mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: MABENGELA RESOURCES (PTY) LTD

REFERENCE NUMBER: NC30/5/1/1/2/10025 PR

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.

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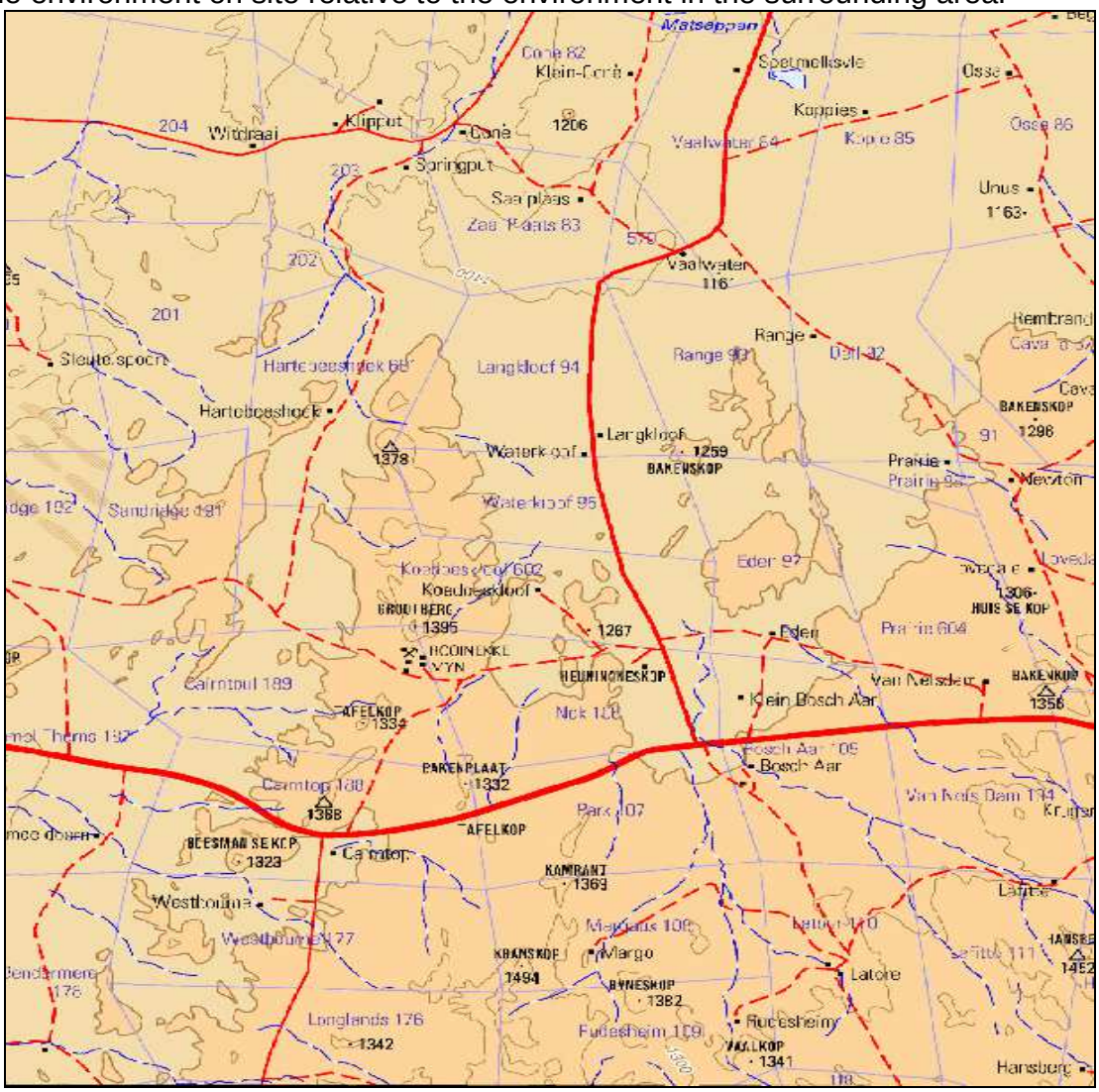
1 REGULATION 52 (2): Description of the environment likely to be affected by the proposed prospecting or mining operation

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



The proposed prospecting area from the farm Koedoes Kloof 602 it is located approximately20km West from Griekwastad town, R309 provincial road passes through from the application area adjacent to R64 provincial road which runs along approximately 2km South from the application area, within the magisterial district of Hay/Pixley ka seme, in Nothern Cape Province.

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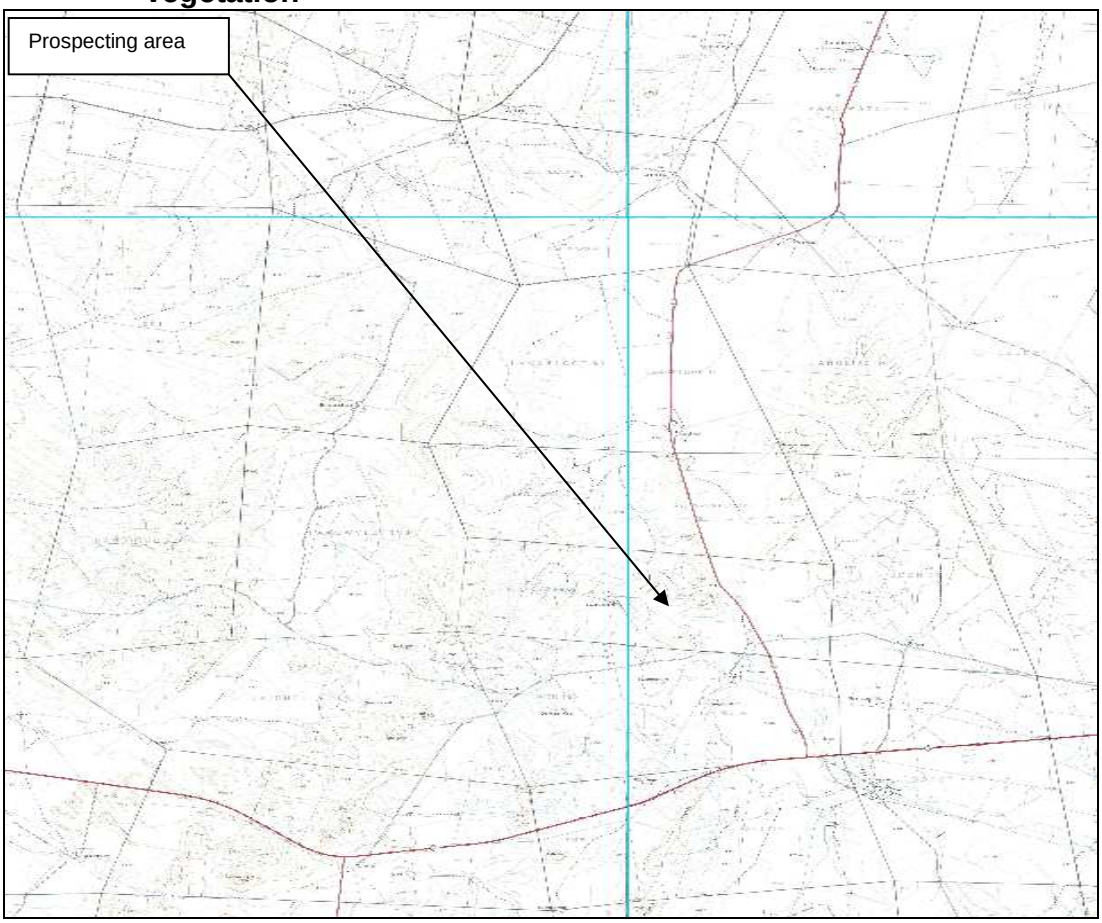
1.2 The specific environmental features on the site applied for which may require protection, remediation, management or avoidance.

Vegetation



Status
The vegetation on the proposed area consists of agricultural activities. Crop production is the main farming activity conducted on the proposed prospecting area. The nature of the vegetation is mostly disturbed by the agricultural activities. The other activities occurring on the farm are livestock farming which is mostly happening on surrounding farms.

Action
Construction of access roads and traces and site establishment are likely to cause vegetation disturbance.

Mitigation measures
Prospecting boreholes sites will be located on already disturbed areas to avoid the disruption of important habitat sites, Removed topsoil must be placed on the stockpile area. The topsoil stockpile will not exceed the height of 3m, and that the soil will be used as soon as possible. Replacement of the topsoil will be conducted in accordance with the soil horizons of the area applied for.

Animal Species

Status

The existence of fauna in the area has largely been altered due to human activities. However, the area is generally characterized by the following main species: Apart from the usual livestock such as cattle, goats, sheep's, chicken, dogs, cats, naturally, the area supports reptiles lizards, birds and large/small mammals. The following animals are common in the area: Water buck, scrub hare, red rock rabbit, fish, common mole rat, grey pygmy climbing mouse, polecat, water mongoose, and yellow mongoose.

Action

Construction of access roads and traces are likely to cause vegetation disturbance. Noise can also frighten the said species.

Mitigation measures

Prospecting boreholes sites will be located on already disturbed areas to avoid the disruption of important habitat sites, existing farm roads will be used to avoid disturbing the vegetation and Drill rigs will be fitted with silencers to minimise noise pollution.

