

Pioneer Minerals (Pty) Ltd

Background Information Document

Public participation process

PUBLIC PARTICIPATION PROCESS FOR AN APPLICATION FOR A PROSPECTING RIGHT FOR DIAMONDS (ALLUVIAL); DIAMONDS (IN KIMBERLITES); DIAMONDS (GENERAL) IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002), THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998); THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS 2014; THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008) AND THE NATIONAL WATER ACT 1998, (ACT 36 OF 1998).

NC30/5/1/1/2/12250PR

A Portion of the Remaining Extent of Remhoogte 152 WITHIN THE ADMINISTRATIVE DISTRICT OF PRIESKA, NORTHERN CAPE

*Compiled by Ms. R.H. Oosthuizen
Wadala Mining and Consulting (Pty) Ltd*

BACKGROUND INFORMATION DOCUMENT

1. INTRODUCTION

We must inform you that Pioneer Minerals (Pty) Ltd (“The applicant”) has applied for a Prospecting Right on a Portion of the Remaining Extent of Remhoogte 152, within the administrative district of Prieska, Northern Cape (2512.2808 hectares).

The application was submitted to the Regional Manager, Department of Mineral Resources (“DMR”) situated at 65 Phakamile Mabija Street, Kimberley, 8301 with contact number 053-807 1700. The mentioned application must still be accepted but the prescribed Environmental Impact Assessment and Environmental Management Programme will be submitted in time.

A water Use Licence Application will also be prepared and submitted to the Department of Water and Sanitation in line with the National Water Act, 1998 as amended.

2. PURPOSE OF THE BACKGROUND INFORMATION DOCUMENT

The purpose of this document is:

- To notify potential stakeholders of the application for a Prospecting Right for diamonds (alluvial); diamonds (in kimberlites); diamonds (general) which was submitted to the Department of Mineral Resources (DMR) with Reference **NC30/5/1/1/2/12250PR**
- Provide background information regarding the proposed Prospecting Right application for Pioneer Minerals (Pty) Ltd.
- Invite potential stakeholders to register themselves as interested and affected parties and to raise issues of importance, share their input, comments and or concerns which will be incorporated into the Environmental Management Programme.
- To inform the Affected and Interested Parties of the requirements in terms of all Governing Legislation applicable to this process.

Pioneer Minerals (Pty) Ltd seeks to gather comments, suggestions, issues and concerns from all stakeholders.

3. A BRIEF OVERVIEW

Pioneer Minerals (Pty) Ltd (“The applicant”) has applied for a Prospecting Right on the above mentioned farm situated in the Magisterial District of Prieska, Northern Cape Province to mine for diamonds (alluvial); diamonds (in kimberlites); diamonds (general).

The Remhoogte project is situated approximately 85km southwest of Douglas on the south bank of the Orange River which, lies 110km southwest of Kimberley, the administrative capital of the Northern Cape Province and the historic centre of the South African diamond mining industry.

3.1 Proposed activity description

Prospecting activities described in the Prospecting Work Programme (“PWP”) are designed for determining the gravel resource potential of the proposed application area. The prospecting activities will be a combination of both non-invasive and invasive methods. A suitable level of feasibility study (technical and economic evaluation) will also be undertaken.

The initial prospecting activities will be non-invasive and restricted to a desktop study which includes a literature survey, plus aerial photograph and satellite image interpretation, and ground validation of targets in the first year. Subsequent phases will be of the invasive-type, typically pitting, or trenching aimed at recovering suitably representative samples to determine grade and quality.

Bulk sample test work will be undertaken to test the grade and quality and ultimately the economic viability of the potential deposit.

A standard phased approach to all prospecting activities will be implemented. Each prospecting activity will be undertaken on a scheduled timeline, with some activities being run concurrently, while others sequentially. Specific milestones will be determined and used as a basis for decisions regarding further activities. The total duration of the prospecting and evaluation activities is planned for five (5) years

Non-Invasive Activities

PHASE 1

Review of Past Exploration Results

In order to direct the exploration programme in an efficient manner, there will be a review of all information and data gathered during previous exploration. A site investigation of the target areas will be undertaken to identify infrastructure and determine any potential problems that may need to be addressed.

Imagery Analysis & Geological Mapping

High-resolution satellite images will be studied and used to geologically map the application area. Contacts between various lithologies will be mapped and specific attention will be given to delineate and define areas underlain by alluvial gravels.

