area will be cleared for the excavation of the bulk sample. The impact can be regarded as low to medium, with no long term effects. If rehabilitation of these areas is done correctly full recovery of the environment is possible.
- Noise disturbance – during excavation and hauling activities noise is generated by the heavy vehicles. Again the noise will be much localized and should have no impact on the surrounding environment
- Air quality loss – dust will be generated during the excavation and hauling activities. The dust generated may have an impact on the air quality, but with localized effects and should not have an effect on the surrounding environments. For this the impacts can be regarded as low.
- Soil pollution – chemical soil pollution is always a possibility during mechanical prospecting operations. Working machinery and storage facility bears a risk for chemical spillage and the impact thereof may be very severe.
- Soil compaction – heavy vehicles driving off-road bears a great risk to the trampling of vegetation and the compaction of the soil. The plant site area will also become compacted during the duration of the prospecting activities. If not rehabilitated vegetation re-growth is unforeseen and poses a medium risk to the environment. The impact thereof will be regarded as medium.
- Littering pollution – littering during prospecting activities can happen and may have a low to medium impact on the environment depending on the type of littering and the remediation thereof.
- Water pollution – chemical contaminated water from the mineral processing plant, maintenance yards, scrap yards and storage facilities bears a risk to the environment and the purity of the ground water table. This impact should always be regarded as high and proper mitigation and/or remediation measures should be in place.

- Rehabilitation – this should almost always have a positive impact on the environment depending on the correctness of the rehabilitation process. Improper rehabilitation could negatively impact the environment in the short term, but long term effects may turn out to be positive.

#### **2.2.2 Potential cumulative impacts.**

- Soil erosion may occur when vegetation loss is severe and not re-established within a relatively short period of time. The main impact that may lead to soil erosion is the loss of vegetation, soil pollution and soil compaction.
- Ground water contamination may occur during the raining season when runoff water enters nearby open surface water bodies or water ciphering through to the ground water. When this runoff water comes in contact with chemically polluted soil the change for water contamination is high and the pollution of ground water.

#### **2.2.3 Potential impact on heritage resources**

The impacts on the heritage resources could not be given during the compilation of this document as the repost on the archaeological study conducted is still outstanding.

#### **2.2.4 Potential impacts on communities, individuals or competing land uses in close proximity.**

(If no such impacts are identified this must be specifically stated together with a clear explanation why this is not the case.)

It is not foreseen that any community, individual and/or competing land uses may be directly influenced or impacted by the proposing operations. Most of the identified impacts are much localized and there is no evidence of nearby residing communities.

#### **2.2.5 Confirmation that the list of potential impacts has been compiled with the participation of the landowner and interested and affected parties.**

The list of impacts has not been consulted with the participation of the landowner and/or any interested and affected parties. These issues will be discussed with the parties during the public meeting still to be held in the near future.

All impacts have been solely identified by trained personnel of Rock Runner Consultants.

### **2.2.6 Confirmation of specialist report appended.**

(Refer to guideline)

No specialist reports are appended as all the environmental descriptions and impacts identified were done by in-house personnel of Rock Runner Consultants and the Archaeological Reports still outstanding.

## **3 REGULATION 52 (2) (c): Summary of the assessment of the significance of the potential impacts and the proposed mitigation measures to minimise adverse impacts.**

### **3.1 Assessment of the significance of the potential impacts**

#### **3.1.1 Criteria of assigning significance to potential impacts**

The environmental evaluation is done with the assumption that all mitigatory measures and rehabilitation plans have been adhered to (Hacking, 1999).

The preceding list of identified impacts is evaluated hereunder in terms of the following criteria:

SEVERITY	- Low negative impact - Medium negative impact - High negative impact
DURATION	- Short-term - Medium-term - Long-term
SPATIAL SCALE	- Localised - Fairly widespread - Long-term
CONSEQUENCE	- Low consequence - Medium consequence - High consequence
SIGNIFICANCE	- Low overall significance - Medium overall significance - High overall significance

Evaluations are done in terms of the impacts being managed to reduce environmental damage.

#### LEGEND FOR TABLE

Se = Severity	L = Low negative impact
D = Duration	M = Medium negative impact
SP= Spatial scale	H = High negative impact
C = Consequence	pos = Positive impact
P = Probability	