Soil

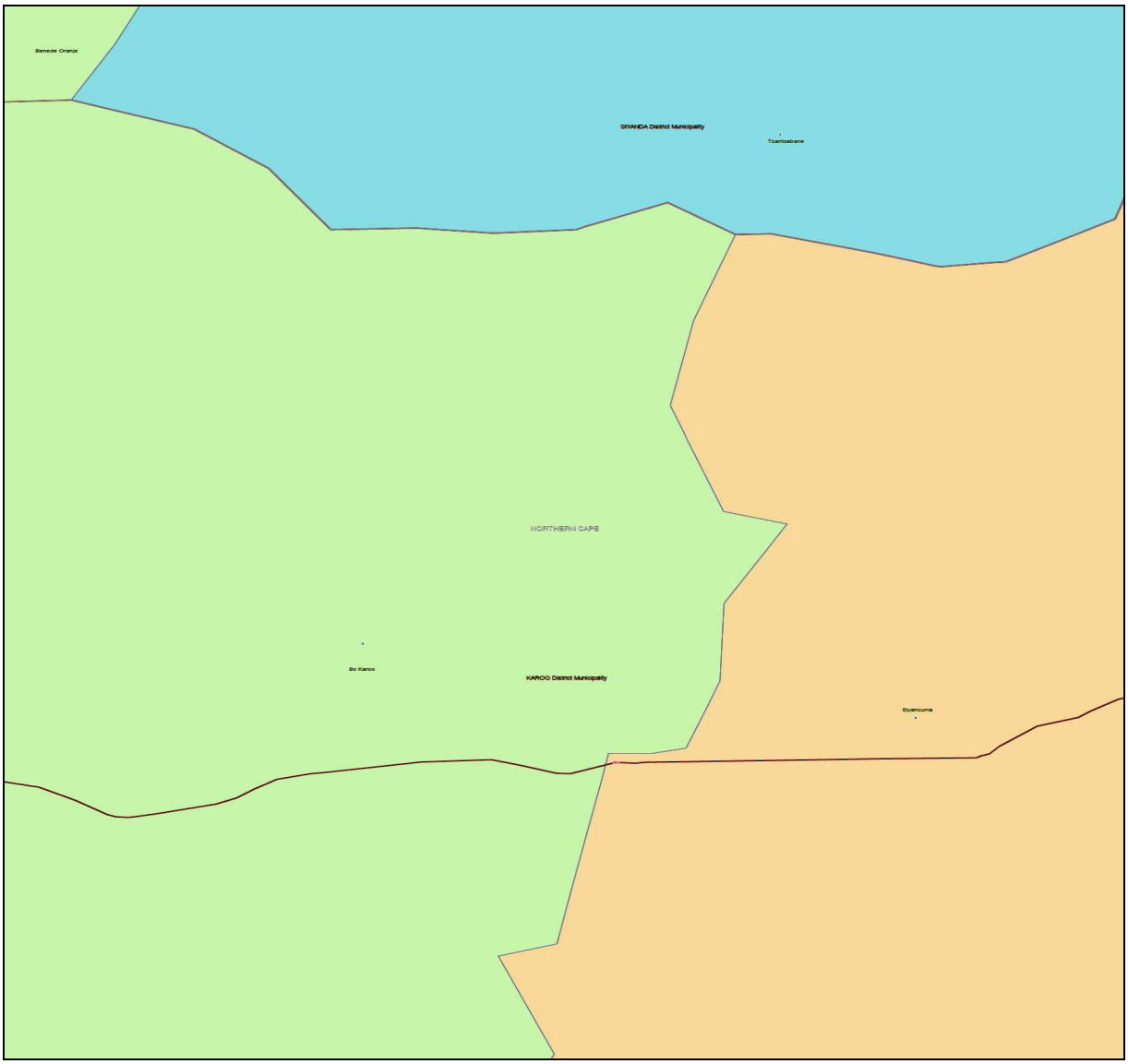


Figure 3: soil type

Status

Several different soil forms are found in the proposed area brown, green and blue, structure less, sandy loam to sandy clay soils, generally moderately deep to deep. Soils forms include mainly Hutton and Clovelly, with some shallow Glenrosa and Mispah soils. The soils are generally favourable for arable agriculture, although there will be restrictions in some areas.

Action

The excavation of sump and associated activities during site establishment will result in the removal of the topsoil layer, which will disrupt the soil profile.

Mitigation measures
Removed topsoil must be placed on the stockpile area. The topsoil stockpile will not exceed the height of 3m, and that the soil will be used as soon as possible. Replacement of the topsoil will be conducted in accordance with the soil horizons of the area applied for.

The surface water of the area

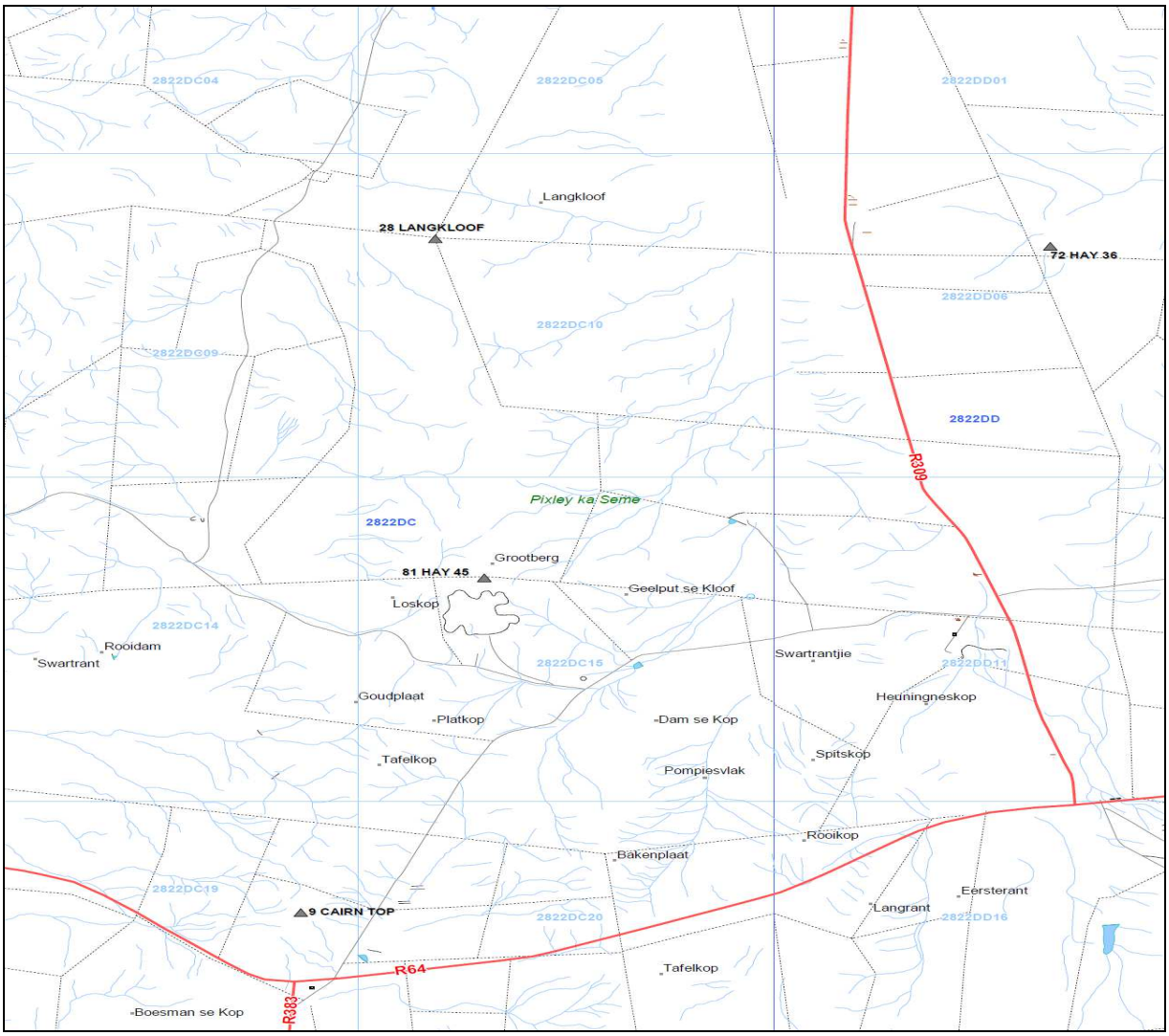


Figure 4: surface water map

Status
The area of prospecting consists of Matsappan river tributaries stream which passes through from the farm Koedoeskloof 602 of the application area. The proposed prospecting area has a normal seasonal flood which is not wetland. The area consists of smaller pans which supplies agricultural farmers with water. The small seasonal tributaries help the supply of water to the pans.

Action
Site establishment, access construction and drilling will result in runoff containing silt material entering into the river.

Mitigation measures
Minimise the potential ingress of water into the sump. No prospecting activities will be conducted from any dam, perennial pan, river etc; therefore there will be a 100m buffer zone from any water courses.

Ground water

Status
Three groundwater systems are recognised in the proposed area. These are represented by (a) perched groundwater; (b) Karoo sediments porosity associated with weathering and (c) fractured rock.