Invasive Activities

PHASE 2

RC-drilling – Drilling is done in phases, over anomalous target areas, using reconnaissance lines or a grid of 200m X 200m or 100m X 50m depending on the level of confidence in the targets and the level of information required. The holes will be approximately 5 meters deep depending on local depth to bedrock (It is envisaged that at least 300 holes will be drilled). If initial drilling proves that only Rooikoppie gravels exist on the property and gravels only go 1m or less deep, drilling will cease and pitting will continue.

PHASE 3

Invasive Prospecting Pits

Invasive Prospecting Pits will be positioned also on a grid of 200m X 200m or 100m X 50 m on positive areas.

PHASE 4

Bulk Sampling

PHASE 5

Analytical Desktop Study

The project geologist monitors the programme, consolidates and processes the data and amends the programme depending on the results. This is a continuous process throughout the programme and continues even when no prospecting is done on the ground.

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

A GIS based database will be constructed capturing all exploration data.

3.2 Rehabilitation

Rehabilitation of drill-sites and bulk sampling sites will be done concurrently as each hole or trench is completed. Access road rehabilitation is carried out when all prospecting phases are completed at the end of the prospecting activities. Rehabilitated sites will be monitored after work has been completed to ensure vegetation growth re-occurs.

On completion of the prospecting operation, the various surfaces, including the access road, will finally be rehabilitated as follows: Any compacted area will be ripped to a depth of 300mm, where possible, the topsoil or growth medium returned and landscaped.

All equipment and other items used during the operational period will be removed from the site.

- Rehabilitation of the secured storage areas

On completion of the prospecting operation, the above areas will be cleared of any remaining contaminated soil which will be placed in acceptable containers and removed with the industrial waste to a recognized disposing facility or by a waste removal company.

All buildings, structures or objects in the secured storage areas shall be dealt with in accordance with regulation 44 of the Minerals and Petroleum Resources Development Act, 2002.

The surface will be ripped or ploughed to a depth of at least 300 mm, where possible, and the topsoil, previously stored adjacent the site, distributed evenly to its original depth over the whole area. The area will then be fertilized if necessary (based on a soil analysis).

The site will be seeded with a vegetation seed mix adapted to reflect the local indigenous flora if necessary.

Any other disturbed areas will be rehabilitated as described under the relevant activities.

- Submission of information

Reports on rehabilitation and monitoring will be submitted annually to the Department of Mineral Resources - Kimberley, as described in the NEMA regulations published 20 November 2015.

- Maintenance (Aftercare)

Maintenance after closure will mainly concern the regular inspection and monitoring and/or completion of the re-vegetation programme.

The aim of the Environmental Management Programme that will be submitted with this application is for rehabilitation to be stable and self-sufficient, so that the least possible aftercare is required.

The aim with the closure of the prospecting operation will be to create an acceptable post-mine environment and land-use.

○ After-effects following closure

- Acid mine drainage
No potential for bad quality leachate or acid mine drainage development exist after mine closure.
- Long term impact on ground water.
No after effect on the groundwater yield or quality is expected.
- Long-term stability of rehabilitated land
One of the main aims of any rehabilitated ground will be to obtain a self-sustaining and stable end result. The drill holes and bulk sampling sites will be closed as prescribed and will have long term stability.

