mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: Starcrow 125 CC

REFERENCE NUMBER: NC30/5/1/1/2/10869PR

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.

ITEM	**COMPANY CONTACT DETAILS**
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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.

Status of the cultural environment that may be affected

The Namaqualand copper and diamond mines and their associated infrastructure and cultural landscape reflect the beginnings of the mining industry in South Africa in all the myriad ways in which that industry influenced and continues to influence society through the movement and housing of people, the development of transport and other infrastructure and industries and in the development of technological and scientific endeavour.

It also reflects the very close links between the development of the Southern African mining industry and mining technology pioneered in Britain, particularly in the counties of Cornwall and Devon, and the landscapes and social structures that went with them.

In its socio-cultural aspects, the Namaqualand copper mines saw the development of the first company towns of the industrial era in South Africa and the movement of people from various parts of the Cape Colony to Namaqualand to provide labour and to serve the trade that developed here. As importantly, the development of the copper mines was undertaken using British technology developed on the mines of Cornwall and West Devon and in fact the development of the mines around O'okiep contributed significantly to the demise of copper mining in south-west of England, with the resulting transfer not only of technology and skills, but also of numbers of Cornishmen to Namaqualand and other parts of the world. There is and remains a strong historical connection between these two great former copper producing regions of the world. As such it is anticipated that the Namaqualand Copper Mining Landscape will be nominated as an extension of the Cornwall and West Devon Mining Landscape World Heritage Site along with similar sites that share the same connection in Mexico, Australia, Brazil and India.

Any form of mining or prospecting will therefore be a continuation of the socio-cultural aspects of the area.

Status of any heritage environment that may be affected

No heritage resources such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves of victims of conflict, and cultural landscapes or viewscapes are present on the prospecting area applied for. The area is already disturbed by historic mining activities and any sites of cultural significance will already be disturbed or destroyed.

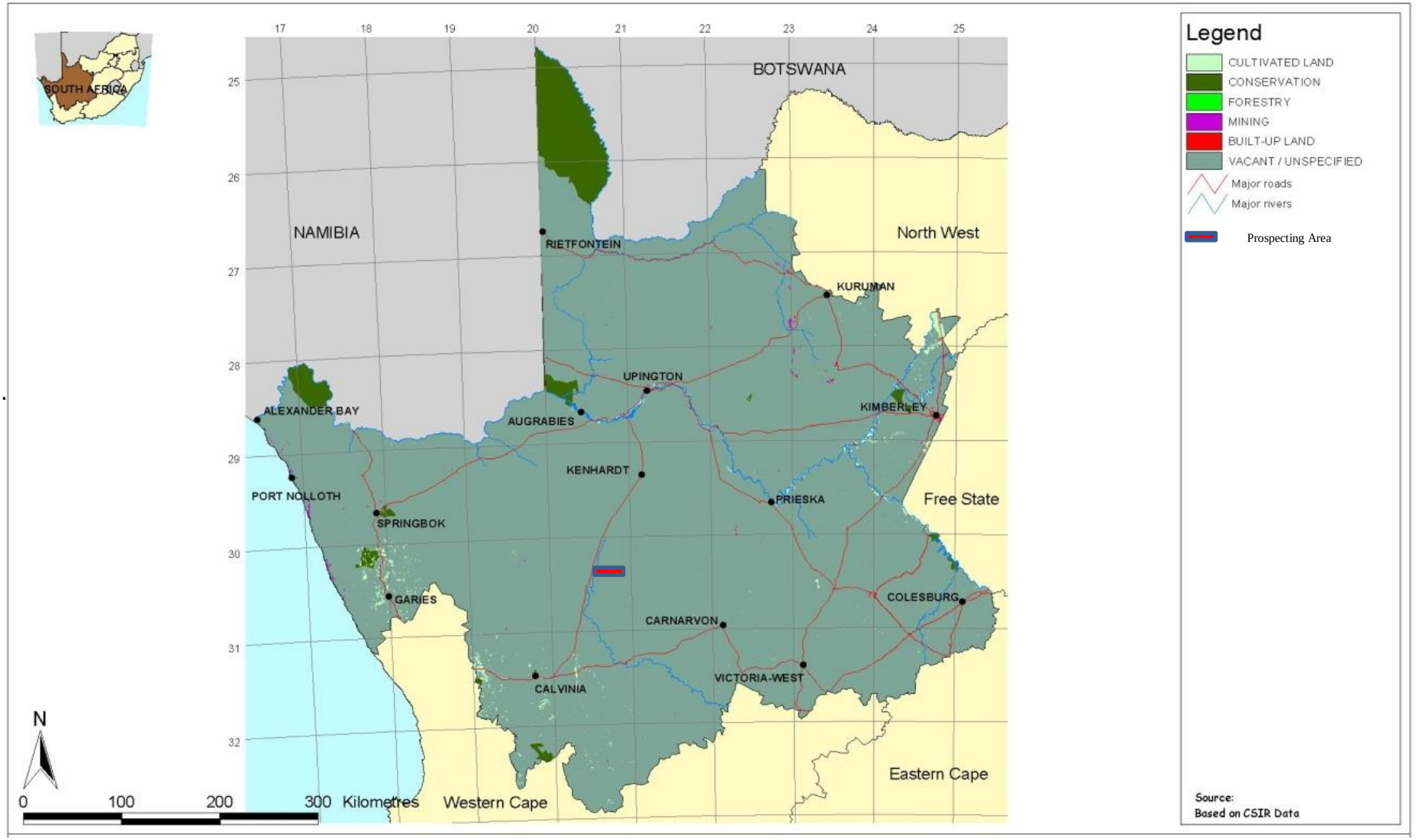
Status of any current land uses and the socio-economic environment that may be directly affected

Approximately 90% of the region is used for livestock grazing and production, with the remainder comprising of mining and urban development. Urban development is not a major feature of the landscape, and is not expected to increase much in the coming years.