### 3.1.2 Potential impact of each main activity in each phase, and corresponding significance assessment.

ACTIVITY	DESCRIPTION	Se	D	SP	C	P	Si
<b>1. CONSTRUCTION PHASE IMPACTS</b>							
Road construction	Loss of vegetation + habitat	L	L	L	L	M	L
Escom line	Loss of vegetation + habitat	L	L	L	L	L	L
Plant construction	Loss of vegetation + habitat	L	L	L	L	L	L
Pipeline installation	Loss of vegetation + habitat	L	L	L	L	L	L
Offices	Loss of vegetation + habitat	L	L	L	L	L	L
<b>2. OPERATIONAL PHASE IMPACTS</b>							
Mining	Geological degradation	L	L	L	M	H	H
Disposal	Topographic change - dump	L	L	L	L	L	L
Mining	Topographic change - pit	L	L	L	L	L	L
Mining	Soil pollution - accidental spills and leakages	H	L	L	M	L	H
Operation	Soil pollution (workshop, store, parking)	L	L	L	L	L	L
Operation	Loss of grazing	L	L	L	L	L	L
Operation	Loss of/ disturbance to plants	L	L	L	L	L	L
Extraction of groundwater	Depressed water table	NOT APPLICABLE					
Operation	Problem plant invasion	L	L	L	L	L	L
Operation	Effect on animals	L	L	L	L	L	L
*Waste water disposal	Water regime (regional)	L	L	L	L	L	L
Mining	Noise (earth moving equipment and crushers)	L	L	L	L	L	L
Operation	Air quality: Dust - Transport	L	L	L	L	L	L
Operation	Air quality: Dust - Crusher	L	L	L	L	L	L
Mining	Noise - blasting nuisance - regional	NOT APPLICABLE					
Mining	Noise - blasting nuisance - personnel	NOT APPLICABLE					
Mining, operation	Loss of archaeological items	L	L	L	L	L	L
Operation	Sensitive landscapes	NOT APPLICABLE					
Mining	Visual impact	L	L	L	L	L	L
<b>3. DECOMMISSIONING PHASE IMPACTS</b>							
Demolition	Waste disposal	Positive					
Rehabilitation	Re-vegetation	Positive					
<b>4. RESIDUAL IMPACTS AFTER CLOSURE</b>							
Vacated site	Rehabilitation of exposed areas	Positive					
Vacated site	Safety risks	Positive					

### 3.1.3 Assessment of potential cumulative impacts.

All potential cumulative impacts can be regarded as low due to the fact that the decommissioning phase impacts are foreseen to have a positive effect on the environment.

## 3.2 Proposed mitigation measures to minimise adverse impacts.

### 3.2.1 List of actions, activities, or processes that have sufficiently significant impacts to require mitigation.

Although there are certain significant activities that pose a greater risk to the significance of impacts on the environment, the entire invasive operation must be monitored and mitigation measures implemented to prevent any environmental degradation.

### 3.2.2 Concomitant list of appropriate technical or management options

(Chosen to modify, remedy, control or stop any action, activity, or process which will cause significant impacts on the environment, socio-economic conditions and historical and cultural aspects as identified. Attach detail of each technical or management option as appendices)

As the plant site and office will be mobile the mitigation measures will also be minimal. Mitigation measures are to avoid pollution or degradation of the environment. As all mining/prospecting operations pose a risk/threat to the environment, several mitigation measures should be implemented to minimize the risk thereof:-

- Workshop
  - All chemical spillage on the floor will be treated to break them down into their natural components before cleaning of the floor
  - Unusable vehicle and machinery parts will be discarded in a container supplied in the scrap yard.
  - Old diesel and/or oil and related chemicals must be discarded within appropriate marked close containers and stored in the chemical warehouse till the removal thereof.
  - Hand, machinery parts and overalls will be washed in a chemical soap, which can breakdown the oil substance in the water. This used water can be recycled to a storage tank at the ablution block for flushing the toilets where after sceptical chemicals

will be used in the septic tank to neutralize the negative agents.

- Wash-bay
  - The wash-bay need to have a cemented floor at a gradient of 2 degrees, with a channel on the bottom relaying the water which connect to a pipe for further relaying to a specific target site
  - The remaining 3 sides of the floor must at least have a 30 cm wall preventing unwanted spillage of used water.
  - Recycled water from the plant site can be used for this purpose and if possible returned to the recycle pan.
  - Only bio-degradable detergent must be used for this purpose to ensure possible recyclability
  - It must be ensured that electrical cords and plugs are safe from any water contact.
- Diesel storage
  - Diesel tanks will stand in a leak proof bay, supporting the tank volume plus 10%, and a 1.5 meter wide cement floor buffer will encircle the area.
  - Vehicles which are filled with fuel, will park on a cement floor, for if any spillage occurs, it can be cleaned.
  - Two fire extinguishers will be present at all times.
  - Floor area must be constructed at a gradient and a run-off sump to capture all contaminated water to be treated by a separator.
- Chemical warehouse
  - Stored chemicals must be in marked close containers.
  - For remediation purposes a neutralizing agent for each chemical must be available at the entrance of the room at all times.