Action
Geological borehole drilling will result in contamination of the groundwater.

Mitigation measures
All prospecting boreholes will be backfilled and a concrete plug will be installed at a depth of 500mm below surface elevation. Subsoil and a minimum 300mm layer of topsoil will be placed over the concrete plug.

Public Roads (R309 and R64)

Status
The area applied for constitutes small farm access roads which are available. The proposed area from the farm Koedoes Kloof 602 consists of the R309 provincial road passes through from the application area adjacent to R64 provincial road which runs approximately 2km South from the application area.

Action
Drilling of prospecting boreholes on these structures will contravene the provision of Mine Health and Safety Act.

Mitigation measures
No prospecting activities will be conducted within 100m of any structures including public roads.

Graves

There are no graves situated within the proposed prospecting area, however no prospecting will be conducted within 100 metres from graves/historic significant.

Action

Drilling of prospecting boreholes on these structures will contravene the provision of an assessment of the significance of the identified potential impacts on any national estate referred to in section 3(2) of the National Heritage Resources Act.

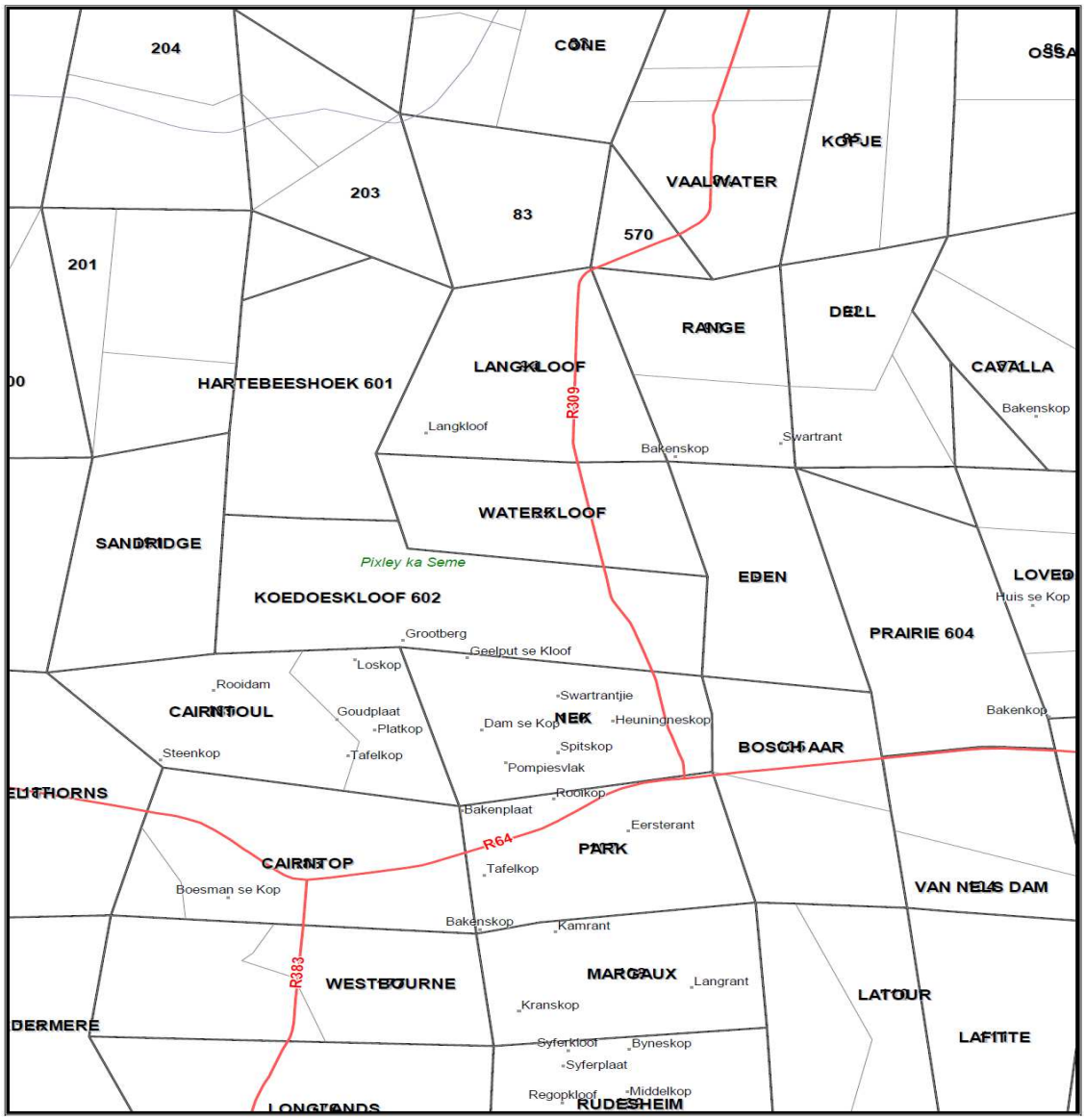
Mitigation measures

No prospecting activities will be conducted within 100m radius from graves or any structures including heritage resources/historic significant. However there will be a 100m buffer zone from the prospecting area.

Railway Line

There is no railway line runs along from the proposed prospecting area, however no prospecting will be conducted within 100 metres from railway, road, power lines, graves/historic significant etc.

1.3 Map showing the spatial locality of all environmental, cultural/heritage and current land use features identified on site.



During site visit it was found that the area of concern does not contain any cultural /heritage or graves which are close to the proposed prospecting area.

Measures and avoidance

Regulation 17(7)- there will be no erection or construction of any building, roads railways, power lines, or any structures within a horizontal distance of 100 meters from the working of prospecting/mining activities, or such lesser distance and at such position and subjected to such restrictions and conditions, determined by Regulation 17(7)(a) risk assessment; or 17(7)(b) by the Chief Inspectors of Mines.

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 consultation process was done with Interested and Affected Parties by e-mails and fax as well as telephonically, but there are no response up to date.

Description verification

- The application area constitutes of agricultural activities, farming, lives stock, perennial pan from the surrounding area.

Specific environmental features on the site applied for which may require protection, remediation, management or avoidance.

Environmental features	Type of mitigation
Vegetation	Management
Soil	Management
Pans and other significant tributaries	Avoidance(100m distance away)
Groundwater	Management
Public roads R309 provincial road it is adjacent to R64 provincial road	Avoidance(100m distance away)

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 prospecting activities (e.g. access roads, topsoil storage sites and any other basic prospecting design features)

Table details potential per activity and listed activity Phase	Affected environment	Potential impact
Drilling	Soil	Removal of topsoil could be damaged the natural soil structure due to soil handling ,removal and mixing of soil types and horizons resulting in increased erodibility of soils when damage to the natural soil structures occurs.
Land capability		Decreased land capability due to damage to natural soil structure and soil loss through wind, water
Surface water		Potential contamination of surface water due to spillage of drill fluids
Ground water		Potential ground water contamination due to infiltration of drill fluid contaminated water
Air quality		Dust from construction vehicles on gravel and secondary roads
Natural vegetation		Disturbance of vegetation could result in soil erosion due to exposed soils
Animal life		Disruption of animal habitat such as nests and breeding grounds (potential modification, fragmentation, and reduction of habitat)
Wetland		Disruption of wetland could result in the subsequent loss of seepage areas resulting in loss of ecological services for the catchment ,thus decreasing water quality
Archaeology/cultural heritage		Potential damage to graves and artfacts which could lead to loss of cultural heritage.
Noise		Potential elevated noise levels in the surrounding environment

Storage hydrocarbon and chemicals	soil	Potential soil contamination
Land capability		Potential decreased land capability due to contaminated soil
Surface water		Potential contamination of surface water due to the spillage of hydrocarbons and chemicals or contaminated run off sourced from contaminated soil.
Ground water		Potential ground water contamination due to the infiltration of surface water contaminated with spilled hydrocarbon and chemicals
Natural vegetation		Potential damage due to natural vegetation and loss due to spillages of hydrocarbons and chemicals
Animal life		Potential injury or loss of animals due to spillage of hydrocarbons and chemical
Wetland		Impairment of wetland functioning due to potential surface water contamination
Transport of equipment	Soil	Potential spillage of hydrocarbons could result in soil contamination
Land capability		Decreased land capability due to damage to the natural soil structure ,soil loss through wind and water erosion and leaching of soil nutrients
Surface water		Potential contamination due to hydrocarbons spillages
Ground water		Contamination through the infiltration of surface water contamination by hydrocarbons
Air quality		Potential increase of dust pollution due to surrounding land due to deposition of dust emitted by vehicle entrainment on haul road.
Animal life		Potential habitat destruction ;potential disruption on birds nesting, foraging or roosting in project area due to movement of
Wetland		Disturbances of wetland functioning due to contamination of surface water resulting from hydrocarbons spillages.