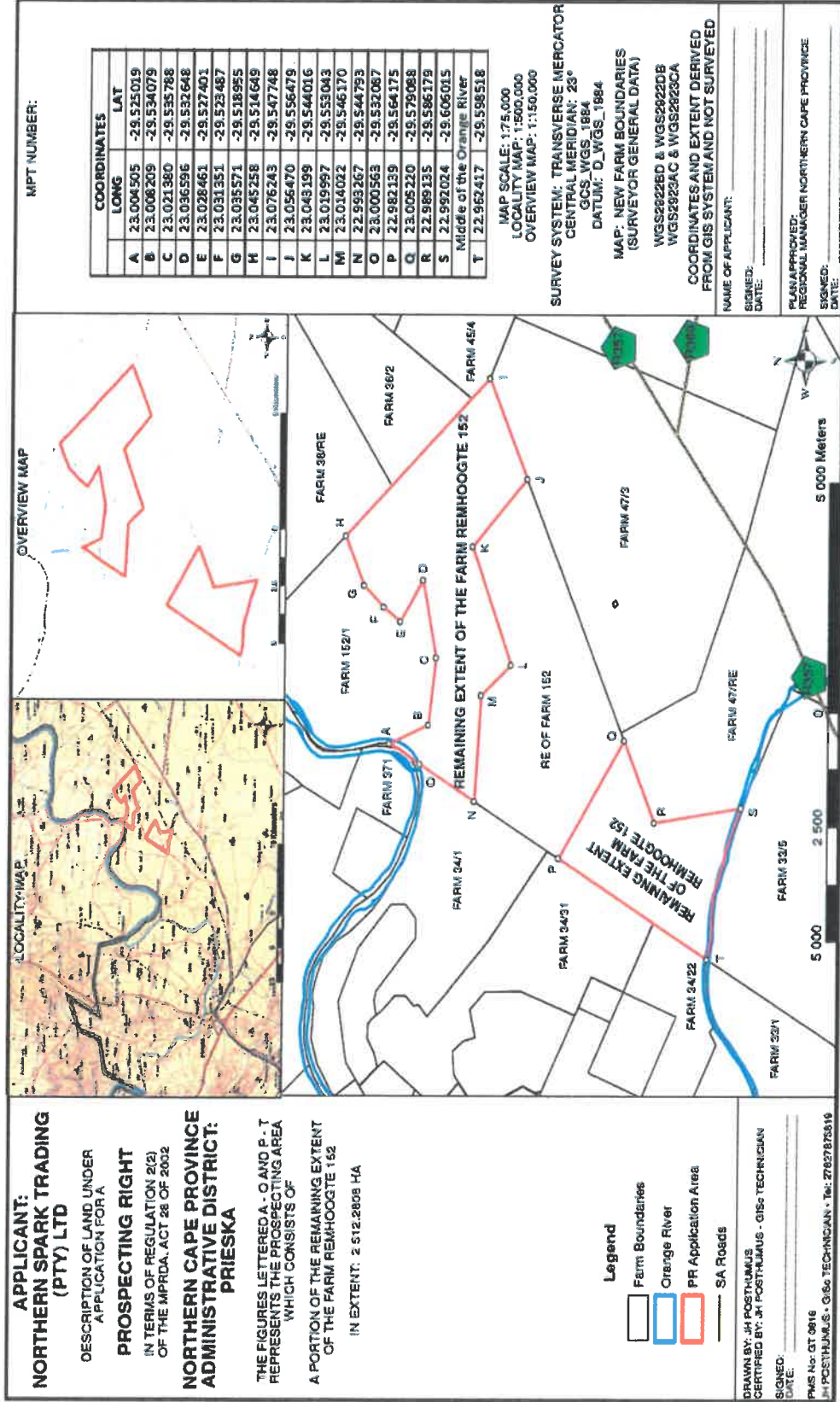


Figure 2: A Portion of the Remaining Extent of Remhoogte 152 within the administrative district of Prieska, Northern Cape (2512.2808 hectares). Locality indicated in red

3.3 Foreseen Environmental Impacts

3.3.1 Air quality deterioration

Source of the impact

Sources of atmospheric emissions associated with the prospecting operations are likely to include fugitive dust from drilling, bulk sampling and vehicle entrainment of gravel roads.

Description of the impact

During the construction and operation of the prospecting operation dust can be generated through the use of the drill rig, yellow gear and access roads. Air pollution through vehicle entrainment is expected to be negligible due to the small scale of the project and dust suppression measures that will be implemented by the mine. Air pollution from exhaust fumes from the drill rig and yellow gear.

3.3.2 Soil pollution

Source of the impact

Spillage of hazardous material; runoff.

Description of the impact

During the prospecting, there is a possibility that equipment might leak oil, thus causing surface spillages. The hydrocarbon soil contamination will render the soil unusable unless they are decontaminated. The storage of fuels on site might have an impact on soil if not properly monitored and maintained to avoid leakages. Then there is the potential that contaminated soil can be carried through runoff to contaminate water resources and soil stockpiled for rehabilitation. Soil pollution is therefore possible, but through mitigation it can be minimised.

3.3.3 Loss of soil fertility

Source of the impact

During the removal of topsoil; stockpiling.

Description of the impact

Improper stockpiling and soil compaction can result in soil sterilisation. Leaching can also occur, resulting in the loss of nutrients.

3.3.4 Soil erosion

Source of the impact

Establishment of the drill rig on drill sites; topsoil removal; trenches and potential runoff.

Description of the impact

The establishment of the drill rig, trenches and facilities in the prospecting area can result in loss of soil due to erosion. Vegetation will be stripped in preparation for placement of the drill rig and trenches although very limited, and therefore the areas will be bare and susceptible to erosion.