- Safety ware for workers will always be available for urgent situations
- Unused chemicals must be separated from used chemicals as well as each type of chemical will be grouped to prevent cross contamination and possible hazardous chemical reactions.
- Fire extinguishers for this purpose will be available at all times.
- Chemicals removed from storage will be in approved containers to minimise the possibility of spillage.
- Scrap yard
  - Is a fenced off and clearly marked area, and must be kept clear of all vegetation.
  - Waste types need to be separated into their different groups, for example: steel and tin are separated, as well as unusable items which need to be removed.
- Vehicle storage
  - A demarcated fence off area, away from the operational site will be cleared for vehicle storage and parking
  - Drip pans will be readily available and no parked heavy vehicle will be without a drip pan
  - The area must be continuously inspected for spillages and remediated.
- Sanitation
  - Ablution blocks will at all times be sanitized.
  - Sanitary bins will be provided within the building, no sanitary material will be allowed within the septic tanks.

- Operational procedures
  - Roads and the amount of roads will be planned and constructed with the minimal impact on the environment
  - All vehicular traffic is restricted to the roads and to a speed of 20 km per hour for heavy vehicles and 40 km/h for light weight vehicles
  - Suppression of dust on the roads will occur by the spraying of chemical bounded / fresh / recycled from plant site water.
  - At excavation sites the only necessary vegetation will be cleared.
  - Littering of any product, including cigarette buds, at any operational site shall be seen as an offence, and will not be tolerated.
  - All related chemicals must be handled to minimise spillage and if any occur, it must be dealt with according the relevant remediation measures.
  - No vehicle repairs and maintenance will occur within the operational area.
  - Cleaned and contaminated water will be stored separately at selected demarcated sites for each and clearly marked.
  - Water used in the washing of diamond will be partially from the recycle pan.
  - All water obtained from the washing of the gravel will be cycled and stored in the recycle pan for future use.
- Top soils, stockpiles and wastes
  - Top soils and overburden removed will be separately stored for final rehabilitation purposes.
  - Stock pile dumps will be place near the processing plant to minimize the dust factor.

- Waste dumps will be stored and continuously used for back filling of already excavated and prospected areas.
- The dumps will not exceed the prescribed height.
- Rehabilitation
  - Continuous rehabilitation is as important to the environment as that of closure rehabilitation.
  - All chemicals spills will be rehabilitated immediately.
  - Rip and rehabilitate all unused roads and/or access ways.
  - Partially rehabilitated excavations that are dormant will be fenced off and clearly marked.
  - Rehabilitation will be finalized by the planting of indigenous species with regular inspections for the removal of pioneer species.
- Safety
  - Employees at the chemical storage area will be supplied with safety clothing and during the cleaning of spillage it is advisable that chemical resistant boots and hand gloves are worn.
  - Fire extinguishers will be kept in good order and serviced regularly and installed at all fire hazardous areas.
  - Vehicles will be equipped with a red flag on a long enough rod to be easily observed by the heavy vehicle drivers and a roll bar.
  - Hard hats, ear plugs, safety glasses, dust masks, gloves, hard point boots, reflector vests and overalls will be supplied and is compulsory before entering the mine area.
  - The mine entrance will be clearly marked with all regulatory signs to indicate a potential dangerous zone.

- Personnel need to be trained on health and safety matters in line with the health and safety act for mining.
- All buildings will consist of appropriate signs indication function and potential dangers.
- All personnel will receive basic training in handling and remediation of chemical spills.
- A specific group of a number of volunteers will be trained in the 1<sup>st</sup> two basic levels of first aid as well as fire fighting to handle the following situations, till professional help arrives at site:-
  - ✓ Fire outbreaks
  - ✓ Accidental injury
  - ✓ Injury incurred from animal attacks
  - ✓ Chemical burns
  - ✓ Sudden illnesses, e.g. heart attack
- Remediation measures on accidental pollution
  - Accidental pollution is the accidental spillage of chemicals, oil, fuel, or leakage of the storage tanks.
  - Chemicals, oil and fuel spillages will be treated with a neutralizing agent.
  - Chemically contaminated soil will be removed and appropriately stored till the removal thereof. Stored top soil will be evenly spread to recover the area.
  - Septic tank leakage will be handled by the removal of the soil to be treated and the rehabilitation of the area thereafter.
  - In the outbreak of a fire, the site will be evacuated. A special group of people, who is trained in this regard, will put the fire out and secure the area.

- Waste Management

Waste management is very crucial to a successful mine with health and environmental awareness in the front line.

- Scrap metal

- ✓ The scrap yard will be fenced off and all scrap metal will be stored separately, while all unused vehicle/machinery parts will be discarded within a provided container.

- ✓ During the course of mining all scrap within the scrap yard will be sold to the local scrap metal agencies, before tendering it to surrounding towns.

- ✓ At closure of the mine the remaining scrap will be sold on a tender basis to all interested agencies.

- ✓ During closure rehabilitation the scrap yard will be inspected and all chemical spillage will be obviated before the entire area is ripped and rehabilitated.

- ✓ After rehabilitation of the scrap yard is completed the fence will be removed and the environment left in a natural state.

- Chemical waste

- ✓ Chemical and chemical containing waste will be stored in close containers within the Chemical storage room

- ✓ Once the area specified for these waste is approximately 80% full, the different agencies dealing with these specific chemicals will be contacted for the safe removal thereof.