Archaeology /cultural heritage		Potential damage to graves and artfacts which could lead to the loss of cultural heritage due to construction of access roads
Noise		Elevated noise levels of truck transporting equipment
Waste generation, disposal and sewage handling	Soils	Potential contamination of soil due to incorrect handling storage and disposal or spillage of sewage
Land capability		Potential impacts on the land capability due to contamination of soil.
Surface water		Potential contamination of surface water due to incorrect handling, storage and disposal of waste or spillage of sewage.
Ground water		Potential infiltration of surface water due to incorrect handling storage and disposal of waste or spillage of waste
Wetlands		Disturbance of wetland functioning due to surface and ground water contamination from the incorrect handling storage and disposal of waste or spillage of sewage.
Ablutions	Soil	Decreased land capability due to damage to the natural soil structure, soil loss through wind and water erosion and leach
Land capability		Potential impacts on land capability due to contamination of soil.
Surface water		Potential contamination due to inadequate sanitation for construction workers.
Ground water		Potential contamination due to inadequate sanitation for construction workers
Wetlands		Disturbances of wetland functioning due surface and groundwater contamination from incorrect handling ,storage and disposal of waste or spillage of sewage
Domestic waste	Soil	Potential of domestic waste, effluents and house hold chemicals contaminating soil. Potential contamination of soil due to improper waste separation which

		leaves metals and other contaminants in the waste stream
Visual		Potential litter from construction workers; and potential litter from wind
Land capability		Decreased agricultural and grazing potential of surrounding land due deposition of domestic contaminants.
Surface water		Potential of domestic waste, effluents and household chemicals contaminating in local streams; potential leachate from waste stored for recycling resulting in surface water contamination from a rain.
Ground water		Potential of domestic waste/ effluent and
Natural vegetation		Potential of domestic waste ,effluent and household chemical contaminating soil thus negatively impacting vegetation growth
Animal life		Potential injury or loss to fauna due to contact with domestic waste ,effluent and household chemical
Wetlands		Impairments on and off site wetland functioning due to siltation and contamination of surface water by domestic waste ,effluents and house hold chemicals being transported to wetland
`Access roads	`Soil	Site clearance to construct road to s site will substation will cause a potential to result in soil erosion ,soil loss
Land capability		Decreased agricultural and grazing potential of surrounding land due to deposition of dust emitted by vehicles entrainments on haul roads.

Suface water	Altered surface flow dynamics due to removal of topsoil and topographical alteration and increased surface runoff from cleared areas; Potential surface water runoff over haul roads will result in erosion and consequent siltation of surface water resources ;Potential
Ground water	Reduced infiltration of surface water in to groundwater zone due to removal of vegetation.
Air quality	Potential dust pollution caused by construction vehicles
Natural vegetation	Decreased agricultural and grazing potential of surrounding land due to deposition of dust emitted by vehicles entrainment on haul roads; site clearing and removal of topsoil could lead to soil erosion and soil loss
Animal life	Potential habitat destruction ;potential disruption on birds nesting ,foraging or roosting in project area due to movement of vehicles on haul roads
Wetland	Impairment of and off site wetland functioning due to siltation and contamination of surface water by hydrocarbons reaching wetland system.
Archaeology/cultural heritage	Potential damage to graves and artifacts which could lead to the loss of the cultural heritage due to construction of access roads
Noise	Potential elevated noise levels due to continuous vehicular movement on haul roads
Social	Potential damage to roads could impact safety of people and

2.1.2 Plan of the main activities with dimensions

- All the drilling point has no camps and no plan is established for them, all the equipments and activities such as storages will be conducted off site.

2.1.3 Description of construction, operational, and decommissioning phases.

Phase	Activity (what are activities that are planned to achieve optimal prospecting)	Skill(s) required (refers to the competent personnel that will be employed to achieved the required results	Timeframe (In months for the Activity)	Outcome (What is the expected deliverable, e.g geological report analytical results, feasibility study, etc)	Timeframe for outcome (deadline for the expected outcome to be delivered)	What technical expert will sign off on the outcome? (e.g geologist, mining engineer, surveyor, economist etc)
Phase 1	Geological mapping This will be done with the aid of aerial photography and satellite imagery	Geophysicists GIS specialist	6 month	Distribution of important geological units will be obtained, and the outcrop position of mineralised horizons Strike and dip measurements and major soil types will be able to be distinguished	6 month	Geologist
Phase 1.2	Soil samples for geochemical analysis will be collected.	Geotechnician	3 month	Soil geochemical survey	3 month	Geologist
Phase 1.3	Reconnaissance drilling	Geotechnician	4 month	Mineralized zones, their nature and setting within the formations stratigraphy	4 month	Geologist

Phase 1.4	Borehole logging, assaying, and core storage	Geologist and sampling technician	3month	Determination of measures reserves not just inferred values computer based geological modelling recommendations whether project should be continued or terminated	3 month	Geologist
Phase 1.5	Interpretations and geological reports	Geologist	1 month	Evaluation of the resources	1 month	Geologist
Phase 2	Infill drilling programme and resource evaluation	Economic geologist	4 month	Define the nature and distribution of the mineralization and to precisely define and indicated to measured mineral resource	4 month	Geologist
Phase 2.1	Diamond drilling	Geotechnician	2 month	Define the nature, and distribution of the mineralization and to precisely define and indicated to measured mineral resources	2 month	Geologist
Phase 2.2	Evaluation Technical and financial evaluation study	Economic Geologist Economic Geologist	3 month 3 month	Result of drilling will be evaluated and inter and interpreted A bankable feasibility study	3 month 3 month	Geologist Geologist

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

- There are no any activities identified in terms of NEMA that would commence as a result in the proposed prospecting site.

2.2 Identification of potential impacts

(Refer to the guideline)

2.2.1 Potential impacts per activity and listed activities.

Mining Activities	Impacts Identified
Site Establishment - Camps - Sumps - Core storage areas - Demarcate and/or prepare the drill site	• Destruction of soil fertility. • Generation of noise. • Generation of dust. • Destruction of vegetation. • Soil erosion as the result of exposed surfaces.
Construction of Access roads/traces	• No impacts as there would not be any construction of access road on the site.
Drilling	• Generation of noise. • Generation of dust.
Hydrocarbon Storage	• Soil pollution or contamination of soil
Waste Disposal	• Nuisance • Pollution
Ablution	• Pollution
Water storage	• No impacts identified

2.2.2 Potential cumulative impacts.

The cumulative impacts have been identified in relation to the surrounding and development in and around the project area.

1. Geology

There are mines present in the surrounding areas the establishment of new mines within the region has and will continue to permanently alter the geology of the region as more resources are being mined and there could be potential for the resource to be mined in future prospecting activities however are insignificant.

2. Soils, land capability and land use.
The project areas are located in a potentially arable land. Prospecting activities involve the loss of small grazing area, but may affect land available for grazing and will increase the potential for soil erosion as soil erosion in the project area is minimal. Soil pollution from domestic waste and use of hydrocarbons spillage may occur.
Thus, the activities will result in a potential increase in soil contamination and reduce the potential arable land. Domestic animals are uncontrolled and indications of overgrazing are evident throughout the project area. The cumulative impacts on soil will be insignificant on the regional scale as impacts on the soils are contained on site, and soils have already been impacted on by other local mining and regional agriculture activities. Agriculture and mining activities increase potential for soil erosion and therefore soil loss.

The total cumulative impacts on soil will be highly significant if more industrial, commercial agriculture and mining operation commence in the area without adequate rehabilitation. The cumulative impacts on regional land capability and land use is low due to the land use being predominately for Agriculture which is dominated by grazing and used for housing .thus, the activities will result in a low significant cumulative impact only being limited to the site and its immediate surroundings.

3. Surface water
The project area falls within the groenwaterspruit management area and like all water resources in South Africa, this catchment area is stressed. Mining and agricultural activities dominate the area. There is a presence of river/pan in the project area. The water resources in the catchment are predominately used for domestic consumption and agricultural activities. Mining activities in the surrounding area could contribute to increased surface water contamination due to accidental leakages of waste and hydrocarbons. The prospecting activity will not affect surface water system and ecosystem if mitigation measures are followed. The total contribution to cumulative impacts has a medium – low significance.

4. Ground water
According to the water catchment documents there is potential for mining and industrial activities to affect groundwater regionally, including the pesticides used for agricultural activities .possible contribution of groundwater contamination includes spillages hydrocarbons sourced from trucks and machinery ,ablution and domestic waste .The total cumulative impacts are medium – low as this will be limited to the site.

5. Air quality
According to the municipality is the largest contributor to domestic fuel burning emissions in the district contributing to approximately 50% of emission. Currently the only dust causing activities in the area are the vehicular activities, existing drilling activities as well as agricultural activities. Vehicle movement could cause an increase in dust level thus will increase the existing dust level in the area. Dust is also generated by agricultural activities such as tractors used for ploughing and combine harvesters as well as vehicle entrainment from unpaved roads. The cumulative impact of agricultural activities on regional air quality is not considered as significant, since these impacts occur only at specific times of the year and during the day.

6. Noise.
Vehicular activities on the gravel roads as well as agricultural activities from surrounding farms contribute to the noise levels .Should other mines start operating in the surrounding area the cumulative impact could become more significant. The project is however in its prospecting phase thus, the total cumulative impacts are expected to be insignificant.

7. Flora
The natural flora of the surrounding areas has already been largely disturbed due to agricultural activities and livestock grazing .This reduce the significance of the cumulative effects of the prospecting activities. Regionally, agriculture, mining and industry are present town and communalities have developed; the cumulative impact on natural flora will be even less significant. Thus the total cumulative impacts are considered to be low.