The topsoil that is stripped and stockpiled on surrounding areas can be eroded by wind and rain. The soil will be carried away during runoff. The cleared areas will be rehabilitated, but full restoration of soils might only occur over a number of months, subsequent to the re-establishment of vegetation.

3.3.5 Broad-scale ecological processes

Source of the impact

The construction of roads (tracks), the drill rig on various drill sites, trenches as well as other necessary infrastructure; and the clearing of vegetation for prospecting.

Description of the impact

Transformation of intact habitat on a cumulative basis would contribute to the fragmentation of the landscape and would potentially disrupt the connectivity of the landscape for fauna and flora and impair their ability to respond to environmental fluctuations. Due to the small size of the operation in the area, this impact should be negligible due to the small scale of the project.

3.3.6 Changes to surface topography

Source of the impact

Development of infrastructure, trenches and drill rig.

Description of the impact

The infrastructure, trenches and drill rig will alter the topography by adding features to the landscape. Topsoil removal, trenches and drill holes will disturb the natural topography.

3.3.7 Visual impacts

Source of the impact

The construction of Prospecting infrastructure, trenches, drilling and dust.

Description of the impact

Visual impact of the prospecting infrastructure, trenches, drilling and visibility of dust.

3.3.8 Traffic

Source of the impact

The amount of vehicles will increase with the prospecting in the area.

Description of the impact

Potential negative impacts on traffic safety and deterioration of the existing road networks.

3.3.9 Heritage resources

Source of the impact

The prospecting operations can prospect through or destroy sites of cultural and heritage importance

Description of the impact

The deterioration or destruction of sites of cultural and heritage importance.

3.3.10 Socio-economic

Source of the impact

The prospecting operation can create various job opportunities for local people. The mine can also destroy the land capability and land use while prospecting.

Description of the impact

Loss of potential for the area; influx of workers to the area increases health risks and loitering (resulting in lack of security and safety); negative impact of employment loss during closure.

3.3.11 Interested and affected parties

Source of the impact

The setting up of a Prospecting operation for diamonds (alluvial); diamonds (in kimberlites); diamonds (general) on A Portion of the Remaining Extent of Remhoogte 152 within the administrative district of Prieska, Northern Cape (2512.2808 hectares).

Description of the impact

Loss of trust and a good standing relationship between the IAPs and the prospecting company.

3.3.12 Land capability

Source of the impact

Diamonds (alluvial); diamonds (in kimberlites); diamonds (general) prospecting operation.

Description of the impact

Loss of land capability through topsoil removal, disturbances and loss of soil fertility if the prospecting operation continues to bulk sampling.

3.3.13 Land use

Source of the impact

Diamonds (alluvial); diamonds (in kimberlites); diamonds (general) prospecting operation.

Description of the impact

Loss of land use due to poor placement of drilling infrastructure and ineffective rehabilitation.

3.3.14 Ground water

Source of the impact

Potential chemical spills if the prospecting operation continues to bulk sampling.
Equipment servicing– Potential diesel and lubricant spills.
Equipment parking area – Potential diesel and lubricant spills.

Description of the impact

Possible Pollution of underground water sources. Construction of measures to prevent seepage into the groundwater by biological and engineering means. Implementation of the necessary management programs to ensure the integrity of ground water resources.

3.3.15 Surface water

Source of the impact

Potential chemical spills if the prospecting operation continues to bulk sampling.
Equipment servicing– Potential diesel and lubricant spills.
Equipment parking area – Potential diesel and lubricant spills.

Description of the impact

During the prospecting, there is a possibility that equipment might leak oil, thus causing surface spillages. The hydrocarbon soil contamination will render the soil unusable unless they are decontaminated. The storage of fuels on site might have an impact on soil if not properly monitored and maintained to avoid leakages. Then there is the potential that contaminated soil can be carried through runoff to contaminate water resources and soil stockpiled for rehabilitation. Surface water pollution is therefore possible, but through mitigation it can be minimised. The impact will have minimal severity and slight effect on extent.

3.3.16 Disturbance, displacement and killing of fauna

Source of the impact

Vegetation clearing; increase in noise and vibration; human and vehicular movement on site resulting from the prospecting activities.