- Waste water

As all waste water will be reused, it is not foreseen that waste water will be of any concern, but the following must be stated for future references:-

- ✓ All waste water will be treated to be used in other areas requiring the use of water, but not necessarily require clean water

- ✓ During mine closure the Department of Water Affairs will be contacted for the authorization and specific regulations on handling waste water.
- ✓ Waste water specialist will be contracted to help manage and cleaning the water for safe return to the environment if possible, otherwise the removal thereof to the recommended agencies.
- Domestic waste
  - ✓ Containers will be installed and clearly marked for this purpose.
  - ✓ It is preferable that people is aware of the splitting of waste into their different categories, i.e. glass, plastic, paper, tin and other waste.
  - ✓ Contracts with the local municipality/agencies will be signed for the removal of these containers on the appropriate schedule of once as week, but if found necessary twice a week.
- Human waste
  - ✓ All human waste and related waste will be contained within septic tanks installed for this purpose.
  - ✓ Septic tanks and chemical toilettes will be chemically treated and maintained by a contracting agency.
  - ✓ The local municipality will be contracted on the draining of the septic tank and the removal of its contents to the sewerage plant of their choice.
  - ✓ Sanitation material within the bins provided will be closed in coloured plastics and disposed off with domestic waste.
- Other relevant waste
  - ✓ Old tyres will be removed and sold to the appropriate agencies.
  - ✓ Old fencing material will be handled as scrap metal

### 3.2.3 Review the significance of the identified impacts

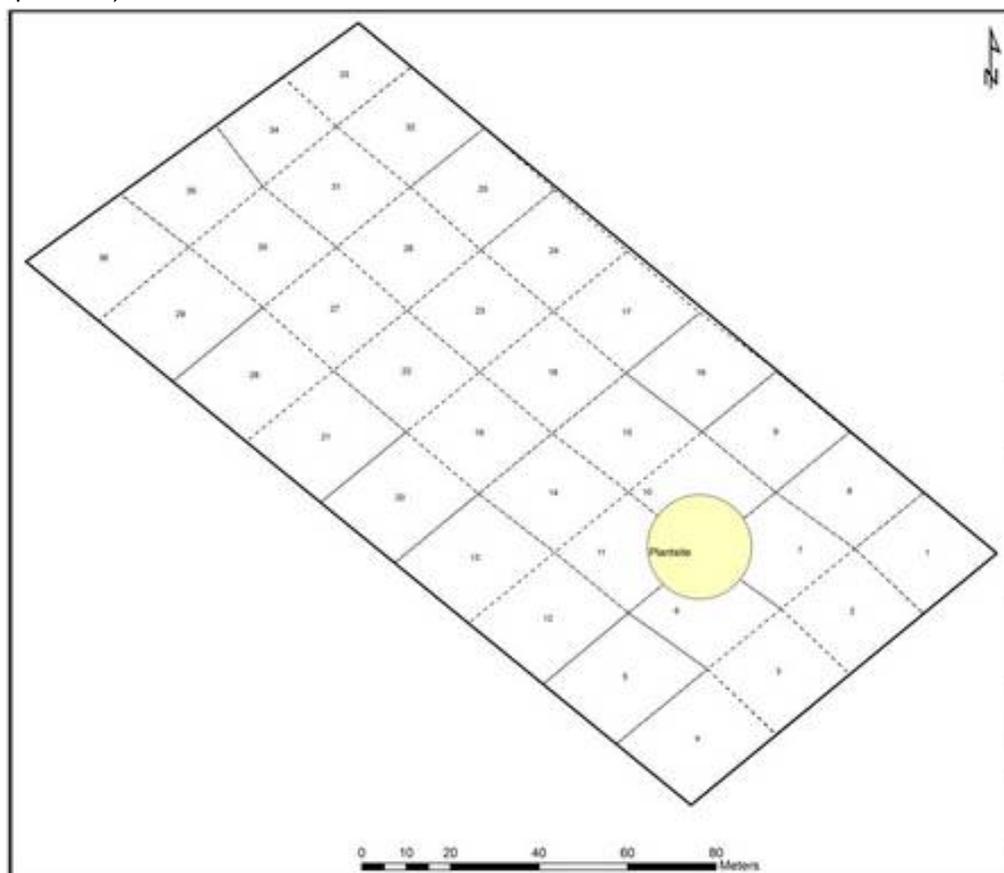
(After bringing the proposed mitigation measures into consideration).

After bringing all mitigation measures into consideration the significance of the identified impacts can be regarded as low to medium, if they occur.

## 4 REGULATION 52 (2) (d): Financial provision. The applicant is required to-

### 4.1 Plans for quantum calculation purposes.

(Show the location and aerial extent of the aforesaid main mining actions, activities, or processes, for each of the construction operational and closure phases of the operation).