8. Fauna
The area is already largely disturbed due to agricultural activities and livestock grazing. Regionally, agricultural, mining and industry are present. Town and communities have developed; the cumulative impact on the fauna will be even less significant.

9. Sensitive landscapes
Sensitive landscapes should be protected as there are agricultural activities in the area. The prospecting activities have the potential to cause an impact on the local sensitive landscape and more specifically streams and wetland. Hydrocarbons spillages or accidental leakages from trucks and machinery may contribute to the contamination, thus the cumulative impact is therefore negative and moderate in significance.

10. Site of archaeological and Cultural interest.

The most important archaeological site in the municipality inside the town area, no graves are sparsely scattered around the project area. Agricultural activities and the prospecting activities cause and increase in the potential to damage graves and artefacts which could lead to the loss of cultural heritage. Cumulative impact within the region will be medium/low.

2.2.3 Potential impact on heritage resources

- There is potential damage to graves and artefacts which could lead to the loss of cultural heritage. Due to activities such as drilling, the transportation of equipment to the project site and the construction of access

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.)

- The proposed prospecting area has farming activities and lives stock which may be affected by the prospecting activity.

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

-No response from the land owners/Interested and affected parties up to date.

2.2.6 Confirmation of specialist report appended.

(Refer to guideline)

- No response from the State Departments up to date.

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 prospecting will take on a phased approach to assess the potential Iron ore and Manganese reserves in the area. This will include a geomagnetic survey over the farms Koedoes Kloof 602 prospecting area to determine the presence of dolerite dykes and sills. From existing geological information, geophysical and topographical data, a geological base map will be produced and used as a basis for the exploration programme. Geological core boreholes (TNW) will be drilled over the prospecting area.
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- All borehole cores will be logged and the potentially viable seam intersections sent for initial raw analysis to determine calorific value, ash content, volatile matter, fixed carbon and sulphur. If the quality of the Iron ore and Manganese seams warrants further investigation, washability analysis of the Iron ore and Manganese seams will be undertaken. All geological prospecting boreholes will be surveyed and plotted on the base plan. The Iron ore and Manganese resource will be calculated using computer modelling and geostatistical principles such as Kriging. The Iron ore and Manganese measures and reserves will be classified according to the SAMRAC Code.

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

- **Phase1:** Gathering of existing geological data in and around the area. Computer modelling of existing data.

  Geomagnetic survey and modelling.

  Mapping of faces in open voids.

- **Phase 2:** Geological core drilling programme.
  Twenty (20) geological core boreholes will be drilled on predetermined positions.

  Borehole cores will be logged, sampled and analyzed.

  Pre-feasibility study.

- **Phase 3:** Should phase 2 pre-feasibility study indicate a potentially viable proposition, an additional five (5) geological exploration boreholes will drilled, logged and analyzed.

- **Phase 4:** Mining feasibility (Market research and sales agreements etc.)
  Mining Right Application.

The prospecting work will be divided into phases.
It is hereby noted that the different phases herein envisaged are, by their nature, dependent on the results obtained during preceding phases of such prospecting. The proposals set out in the Prospecting Work Programme are therefore made on the basis that the results during preceding phases may necessitate reasonable adaptations to such proposals, which will be reported on prescribed timeframes. The prospecting programme will be divided into successive phases extending over four years.

The Phases are:

Phase 1 (Month 0 to 12)

A desk study which involves the collection of existing data or information interpretation and a report will be done. The mining activities on nearby and adjacent properties will also be researched.

- Geophysical and geological survey
- Planning of logistics of the physical drilling program

Phase 2 (Month 13 to 24)

- The 20 boreholes planned for this phase will amount to 500 meters of core drilling. The drilling time is estimated at one month with one drill rig.
- A minimum of 1 sample per seam intersection will be taken. More samples will be required when large variations in Iron ore and Manganese quality occur within a seam. Therefore an estimated one sample per borehole is budgeted for.
- Full washabilities with proximate, CV and Sulphur analyses will be carried out and all samples and reporting of results is expected within 28 days after submission.
- Establishment of data base, recording of borehole logs, evaluation and geological modelling will be carried out after all the results have been recorded.
- Pre-feasibility study and planning of phases for exploration drilling will finalise this phase.

Phase 3 (Month 25 to 48)

- This phase will be based on the results of the wide grid drilling and will be concentrated in areas where Iron ore and Manganese development is indicated. An additional 5 boreholes will be drilled in a 2 month period. One drill rig will be employed for this phase. A minimum of 1 sample per seam intersection will be taken. More samples will be required when large variations in Iron ore and Manganese quality occur within a seam. Therefore an estimated one samples per borehole is budgeted for.
- Full washabilities with proximate, CV and Sulphur analyses will be carried out and all samples and reporting of results is expected within 28 days after submission.

- On receipt of the analytical results, the following will be finalized:
    - Updating of database, recording of borehole logs, evaluation and geological model;
    - Conceptual mine planning
    - Marketing study

- Costing
- Feasibility Study Report

If the conclusions of the feasibility study are positive, the next phase will be launched.

Phase 4 (Month 48)

This phase will include the following:

- Geohydrological studies
- Advance mine planning
- Environmental impact assessment
- Advance economic analyses
- Socio-economic impact assessment
- Permitting and authorizations.

3.1.3 Assessment of potential cumulative impacts.

Geophysical survey to be undertaken

- A geomagnetic survey will be undertaken to determine the presence of igneous intrusions. This survey will consist of traverses using a hand held magnetometer. A GPS will be used to record the data point locations. No roads will need to be constructed for this survey. No trees will need to be removed during this survey.

Description of the prospecting method or methods to be implemented

- Boreholes will be drilled at pre-determined sites on the property. A 60mm diameter core drill will be used to drill the geological boreholes. The time required is 48 months to complete all core drilling and rehabilitation of the core drilled holes. The cored boreholes will be drilled to the base of the Dwyka sediments. All boreholes will be logged with descriptions of all layers intersected. All the Iron ore and Manganese seams intersected will be sampled and analyzed to determine the grade of the Iron ore and Manganese. A geological report will be compiled giving the Iron ore and Manganese resource in accordance with SAMREC Code.

Small diameter borehole core drilling

- Small diameter borehole core drilling enables the evaluation of both the physical continuity of the Iron ore and Manganese seam(s) and the quality continuity of the Iron ore and Manganese. The borehole core data shall be used for structural evaluation, Iron ore and Manganese seam correlation, Iron ore and Manganese quality analyses and geotechnical evaluation. For adequate sample volume, the borehole core diameter shall be not less than 60 mm in diameter in the case of Iron ore and Manganese samples submitted for washability analysis. A minimum borehole core diameter of 49 mm is acceptable for Iron ore and Manganese samples for washability and raw proximate analyses. For reliable Iron ore and Manganese resource evaluation the core recovery shall be in excess of 95 % within the Iron ore and Manganese seam and all core recovery information shall be properly documented.

- The spacing of small diameter borehole core holes for geological studies depends on the Iron ore and Manganese deposit type, whether thick inter-bedded seam or multiple seam deposit types. The spacing between boreholes shall be decreased appropriately where significant Iron ore and Manganese quality changes occur in structurally complex areas and along the Iron ore and Manganese seam sub-outcrop.

3.2 Proposed mitigation measures to minimise adverse impacts.

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

PHASE	Activity	Expertise required	Duration
1	Data collecting Data modelling Borehole surveying & staking	Mine Surveyor Geologist	6 months
2	**Construction Phase** Site preparation • Access roads • Core stores area • Sumps **Operational Phase** Drilling 20 boreholes **Closure Phase** Final rehabilitation • scraping the surface • re-vegetating the disturbed area • sealing of the boreholes Logging & assaying	Drill contractor & geologist	18 months
3	**Post Closure Phase** Pre-feasibility study EMP studies Mining right Application	Mining engineer Environmentalist Economist	12 months

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

Socio-economic impacts

- No significant negative impacts are predicted. However there are no land developments identified that are in progress and which may be affected by the proposed prospecting operation.

Management

- Employees will be recruited from Griekwastad town/surrounding area. As far as practically possible, all supplies will be obtained from Local area and surroundings area.

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)

Soil monitoring

- Topsoil stockpiles should be re-vegetated and the performance of the vegetation should be assessed by a specialist once a year.
- Topsoil will be replaced in a minimum layer of 300 mm over the backfilled area a suitable seed mix will be spread over the backfilled area to promote the establishment of vegetation.

-Regular monitoring of all the environmental management measure and components shall be carried out by the holder of the prospecting right, or reconnaissance permission in order to ensure that the provisions of this programme are adhered to.