Description of the impact

The transformation of natural habitats due to prospecting and associated infrastructure will result in the loss of habitat affected individual species, and ecological processes. In turn this will result in the displacement of faunal species dependent upon such habitat. Increased noise and vibration due to prospecting activities will disturb and possibly displace birds and other wildlife. Fast moving vehicles take a heavy toll in the form of road kills of small mammals, birds, reptiles, amphibians and a large number of invertebrates.

3.3.17 Fauna Loss, damage and fragmentation of natural habitats

Source of the impact

Clearance of vegetation; prospecting activities.

Description of the impact

The construction of the prospecting and associated infrastructure will result in the loss of connectivity and fragmentation of natural habitat. Fragmentation of habitat will lead to the loss of migration corridors, in turn resulting in degeneration of the affected population's genetic make-up. This results in a subsequent loss of genetic variability between meta-populations occurring within the study site. Pockets of fragmented natural habitats hinder the growth and development of populations.

3.3.18 Encouragement of bush encroachment

Source of the impact

Clearing of vegetation; disturbances through prospecting activities.

Description of the impact

The possibility exists that bush encroaching species can multiply as a result of the disturbance interference in the natural ecosystem. While general clearing of the area and prospecting activities destroy natural vegetation, bush encroaching plants can increase due to their opportunistic nature in disturbed areas. If encroaching plants establish in disturbed areas, it may lower potential for future land use and decrease biodiversity. With proper mitigation, the impacts can be substantially reduced.

3.3.19 Proliferation of alien vegetation

Source of the impact

Clearing of vegetation; prospecting activities.

Description of the impact

The extent of alien invasive species in the area can increase as a result of the prospecting in the natural ecosystem. While general clearing of the area and prospecting activities destroy natural vegetation, invasive plants can increase due to their opportunistic nature in disturbed areas. If invasive plants establish in disturbed areas, it may cause an impact beyond the boundaries of the prospecting site. These alien invasive species are thus a threat to surrounding natural vegetation and can result in the decrease of biodiversity and ecological value of the area. Therefore, if alien invasive species are not controlled and managed, their propagation into new areas could have a high impact on the surrounding natural vegetation in the long term. With proper mitigation, the impacts can be substantially reduced.

3.3.20 Loss of flora with conservation concern

Source of the impact

Removal of listed or protected plant species; during the construction of roads, trenches and drill sites, as well as other necessary infrastructure; and the clearing of vegetation for prospecting.

Description of the impact

It is possible that protected species will be destroyed during the prospecting operation.

3.3.21 Loss of, and disturbance to indigenous vegetation

Source of the impact

The construction of roads, trenches, drill rig, as well as other necessary infrastructure; and the clearing of vegetation for prospecting, materials storage and topsoil stockpiles; vehicular movement.

Description of the impact

Construction and prospecting activities on site will reduce the natural habitat for ecological systems to continue their operation. The drill rig and Vehicle traffic generates lots of dust which can reduce the growth success and seed dispersal of many small plant species.

3.3.22 Noise and vibration:

Source of the impact

Noise generated by the drill rig, vehicles and prospecting equipment.

Description of the impact

Diamonds (alluvial); diamonds (in kimberlites); diamonds (general) prospecting which increase continuous noise levels; the disruption of current ambient noise levels; and the disruption of sensitive receptors by means of increased noise and vibration. This is particularly relevant to IAPs that reside in close proximity to the prospecting site and drilling locations as well as trenches.

3.3.23 Land use:

Source of the impact

Diamonds (alluvial); diamonds (in kimberlites); diamonds (general) prospecting operation.

Description of the impact

Loss of economic function of disturbed area during prospecting activities and potential loss of land capability post prospecting (limited to the drilling areas and trenches).

3-4 Listed Activities applied for in terms of the National Environmental Management Act, 1998 Act 107 of 1998 (NEMA)

Table 1: Listed and Specified Activities

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m ²	LISTED ACTIVITY Mark with an X where applicable or affected	APPLICABLE LISTING NOTICE (GNR 544, GNR 545 or GNR 546)/NOT LISTED
<p>e.g. for prospecting – drill site, site camp, ablation facility, accommodation, equipment storage, sample storage, site office, access route, etc...etc...etc.</p> <p>e.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.</p>			
<p>Any activity including the operations of that activity which requires a prospecting right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource, including activities for which an exemption has been issued in terms of Section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)</p> <p>Activity 20 of Listing Notice 1</p>	<p>2512.2808ha application lodged for the farm</p>	<p>X</p>	<p>GNR 983</p>
<p>The infilling or depositing of any material of more than 5 cubic metres into, or dredging, excavating, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from-</p> <p>(!) A watercourse (pans)</p> <p>Activity 19 of Listing Notice 1</p>	<p>Will be determined by a specialist</p>	<p>X</p>	<p>GNR 983</p>
<p>The removal and disposal of minerals contemplated in terms of Section 20 of the Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of</p>	<p>2512.2808ha application lodged for the farm</p>	<p>X</p>	<p>GNR 984</p>