### 4.2 Alignment of rehabilitation with the closure objectives

(Describe and ensure that the rehabilitation plan is compatible with the closure objectives determined in accordance with the baseline study as prescribed).

Rehabilitation will be done as the mining activities progresses. Only two excavations will be open at a time, one for backfilling purposes and one for excavational purposes.

The already excavated area will be backfilled and rehabilitated in the following manner:-

- The roughs from the screening plant and 'dry' mud from the dewatering screen are used for initial backfilling. This mixture is left to settle before continuing with backfilling.
- Once the roughs and 'dry' mud settled the surplus from the scrubber and sorting plant is discarded into the partially rehabilitated excavation.
- During final rehabilitation the overburden and topsoil is evenly spread over the area in their respective order.
- A monitoring programme is implemented and the site is checked on a monthly basis for the re-growth of indigenous species and any invader/pioneer species removed.
- Access water from the mineral processing activities is stored in an evaporation dam from where it can be re-used in any part of the mining operations.

#### 4.3 Quantum calculations.

(Provide a calculation of the quantum of the financial provision required to manage and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulation 54 (1) in respect of each of the phases referred to).

##### CALCULATION OF THE QUANTUM

Applicant:

Emmanuel Diamonds CC

Location:

Snyder's Rush

Date:

Jun-12

No.	Description	Unit	A	B	C	D	E=A*B*C*D Amount (Rands)
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	m3	-	R 10.27	1	1	R -
2 (A)	Demolition of steel buildings and structures	m2	-	R 143.09	1	1	R -
2(B)	Demolition of reinforced concrete buildings and structures	m2	-	R 210.87	1	1	R -
3	Rehabilitation of access roads	m2	600.00	R 25.61	1	1	R 15 366.00
4 (A)	Demolition and rehabilitation of electrified railway lines	m	-	R 248.52	1	1	R -
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	-	R 135.56	1	1	R -
5	Demolition of housing and/or administration facilities	m2	-	R 286.18	1	1	R -
6	Opencast rehabilitation including final voids and ramps	ha	1.50	R 150 016.59	1	1	R 225 024.89
7	Sealing of shafts adits and inclines	m3	-	R 76.82	1	1	R -
8 (A)	Rehabilitation of overburden and spoils	ha	0.75	R 100 011.06	1	1	R 75 008.30
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	-	R 124 561.97	1	1	R -
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	-	R 361 787.01	1	1	R -
9	Rehabilitation of subsided areas	ha	-	R 83 744.20	1	1	R -
10	General surface rehabilitation	ha	0.81	R 79 225.63	1	1	R 64 172.76
11	River diversions	ha	-	R 79 225.63	1	1	R -
12	Fencing	m	200.00	R 90.37	1	1	R 18 074.00
13	Water management	ha	-	R 30 123.81	1	1	R -
14	2 to 3 years of maintenance and aftercare	ha	2.35	R 10 543.33	1	1	R 24 776.83
15 (A)	Specialist study	Sum	1.00	R 20 000.00	1	1	R 20 000.00
15 (B)	Specialist study	Sum				1	R -
Sub Total 1							R 442 422.77
1	Preliminary and General	R	53 090.73		weighting factor 2 1		R 53 090.73
2	Contingencies	R				44 242.28	R 44 242.28
Subtotal 2							R 539 755.77
VAT (14%)							R 75 565.81
<b>Grand Total</b>							<b>R 615 321.58</b>

The total amount calculated for financial provision is R 615 321.58, but as rehabilitation occurs concurrently with the prospecting activities over a period of two years, the actual amount payable for financial provision is R 307 660.79.

#### **4.4 Undertaking to provide financial provision**

(Indicate that the required amount will be provided should the right be granted).

The members on Emmanuel Diamonds CC undertake to provide the financial provision for the amount of **R 307 660.79** in the form of a Bank Guarantee should the Right be granted.

### **5 REGULATION 52 (2) (e): Planned monitoring and performance assessment of the environmental management plan.**

#### **5.1 List of identified impacts requiring monitoring programmes.**

All mining actions, activities and processes should be monitored against the mitigation measures as stipulated above in Section 3.2.2 of this document on an annual basis.

#### **5.2 Functional requirements for monitoring programmes.**

Monitoring programmes and reports should be conducted by an independent environmental consultant for accurate and true statements. This should be done on an annual basis, but the applicant himself is free to employ a person with environmental qualifications to oversee the execution of the Approved Environmental Report on a daily basis.

#### **5.3 Roles and responsibilities for the execution of monitoring programmes.**

It is the responsibility of the mine manager to see that the monitoring programmes are kept updated and is done timely to be submitted to the DMR. The independent environmental consultant has a sole responsibility towards the environment and to see that the execution on the Environmental Management Plan is done correctly and safely.

The finding of the consultant shall be reported in a written document and copies submitted to the client, DMR and farm owner.