-On-going and regular reporting of the progress of implementation of this programme will be done

-Various points of compliance will be identified with regard to the various impacts that operations will have on the environment

-Inspections and monitoring shall be carried out on both on both the implementation of the program and the impact on plant and animal life

-Visual inspections on erosion and physical pollution shall be carried out on a regular basis

-Any runnels, erosion or wash a ways developing after re-vegetation will be monitored and should be backfilled and consolidated and the areas restored to a proper stable condition by applicant. The erosion should not be allowed to develop on large scale before effecting repairs and all erosion damage should be repaired as soon as possible. The monitoring process should be carried out for a year after completion of rehabilitation

Surface water

-The upstream quality and quantity should be maintained for the duration of the activities. No activities are to take within the 1:100 year flood line of any water courses. Monthly monitoring of all surface water resources is to take place. Access roads

-Whenever a prospecting right is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the prospecting right, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/ tenant, shall be removed and/ rehabilitated to the satisfaction of the Regional Manager

-Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre- prospecting situation.

-Roads shall be ripped or ploughed, and if necessary, appropriately fertilized (based on soil analysis) to ensure the regrowth of vegetation. Imported road construction materials which may hamper regrowth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation.

-If a reasonable assessment indicated that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the prospecting operation be corrected and the area be seeded with a seed mix to the Regional Managers specification.

Ground water

A monitoring procedure should be complied that covers the location and frequency of sampling as well as the parameters to be analysed. Monitoring results will be captured in an electronic database as soon as results become available allowing:

-Data presentation in tabular format;

-Time-series graphs with comparison abilities;

-Statistical analysis (minimum, maximum, average), in tabular format;

-Graphical presentation of statistics;

-Linear trend determination;

-Performance analysis in tabular format;

-Presentation of data, statistics and performance on diagrams and maps; and

-Comparison and compliance to legal or best practice water quality standards

Air quality
-Air quality monitoring should be conducted and points should be located to assess impacts on the nearest sensitive receptors, taking prevalent wind direction into account.
-Dust suppression by means of a water cart or any other method should be done at least once a day.

Noise
Complaints from locals relating to noise and dust will be treated as serious and will be recorded. Drilling activities will only take place during daylight hours.

Waste management
-Domestic waste will be collected in waste skips and disposed of at a registered domestic waste disposal site.
-Only domestic type wash water shall be allowed to enter this drain and any effluent containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from either for resale or for appropriate disposal at recognized facility.
-Non-Biogradable refuse such as glass, plastic bags, metal crap, etc, shall be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognized disposal facility e.g. permitted dumping site. Specific precautions shall be taken to prevent refuse from being dumped on in the vicinity of the camp site

Hydrocarbon spills
-All contaminated soils will be removed and placed in a waste disposal receptacle and disposed of at a licensed facility. Bioremediation methods could be used to clean the contaminated soils from hydrocarbons. The clean soils can be the replaced.
-Appropriate receptacles for storage of spent oils, grease and hydraulic fluids will be obtained from Wastekek. The removal of the receptacles will be undertaken by Wastetek for disposal at a registered licensed waste disposal site.
-The storage area shall be fenced and all hazardous substances and stocks such as diesel, oils, detergents, etc shall be stored therein. Drip pans, a thin concrete slab or facility with PVC lining, shall be installed in such storage areas with a view to prevent soil and water pollution

Fauna, flora and Sensitive landscapes

-Rocky outcrops will be avoided. No trees will be felled for wood. Should it be required to remove trees, these trees are to be cut for firewood and given to the local communities and workers residing in the surrounding communities. Poaching of animals will not be tolerated.

-The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

-If a reasonable assessment indicates that the re-establishment of vegetation is unacceptable slow, the regional manager may require that the soil be analysed and any deleterious effects on the soil arising from the prospecting operation be corrected and the area be seeded with a seed mix to his or her specification.

3.2.3 Review the significance of the identified impacts

(After bringing the proposed mitigation measures into consideration).

The table below shows the impacts after mitigation. Activity	Phase impact occurs (C,O,D, PC)	Activity No.	Affected environment	Impact (positive/ negative)	Spatial scale (7)	Duration (7)	Severity (7)	consequence	Probability (7)	Significance (147)
1.drilling	C	1.1	Soil	N	1	2	3	6	3	18
C	1.2	Land capability	N	1		2	3	6	3	18
C,O,D	1.3	Surface water	N	3		3	1	7	3	21
C,O,D	1.4		Ground water	3		3	1	7	3	21
C,O,D	1.5	Air quality	N	1		2	2	5	3	15
C,O,D	1.6	Natural vegetation	N	1		2	3	6	3	18
C,O,D	1.7	Animal life	N	1		3	2	6	3	18
C,O,D	1.8	Wetlands	N			3	3	7	3	21
C,O,D	1.9	Archaeology/ cultural heritage	N	1		3	1	5	2	10

C,O,D	1.10	Noise	N	1		5	2	8	3	24
2.Stor	C,O,D	3.1	Soil	N	1	2	3	6	3	18
C,O,	3.2	Land	N	1		2	3	6	3	18

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

The following specifications are indicated for the rehabilitation of the prospecting area:

- Remove all foreign material from the site.
- Renovate all hardened surfaces and vegetate
- Plug all prospecting boreholes with a concrete plug 0,5 meters below the natural ground level.
- Backfill all prospecting drill sumps and boreholes with topsoil and vegetate.

The following contractors' rates were used:

Installation of a concrete plug in boreholes, seeding included.	R100.00/borehole
Backfilling prospecting borehole sumps, seeding included	R150.00/borehole
Renovation (ripping)	R100.00/borehole
Seeding	R1 500.00/borehole

Cost determination regarding the proposed drilling of 20 prospecting boreholes.

Installation of a concrete plug in boreholes

The concrete plug will be 0.4 * 0.4 * 0.2 m. Thus 0.0032m^3 of concrete will be necessary for each borehole

Cover concrete plugs with soil

A 300mm layer of soil will be placed over the concrete plug. This soil is stockpiled in close proximity to the sump. The sump can be backfilled by spade.

Backfill borehole sump

The sump will be 1,0 * 1,0 * 0,5m. The soil removed from the sump will be stockpiled in close proximity to the sump. The sump can be backfilled by spade.

Ripping of hardened surfaces

Cost based on hire of tractor, diesel and labour

Seeding

Cost based on purchase of seed and labour to disperse the seed.

Maintenance

This includes the cost for erosion control and follow up seeding.

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).

Action	Volume	Rate	Cost	Sub-total	
1. Rehabilitation of site office/campsite • ripping • seeding	 1.5 ha 1.5 ha	 R3, 000.00 R3, 500.00	 R4, 500.00 R5, 250.00	 R9, 750.00	
2. Rehabilitation of prospecting boreholes • Concrete plug, soil cover and seeding • Rehabilitate the sumps and seeding	 20 plugs 20 b/holes	 R300.00 R450.00 B/H	 R6, 000.00 R9, 000.00	 R15, 000.00	
3. Maintenance cost				R24, 750.00	
Total rehabilitation cost					R45, 767.00

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).

- Closure or end use objectives for the site applied for as guided by the baseline study.

Closure and environmental objectives
If the prospecting programme indicates sufficient economical viable reserves are available, an application for a mining right will be lodged.
All prospecting boreholes will be backfilled and a concrete plug will be installed at a depth of 500mm below surface elevation. Subsoil and a minimum 300mm layer of topsoil will be placed over the concrete plug.
All sumps will be backfilled to surface and covered with a 300m layer of topsoil.
All roads and traces will be scarified and ripped to a depth of 100mm to allow re-vegetation.
No prospecting infrastructure will be left on site.
Once the prospecting activities are completed, the area will have a land use and capability comparable to the pre-prospecting land use and capability, and all affected area will have a sustainable vegetation cover.

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 regulation54 (1) in respect of each of the phases referred to).

CALCULATION OF THE QUANTUM

MABENGELA RESOURCES (PTY) LTD
KARTATIZO INVESTMENTS (PTY) LTD

Location: KURUMAN/HAY
Date: 24/10/2012

Risk Class: C
Area Sensitivity: LOW

No.	Description	Unit	A Quantity	B Master rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (rands)
1	Dismantling of **processing plant and related structures** (including overland conveyors and powerlines)	m3	0	6.82	0.00	0.00	0
2(A)	Demolition of **steel buildings and structures**	m2	0	95.00	1.00	1.00	0
2(B)	Demolition of **reinforced concrete buildings and structures**	m2	0	140.00	1.00	1.00	0
3	Rehabilitation of **access roads**	m2	99	17.00	1.00	1.00	1,683
4(A)	Demolition and rehabilitation of **electrified railway lines**	m	0	165.00	0.00	0.00	0
4(B)	Demolition and rehabilitation of **non-electrified railway lines**	m	0	90.00	0.00	0.00	0
5	Demolition of **housing and/or administration facilities**	m2	20	190.00	1.00	0.30	1,140
6	**Opencast rehabilitation** including final voids and ramps	ha	1	96,700.00	1.00	0.20	10,444
7	Sealing of **shafts, adits and inclines**	m3	0	51.00	0.00	0.00	0
8(A)	Rehabilitation of **overburden and spoils**	ha	0	66,400.00	1.00	0.30	2,988
8(B)	Rehabilitation of processing waste **deposits and evaporation ponds (basic salt-producing waste)**	ha	0	82,700.00	0.00	0.00	0
8(C)	Rehabilitation of processing waste **deposits and evaporation ponds (acidic, metal-rich waste)**	ha	0	240,200.00	0.00	0.00	0
9	Rehabilitation of **subsided areas**	ha	0	55,600.00	0.00	0.00	0
10	**General surface rehabilitation**	ha	1	52,600.00	1.00	0.50	14,202
11	**River diversions**	ha	0	52,600.00	0.00	0.00	0
12	**Fencing**	m	0	60.00	0.00	0.00	0
13	**Water management**	ha	0	20,000.00	0.00	0.00	0
14	2 to 3 years of **maintenance and aftercare**	ha	0	7,000.00	1.00	1.00	2,450
15A	Specialist study	Sum	0	0.00	0.00	0.00	
15B	Specialist studies (soil remediation)	ha	0	0.00	0.00	0.00	0.00
						SubTotal 1	**32,907**