<p>2002), including associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource, including activities for which an exemption has been issued in terms of Section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) Activity 19 of Listing Notice 2</p>			
<p>Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource in which case Activity 6 of this Notice applies. Activity 21 of Listing Notice 2</p>	<p>25 ha for the plant and all related bulk samples and pits.</p>	<p>X</p>	<p>GNR 984</p>
<p>Activity 24(ii) of NEMA Listing Notice 1 The development of haul roads 15m wide with no reserve</p>	<p>±1.5 ha on the Area.</p>	<p>X</p>	<p>GNR983</p>
<p>Activity 56(ii) of NEMA Listing Notice 1 The continuous lengthening (and rehabilitation) of haul roads 15m wide with no reserve</p>	<p>±10 000m² on the Area.</p>	<p>X</p>	<p>GNR983</p>
<p>Activity 15 of NEMA Listing Notice 2 The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of vegetation is required for – The undertaking of a linear activity; or Maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p>Pits+Trenches COMBINED is 20.375ha</p>		

<p>Activity 10 of NEMA Listing Notice 3 The development of infrastructure for the storage and handling of dangerous goods (fuel), in containers with a combined capacity of between 30 and 80 m³.</p>	<p>± 80 m²</p>	<p>X</p>	<p>NEMA: LN3 (GNR985)</p>
<p>Activity 19 of Listed Notice 1 The possible excavation of soil, sand, shells, shell grit, pebbles or rock of more than 5 m² from endorheic pans.</p>	<p>± 25 ha</p>	<p>X</p>	<p>NEMA: LN1 (GNR983)</p>
<p>Activity 9 of Category A under the National Environmental Management: Waste Act 59 of 2008 A Mine Residue Dam and return water dam</p>	<p>0.7ha The disposal of inert waste of 10 000 tons, excluding the disposal of such waste for the purposes of levelling and building which has been authorised by other legislation. 0.7ha</p>		<p>GNR 633</p>
<p>Activity 15 of Category A under the National Environmental Management: Waste Act 59 of 2008 The continuous establishment and reclamation of temporary stockpiles resulting from activities which require a Prospecting Right.</p>	<p>0.05 ha</p>		<p>GNR 633</p>
<p>OTHER ACTIVITIES (Associated infrastructure not considered to be listed activities) Temporary Workshop Facilities Storage Facilities Concrete Bund walls and diesel Depots Ablution Facilities Topsoil Stockpiles Overburden Stockpiles</p>	<p>±0.07 ha ±3000m² ±250m² ±25m² ±0.65 ha ±1.8 ha</p>		<p>Not Listed</p>
<p>A water pipeline of unknown length but less than 1000m</p>	<p>1000m</p>		<p>Not Listed</p>

Pipelines for the bulk transportation of water with a diameter of < 0.36 m and a peak throughput of < 120 L /s.	To be confirmed		Not Listed
Pipelines for the bulk transportation of slimes with a diameter of < 0.36 m and a peak throughput of < 120 L/s.	To be confirmed		Not Listed
Pipelines for the bulk transportation of return water with a diameter of < 0.36 m and a peak throughput of < 120 L/s.	To be confirmed		Not Listed

3.5 Decommissioning phase/ Closure Period:

The decommissioning phase will only commence once all the prospecting is completed. During decommissioning all erected structures, e.g. chemical toilets, fences on demarcated areas, equipment and access roads with permission of the surface owners will be rehabilitated to their previous state. Rehabilitation will be done concurrently with the prospecting and only limited outstanding work will be necessary when prospecting is ceased.

4. CONCLUSION

It is clear that the destruction of the natural habitat in the prospecting area is inevitable and that there would be both positive and negative impacts related to the prospecting activities. The significance of these impacts will however be determined by the success of the mitigation measures that will be implemented by mine management in line with the Approved Environmental Management Programme report.

A handwritten signature in black ink, appearing to read 'R.H. Oosthuizen', with a circular mark around the first letter 'R'.

R.H. Oosthuizen
Environmental Assessment Practitioner
Wadala Mining and Consulting (Pty) Ltd