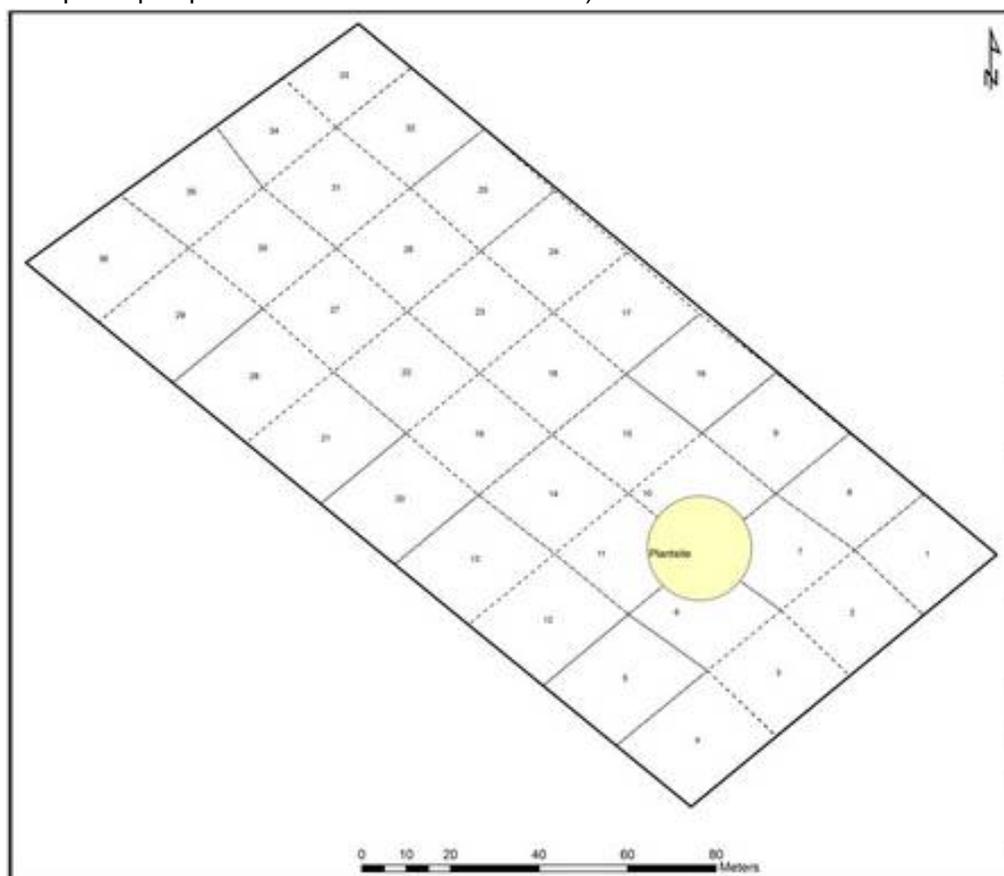
#### **5.4 Committed time frames for monitoring and reporting.**

Monitoring assessments should be done on a six monthly bases with recommendations given to the mine. A major survey shall be conducted on an annual basis and the report thereof submitted to the relevant Department of Mineral Resources.

## 6 REGULATION 52 (2) (f): Closure and environmental objectives.

### 6.1 Rehabilitation plan

(Show the areas and aerial extent of the main prospecting activities, including the anticipated prospected area at the time of closure).



### 6.2 Closure objectives and their extent of alignment to the pre-mining environment.

The main closure objectives are to create a post-mining environmental state as close as possible to the pre-mining state of the environment. This can be accomplished by the correctness of rehabilitation and proper after-care activities.

### 6.3 Confirmation of consultation

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

The closure objectives in regard to the environment have not been consulted with the landowner and/or any interested and affected parties. Such consultations still need to be conducted and should be done in the near future in the form of a public meeting.

**7 REGULATION 52 (2) (g): Record of the public participation and the results thereof.**

**7.1 Identification of interested and affected parties.**

(Provide the information referred to in the guideline)

**7.2 Identification of interested and affected parties.**

(Provide the information referred to in the guideline)

- i. Name the community or communities identified, or explain why no such community was identified.**
  - Tradequick 190 Cc
  - Denis Wakeford Family Trust
  - NVW Familie Trusr
  - KD Mining (Pty) Ltd
  - Vanzoelenslaagte Farms Cc
  - Stobo Water Boring Co (Pty) Ltd
  - Mr. Werner Franz Swart
  
- ii. Specifically state whether or not the Community is also the landowner.**

The community is not the landowner.
  
- iii. State whether or not the Department of Land Affairs been identified as an interested and affected party.**

The community is not the landowner.
  
- iv. State specifically whether or not a land claim is involved.**

No land claim is involved.
  
- v. Name the Traditional Authority identified.**

No Traditional Authority was identified.
  