(Sum of items 1 to 15 above)

1	Preliminary and General	6.0% if Subtotal 1 > 100 000 000 12.0% if Subtotal 1 < 100 000 000	Weighting factor 2 0.00	3,949
7	Contingency	10.0% of Subtotal 1		3,291

SubTotal 2 **40,146**

(Subtotal 1 plus sum of management and contingency)
Add Vat (14%) 5,620

GRAND TOTAL **45,767**
(Subtotal 2 plus VAT)

4.4 Undertaking to provide financial provision

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

An amount of R45, 767.00 will be paid in the form of bank guarantee should the proposed prospecting operation 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.

phase	Affected environment	Potential impact	Monitoring required
Drilling	Soil	Removal of topsoil could damage the natural soil structure due to soil handling, removal and mixing of soil types and horizons resulting in increased erodibility of soils due to damage to the natural soil structure	Yes
Surface water		Potential contamination of surface water due to spillage of drill fluids	Yes
Ground water		Potential groundwater contamination due to infiltration of drill fluid contaminated water	Yes
Air quality		Dust from vehicles and drilling in project area	Yes
Natural vegetation		Disturbance of vegetation could result in soil erosion due to exposed soils	Yes
Archaeology/ cultural heritage		Potential damage to graves and artifacts which could lead to the loss of cultural heritage	Yes
Noise		Potential elevated noise levels in the	Yes
Storage of hydrocarbons and chemicals	Soil	Potential soil contamination	Yes
Surface water		Potential contamination of surface water due to the spillage of hydrocarbons, chemicals and explosives or contaminated run- off sourced from contaminated soil.	Yes

Ground water		potential groundwater contamination due to the infiltration of surface water contaminated with spilled hydrocarbons, chemicals or explosives	Yes
Transport equipment	Soil	Potential spillage of hydrocarbons could result in soil contamination	Yes
Air quality		Potential increase of dust and pollution due to transportation	Yes
Natural vegetation		Decreased agricultural and grazing potential of surrounding land due to deposition of dust emitted by vehicle entrainment on haul roads	Yes
Archaeology/ cultural heritage		Potential damage to graves and artifacts which could lead to the loss of cultural heritage due to construction of roads	Yes
Soil		Potential	Yes
Waste generation, disposal and sewage handling		contamination of soil due to incorrect handling, storage and disposal of waste, or spillage of sewage	
Surface water		Potential contamination of surface water due to incorrect handling, storage and disposal of waste, or spillage sewage	yes
Groundwater		Potential infiltration of surface water contaminated by the incorrect handling, storage and disposal of waste, or spillage of sewage	Yes
Ablution	soil	Decrease land capability due to damage to the natural soil structure , soil loss through wind and water erosion and leaching of nutrients	yes
Surface water		Potential contamination due to inadequate sanitation for construction workers , and potential accidental leakage of sanitary facilities into streams and wetlands	yes
Ground water		Potential contamination due to inadequate sanitation for construction workers	

Domestic waste	soil	Potential domestic waste effluents and household chemicals contaminating soil, potential contamination of soil due to improper waste separation , which leaves metals and other contaminants in the waste stream	yes
Surface water		Potential of domestic waste effluents and households chemicals contaminating in the local streams ;potential leaches from waste stored for recycling resulting in the surface contamination from rain	
Ground water		Potential of domestic waste effluents and household chemicals compounds contaminating ground water Potential leachate from waste stored for recycling resulting in the ground water contamination from rain	yes
Access roads	soil	Site clearing to control road to substation site will	yes
cause a potential to result in soil erosion , soil loss.			
Surface water		Altered surface flow dynamic due to removal of topsoil and topographical alteration and increased surface runoff from cleared areas; Potential surface water runoff over haul roads will results in erosion and consequate siltation of surface water resources ; potential contamination of surface water runoff from hauls roads due to the spillage of hydrocarbons from vehicles travelling on haul roads.	

Air quality	Potential dust pollution caused by construction vehicles	yes
Natural vegetation	Decreased agricultural and grazing potential of surrounding land due to deposition of dust emitted by vehicle entrainment on haul roads; site clearing and removal of topsoil could lead to soil erosion and soil loss	yes
Archaeological /cultural heritage	Potential damage to graves and artfacts which could lead to the loss of cultural heritage due to construction of access roads.	yes
Noise	Potential elevated noise due to continuous vehicular movement on haul roads and drilling machines	yes

5.2 Functional requirements for monitoring programmes.

Construction phase
Operational phase
Closure phase
Post closure phase

Soil monitoring
Performance of the vegetation should be assessed by specialist once a year

Surface water
The upstream water quality and quantity should be maintained for the duration of the activities

Ground water
A monitoring procedure should be compiled that covers the location and frequency of sampling as well as the parameters to be analysed. Monitoring results will be captured in an electronic database as soon as results become available allowing:

- Data presentation in tabular format
- Time series graphs with comparison abilities
- Statistical analysis (minimum, maximum, average) in tubular format
- Graphical presentation of statistics
- Linear trend determination
- Performance analysis in tubular format
- Presentation of data, statistic and performance on diagrams and maps and comparison and compliance to legal or best practice water quality standards

Air quality
Air quality monitoring should be conducted and points should be located to assess impacts on the nearest sensitive receptors, taking prevalent wind direction into account

Flora
When removing alien invasive species and weeds, care must be taken to eradicate the plants fully. According to the conservation of agricultural resources act (43 of 1983) eradicate means to treat plants by any suitable method in order to prevent such as plants from growing, multiplying and 60 propagating. Therefore, when removing plants from the site it should be done at such a time when they are not producing sees that could easily be spread by wind during cutting and transport.

Fauna
Should any animals be disturbed by activities, the operators will be required to call in qualified people to handle and relocate (SPCA) animal found. The same mythology must be applied to bird life when nests are found

Archaeology
Sites should be monitored for potential archaeological and heritage findings (i.e change find procedures must be implemented)

5.3 Roles and responsibilities for the execution of monitoring programmes.

Site preparation
Existing access roads
Core stores area
Sumps
Drilling of identified boreholes
Final rehabilitation
Scraping the surface
Re-vegetating the disturbed area
Sealing of the drilling boreholes, logging and assaying
Pre-feasibility study
Environmental management plan studies
Mining right application

5.4 Committed time frames for monitoring and reporting.

Phase 1 (6 months)

- Data collecting
- Data modelling
- Borehole surveying and staking

Phase 2 (18 months)

- Construction phase
- Operational phase
- Closure phase

Phase 3 (12 months)

- Post closure phase

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).

- Remove all foreign material from the site.
- Renovate all hardened surfaces and vegetate
- Plug all prospecting boreholes with a concrete plug 0,5 meters below the natural ground level.
- Backfill all prospecting drill sumps and boreholes with topsoil and vegetate.

- The following contractors' rates were used:

Installation of a concrete plug in boreholes, seeding included.	R100.00/borehole
Backfilling prospecting borehole sumps, seeding included	R150.00/borehole
Renovation (ripping)	R100.00/borehole
Seeding	R1 500.00/borehole

Cost determination regarding the proposed drilling of 20 prospecting boreholes.

Installation of a concrete plug in boreholes

The concrete plug will be 0.4 * 0.4 * 0.2 m. Thus 0.0032m^3 of concrete will be necessary for each borehole

Cover concrete plugs with soil

A 300mm layer of soil will be placed over the concrete plug. This soil is stockpiled in close proximity to the sump. The sump can be backfilled by spade.

Backfill borehole sump

The sump will be 1,0 * 1,0 * 0,5m. The soil removed from the sump will be stockpiled in close proximity to the sump. The sump can be backfilled by spade.

Ripping of hardened surfaces

Cost based on hire of tractor, diesel and labour

Seeding

Cost based on purchase of seed and labour to disperse the seed.

Maintenance

This includes the cost for erosion control and follow up seeding.

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

Closure or end use objectives for the site applied for as guided by the baseline study.

Closure and environmental objectives
If the prospecting programme indicates sufficient economical viable reserves are available, an application for a mining right will be lodged.
All prospecting boreholes will be backfilled and a concrete plug will be installed at a depth of 500mm below surface elevation. Subsoil and a minimum 300mm layer of topsoil will be placed over the concrete plug.
All sumps will be backfilled to surface and covered with a 300m layer of topsoil.
All roads and traces will be scarified and ripped to a depth of 100mm to allow re-vegetation.
No prospecting infrastructure will be left on site.
Once the prospecting activities are completed, the area will have a land use and capability comparable to the pre-prospecting land use and capability, and all affected area will have a sustainable vegetation cover.