- vi. List the landowners identified by the applicant.**

(Traditional and Title Deed owners)  
Tradequick 190 Cc
  
- vii. List the lawful occupiers of the land concerned.**

Tradequick 190 Cc
  
- viii. Explain whether or not other persons' (including on adjacent and non-adjacent properties) socio-economic conditions will be directly affected by the proposed prospecting or mining operation and if not, explain why not.**

Due the nature of the operation being a prospecting operation, no significant influence will or can be made on the socio-economic conditions. Only when it is proven feasible to convert

to a mining right will the socio-economic conditions be influenced.

- ix. Name the Local Municipality.**  
Dikgatlong Municipality
- x. Name the relevant Government Departments, agencies and institutions responsible for the various aspects of the environment and for infrastructure which may be affected by the proposed project.**
- Department Environmental Affairs
  - Department Water Affairs and Forestry
  - Land Claims Commissioner
  - Dikgatlong Municipality
  - SARA
- xi. Submit evidence that the landowner or lawful occupier of the land in question, and any other interested and affected parties including all those listed above, were notified**  
Only the land owners and the owners of the farms surrounding the area applied for were notified. The letters were delivered by the applicant himself.
- 7.3 The details of the engagement process.**
- 7.3.1 Description of the information provided to the community, landowners, and interested and affected parties.**  
The applicant is well known under the neighbouring farmers and he explained the procedures of the exploration process to be followed to them. No feedback was received from the notified parties, would they have asked for it, the description of the operation would have been supplied to them.
- 7.3.2 List of which parties indentified in 7.1 above that were in fact consulted, and which were not consulted.**
- Newspaper notification in the Volksblad
  - Newspaper notification in the Diamond Fields Advertiser
  - Tradequick 190 Cc
  - Denis Wakeford Family Trust
  - NVW Familie Trusr
  - KD Mining (Pty) Ltd
  - Vanzoelenslaagte Farms Cc
  - Stobo Water Boring Co (Pty) Ltd
  - Werner Franz Swart

**7.3.3 List of views raised by consulted parties regarding the existing cultural, socio-economic or biophysical environment.**

No feedback was received from the notified parties.

**7.3.4 List of views raised by consulted parties on how their existing cultural, socio-economic or biophysical environment potentially will be impacted on by the proposed prospecting or mining operation.**

No feedback was received from the notified parties.

**7.3.5 Other concerns raised by the aforesaid parties.**

No feedback was received from the notified parties.

**7.3.6 Confirmation that minutes and records of the consultations are appended.**

The public did not respond to the notifications placed in the Volksblad and Diamond Fields Advertiser, therefore there was no need for a public meeting.

**7.3.7 Information regarding objections received.**

No objections to the proposed prospecting operation were received.

**7.4 The manner in which the issues raised were addressed.**

No feedback was received from the notified parties.

**8 SECTION 39 (3) (c) of the Act: Environmental awareness plan.**

**8.1 Employee communication process**

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

Initial employee training will be done on employment of personnel, handling all issues related to General and Conservational Environmental Awareness. Follow up training workshops will be held on an annual basis and when expansion and/or implementation of new equipment are introduced.

Motivation:

- Inspections will be held on a regular basis against do's and don'ts listed in this document.

- On the discretion of the management, motivation can be implemented by an all expenses paid braai/function at the end of unbroken fixed environmental contamination free hours.

## 8.2 Description of solutions to risks

(Describe the manner in which the risk must be dealt with in order to avoid pollution or degradation of the environment).

- Everyday awareness
  - Littering
 

Plastics, rubber, some types of paper and glass are not biodegradable and release poisons into the environment when exposed to harsh weather conditions, even when buried, they tend to resist weathering. These poisons released into the environment can be harmful to the plant itself and if not some plants tend to store all absorbed substances in their fruit, roots and root tuber and the last mentioned may be utilized by humans or animals leading to the consuming of harmful chemicals that may pose illness or even death.

No glass, paper, plastics and cigarette buds are to be littered during the duration of the prospecting operations. Garbage containers will be installed and maintained to prevent litter pollution.

- Open fires
 

The Northern Cape is generally known as a semi-arid region with less than moderate rainfall per annum. It is by law prohibited to start open fires (Section 25 of the Government Gazette Vol. 401 No. 19515 of 27 November 1998 regarding the National Veld and Forest Fire Act 1998 (Act no. 101 of 1998)).

Due to the hot and dry conditions the region is very susceptible for runaway fires and no open fires will be tolerated during the prospecting period and as this is regarded by law as a criminal offence related penalties can be issued. The littering of self ignitable substances/objects (e.g. matches) are also not allowed as it will always pose a danger regarding field fires and if such happen the person responsible for the littering will be charged with arson and related penalties can be issued.

- Sanitation and Personal Hygiene  
Sanitation and personal hygiene is very important subject for environmental and social health. Improper sanitation habits can lead to intestinal parasite infestations within humans and animals, endangering the overall health of the recipients. Unfortunately these infestations do not stay only within the host and will spread rapidly throughout a community or herd.

Human viruses like Tubercle Bacillus (TB) and Herpes simplex, both are very contagious, spread vigorously throughout a community not handling good hygiene habits/practices.

- ✓ Proper sanitation/ablution blocks will be erected during the commissioning phase at the 'mine' and strict use and cleanliness of these facilities will be enforced during the entire life of the project.
- ✓ Employees will further be advised the educated on the importance of consuming clean and fresh water. Several sites will be identified and colour coded water tanks will be erected for safe human water consumption.

- Fauna  
Employees will be advised to stay clear from any wild animal or reptile and not to try and provoke them in any manner. They will further be educated on dangerous and poisonous reptiles and the actions to be taken when such reptiles are encountered.

- Flora  
The vegetation of the Northern Cape regions is very fragile and easily endangered by pioneer species invading the Northern Cape at an alarming rate and due to the slow growth rate of our indigenous species.
  - ✓ No indigenous shrubs or trees will be unnecessarily uprooted and utilized for firewood, they would rather be advised to utilize pioneer species and be educated on which plant species are indigenous, endangered or pioneer.
  - ✓ Penalties will be given to individuals that damage any endangered species e.g. cutting branches/bark from a Camel / Grey Camel tree

- Work related awareness
  - Work shops

All work shop personnel will receive a basic information session regarding the threats of diesel, oil and other related chemicals impose on the environment.

The following must be implemented or enforced:-

- ✓ Before cleaning the work shop, make sure all spillages have been treated.
- ✓ When handling related chemicals make sure of no-spillage procedures.
- ✓ Make sure boots are cleaned from chemicals before leaving the workshop into the unprotected environment.
- ✓ Vehicles must be in the workshop before removal of drip pans.
- ✓ When working on equipment outside the workshop, the appropriate measures needs to be implemented to preven chemical spillage.
- ✓ Related waste/scrap must be dispose off in the appropriate manner.
- Wash bay

Although washing of vehicles don not pose a risk to the environment several pointers need to be adhered to:-

  - ✓ Be sure that the electrical wires of the washing equipment do not make any contact with water used.
  - ✓ Plastics or domestic wastes removed from the vehicles need to be discarded in the appropriate manner
  - ✓ If any oil or diesel leakage is observed, immediate communication with the workshop and repair of the vehicle needs to be done, before it is cleaned or can be cleaned in the workshop.
  - ✓ Make sure boots are cleaned from chemicals before leaving the bay into the unprotected environment.
  - ✓ When a detergent is used it must be ensured that it is bio-degradable and allocated for this purpose.

- Heavy vehicle operators  
All heavy vehicles pose a threat to the environment in several ways. Some awareness must be initiated by the operators to minimize the threat to the environment.

The following must be implemented or enforced:-

- ✓ Daily checking for oil/diesel leakages before a vehicle is operated.
  - ✓ Drip pans must be installed during 'off-time'
  - ✓ Immediate communication with the workshop when faults are observed
  - ✓ Strict adherence to the mine roads and no off-road driving to prevent trampling of vegetation.
  - ✓ Driving speed must be complied with. Beware of animal, workers and other vehicles.
- Machinery operators  
Although the operational equipment does not pose any environmental risk, employees still need to adhere to some measurements to prevent any spillage.
  - Maintenance personnel  
All maintenance personnel must receive basic training on work related environmental awareness to minimize/eliminate the possibility of environmental degradation.

Pointers that will be looked at:-

- ✓ Electricians may not leave any cables unprotected scattered on the site – animals may get tangled up.
- ✓ During fencing/rehabilitation common fence wires may not be left scattered as these rust over time – any cuts to animals and humans (sepsis and tetanus risk) can lead to suffering or great discomfort.
- ✓ No metals may be left scattered as it pose the same threat as described directly above.

- ✓ All personnel handling work related chemicals must follow handling procedures – any spillage contaminating the ground will pose risk to environmental degradation.
- ✓ All chemicals used must be put to storage afterwards – containers may leak and environmental contamination occurs.

### **8.3 Environmental awareness training.**

(Describe the general environmental awareness training and training on dealing with emergency situations and remediation measures for such emergencies).

All training will be handled by a Trained Environmental Consultant and proof thereof submitted. Reports on these training will be submitted on an annual basis to the Department Mineral Resources.

## **9 SECTION 39 (4) (a) (iii) of the Act: Capacity to rehabilitate and manage negative impacts on the environment.**

### **9.1 The annual amount required to manage and rehabilitate the environment.**

(Provide a detailed explanation as to how the amount was derived)

The annual amount required to manage and rehabilitate the environment is **R 307 660.79** as calculated in Section 4.3 of this document.

## **10 REGULATION 52 (2) (h): Undertaking to execute the environmental management plan.**

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises EIA and EMP compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard, and the applicant undertakes to execute the Environmental management plan as proposed.

<b>Full Names and Surname</b>	<b>PATRIC J MASON</b>
<b>Identity Number</b>	<b>720320 5182 08 5</b>

**-END-**