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).

- Interested and affected parties were consulted by fax, mail letters, telephonically and no respond up to date.

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

PUBLIC PARTICIPATION PROCESS		
Interested and affected parties	**Issues raised**	**Mitigation Measures**
The Manager (Siyathemba local municipality) P O Box 16 Prieska 8940 Fax: 053 353 1386	No respond up to date	-No potential impacts will be conducted which will be damaging to the environment, conservation area, water resources or wet-land, Historic significant etc. Therefore there will be a buffer zone of 100m radius from any prospecting activities. Removed topsoil will be placed on the stockpile area. The topsoil stockpile will not exceed the height of 3m, and that the soil will be used as soon as possible. -Replacement of the topsoil will be conducted in accordance with the soil horizons of the area applied for agricultural purposes. The proposed prospecting activities will include desktop study, surveying, boreholes drilling, core logging, laboratory test and rehabilitation.
The Manager Co-operative Government Human Settlement and Traditional Affairs Private Bag X 5005 Kimberley 8300 Fax: 053 831 8718	No respond up to date	-No potential impacts will be conducted which will be damaging to the environment, conservation area, water resources or wet-land, Historic significant etc. Therefore there will be a buffer zone of 100m radius from any prospecting activities. Removed topsoil will be placed on the stockpile area. The topsoil stockpile will not exceed the height of 3m, and that the soil will be used as soon as possible. -Replacement of the topsoil will be conducted in accordance with the soil horizons of the area applied for agricultural purposes.

		The proposed prospecting activities will include desktop study, surveying, boreholes drilling, core logging, laboratory test and rehabilitation.
The Manager Department of Rural Development and Land Reform P O Box 2458 Kimberley 8300 Fax: 053 831 6501	No respond up to date	-No potential impacts will be conducted which will be damaging to the environment, conservation area, water resources or wet-land, Historic significant etc. Therefore there will be a buffer zone of 100m radius from any prospecting activities. Removed topsoil will be placed on the stockpile area. The topsoil stockpile will not exceed the height of 3m, and that the soil will be used as soon as possible. -Replacement of the topsoil will be conducted in accordance with the soil horizons of the area applied for agricultural purposes. The proposed prospecting activities will include desktop study, surveying, boreholes drilling, core logging, laboratory test and rehabilitation.

7.1 Identification of interested and affected parties.

(Provide the information referred to in the guideline)

-Interested and affected parties were consulted via fax, letters and telephonically.

7.2 The details of the engagement process.

7.2.1 Description of the information provided to the community, landowners, and interested and affected parties.

- Interested and Affected Parties on the consultation letter they have been inform that the proposed prospecting activities will include desktop study, surveying, boreholes drilling, core logging, laboratory test of the minerals to be prospected and rehabilitation of the area.

7.2.2List of which parties indentified in 7.1 above that were in fact consulted, and which were not consulted.

- The Manager (Siyathemba local municipality)
- The Manager (Co-operative Government Human Settlement and Traditional Affairs)
- The Manager (Department of Rural Development and Land Reform)

7.2.3List of views raised by consulted parties regarding the existing cultural, socio-economic or biophysical environment.

- No respond up to date from Interested and Affected Parties.

7.2.4List 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 respond up to date from Interested and Affected Parties.

7.2.5Other concerns raised by the aforesaid parties.

- No respond up to date from Interested and Affected Parties.

7.2.6Confirmation that minutes and records of the consultations are appended.

- Interested and affected parties were consulted by fax, e-mail, telephonically, no meeting was held with Interested and Affected Parties.

7.2.7Information regarding objections received.

No respond up to date from Interested and Affected Parties.

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

No respond up to date from Interested and Affected Parties.

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

- This section outlines the specific additional requirements that may be set for the operation by the Regional Manager. Additional requirements will only have been set if the Regional Manager is of the opinion that there are specific impacts on the environment which will not be adequately mitigated by the provisions set within the standard version of the Environmental Management Plan. These requirements form part of the Environmental Management Plan and all elements and instructions contained herein must be complied with by the applicant.

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).

Prospecting work subjects employees to hard physical work that includes frequent lifting of heavy objects, using potentially dangerous equipment and being exposed to heat, cold, etc. Therefore it becomes essential that employees be in good physical condition and in good health when they begin field work. Employees will be reminded that they should be free of communicable diseases that may rapidly spread through a field camp. Exploration workers will also be trained in basic first aid skills. In order to inform employees of dangers in the workplace, and how to avoid them, Mabengela Resources (Pty) Ltd intends to do the following:

- Providing them with information about the materials health effects for all the materials that will be used.
- The employer will also motivate workers and also provide resources necessary to conduct all prospecting activities in a safe and healthful manner. Each employee must understand that safety is their responsibility and everyone is involvement is needed for success including participation of safety committees in hazard identification and control.
- The employer will also inform the employee of the location of the nearest medical treatment facility.
- Instructing employees of specific hazards associated with their workplace and duties and ensure use of appropriate personal protective equipment.
- Train employees in the safe use of all equipment to be used in the project.

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).

Responsibilities could come in many different forms they include testing machinery regularly, providing adequate safety equipment, personal protective equipment required, fire fighting measures and decomposition products of the material, chemical re-activities and incompatibilities, spill and leak handling procedures and disposal procedures.
Mabengela Resources (PTY) LTD employees and other Contractors involved in the project will be briefed in their induction to report any sign of buildings, structures or evidence of cultural sites of any sort and to stop work until the site has been investigated by an accredited person.

8.3 Environmental awareness training.

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

Emergency procedures and communications will be carefully planned and tested before field work commences. The applicant will also provide exploration employees with a safety manual that addresses the issues of the region (project location) where they work. A comprehensive safety manual will form the basis for camp orientation meetings, training sessions and routine safety meetings throughout the field season.

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

Mining Activities	Impacts Identified	Mitigation Measures	Management Cost	Final Rehabilitation Cost
CONSTRUCTION PHASE				
Site preparation Access roads Preparation of topsoil.	• Destruction of soil fertility. • Generation of noise. • Generation of dust. • Destruction of vegetation. • Soil erosion as the result of exposed surfaces.	• Topsoil will be removed from all area where physical disturbance of the surface will occur. • The topsoil stockpiles will be stored, shaped and sited in such a way that they do not interfere with the flow of water to cause damming or erosion, or itself eroded by the action of water • All equipment will be fitted with silencers to eliminate noise • Water Cart will be utilised to surpass dust generated during site establishment to avoid the atmospheric pollution • Install dust bucket on prospecting area and the surrounding to determine the influence of the proposed prospecting operation. These will act as a monitoring procedure to determine the effectiveness of the proposed dust suppression measures and where possible provide the most appropriate mitigation measures.	R9, 750.00	R24, 750.00

OPERATIONAL PHASE				
Systematic removal of the sand material. Loading and transporting of the ROM sand	• Destruction of soil fertility and profile. • Generation of noise. • Generation of dust • Exposing the area to soil erosion. • Water pollution • Land use change from grazing to mining. • Nuisance • Prospecting will result in the formation of topographical void, which will change the local topographical patterns of the immediate area	• The topsoil will be removed and stored separately, in which at the latter stage the said topsoil will be used for backfilling. • All equipment will be fitted with silencers to eliminate noise • Water Cart will be utilised to surpass dust generated during this phase and also to surpass dust from vehicular movement. • Ensure that the exposed areas are concurrently rehabilitated to avoid erosion. • Contain silt water within the prospecting area to avoid the pollution to the environment.	R14,202.00	R10508.5
Waste Disposal	• Nuisance • pollution	• Suitable covered 210 litre drums for various types of waste (e.g. glass, plastic and paper) will be available at all times on site and conveniently placed for the disposal of waste and these drums will be removed from site on weekly basis for recycling or disposal at a licensed disposal facility.	R5,000.00	R10508.5
Ablution	• Pollution	• Chemical toilets will be utilised to mitigate against the soil and air pollution. • The management of these facilities is as per the supplier.	R2,988.00	
Total Concurrent Rehabilitation			R3,1940.00	
				R45, 767.00

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

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

The following specifications are indicated for the rehabilitation of the prospecting area:

- Remove all foreign material from the site.
- Renovate all hardened surfaces and vegetate
- Plug all prospecting boreholes with a concrete plug 0,5 meters below the natural ground level.
- Backfill all prospecting drill sumps and boreholes with topsoil and vegetate.

The following contractors' rates were used:

Installation of a concrete plug in boreholes, seeding included.	R100.00/borehole
Backfilling prospecting borehole sumps, seeding included	R150.00/borehole
Renovation (ripping)	R100.00/borehole
Seeding	R1 500.00/borehole

9.2 Confirmation that the stated amount correctly reflected in the Prospecting Work Programme as required.

The Directors of Mabengela Resources would like to confirm that the availability of funds to implement the proposed project for **Mabengela Resources (Pty) Ltd** has been set aside to finance the proposed prospecting operation. The said amount will be utilized for all the proposed prospecting activities which include desktop study, surveying, boreholes drilling, core logging, laboratory test and rehabilitation should the prospecting right be granted.

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.	
Full Names and Surname	**Mr Davis Nkosi**
Identity Number	**7803155668080**

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