Prospecting will only be a temporary land use where after land use will revert back to the pre-mining land use grazing. Productivity of the land with regard to land use is very low and prospecting will have no impact on the productivity of the area

Most of the Northern Cape is defined as vacant or unspecified land use (Refer Map 1).

Map 1: Land use patterns of the Northern Cape



Status of any infrastructure that may be affected

No infrastructure will be affected. Existing roads and tracks will be used and in the case of new tracks be developed it will be addressed at final closure and rehabilitation. All new tracks will be developed in consultation with the landowner.

Status of the biophysical environment that may be affected

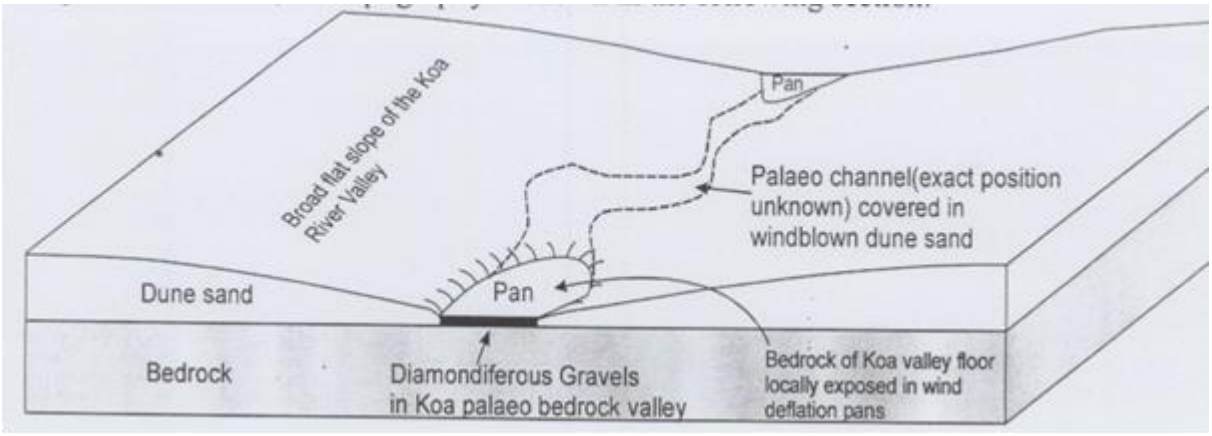
Topography

Namaqualand is a unique and diverse environment – owing in large part to the presence of four distinct biogeographically regions within its boundaries. The Orange River valley lies to the north and is characterized by very dry desert conditions. In the west the area is composed of coastal plains – which transition into granite hills that straddle the escarpment, before transforming into low lying Bushmanland plains to the East of Springbok.

The site is located within an area known as the Koa River Valley. The topography of the area is dominated by this very broad almost flat valley. The almost flat valley slopes exhibit inland dune-like topography. Altitude ranges mostly from 800-1 200 m (Refer Map 2).In very dry periods, the grassland vegetation dies off and the dunes in fact become mobile. The palaeo channel forms the pans of present (in the case of Bosluis Pan and Bitterputs se Pan) and the aim of prospecting is to determine the path these palaeo channels followed towards the pans downstream/upstream.

In general however, the topography is shown in diagram 1.

Diagram 1 Topography surrounding Bitterputs pan



Soil

The dunes surrounding the pan consist of shallow to deep windblown red to light orange sands. The topsoil consists of the same material as the subsoil but is differentiated by the humus content of the soil. The upper I5cm will be regarded and treated as topsoil.

The geology underlying the biome is varied, as the distribution of this biome is determined primarily by rainfall. The rain falls in summer, and varies between 100 and 520mm per year. This also determines the predominant soil type - over 80% of the area is covered by a lime-rich, weakly developed soil over rock. Although less than 5% of rain reaches the rivers, the high erodibility of soils poses a major problem where overgrazing occurs.

Detailed soil information is not available for broad areas of the country. As a surrogate, landtype data was used to provide a general description of soils in the study area (landtypes are areas with largely uniform soils, topography and climate). There is a single main land type in the study area, the Fc land type (Land Type Survey Staff, 1987).

The F-group of land types refer to pedologically young landscapes that are not predominantly rock and nor predominantly alluvial or aeolian and in which the dominant soil-forming processes have been rock weathering, the formation of orthic topsoil horizons and, commonly, clay illuviation, giving rise typically to lithocutanic horizons (MacVicar et al. 1974). The soil forms that epitomise these processes are Glenrosa and Mispah (MacVicar et al. 1974). The Fc unit refers to land types where lime occurs regularly in upland and valley bottom soils (MacVicar et al. 1974).The productivity of the area is very low at 8-10Ha/SSU (Refer Map 3).

Land Capability

The land is classified as wilderness area with subordinate grazing. This classification is more restrictive than pure grazing classification.

The carrying capacity of the veld is approximately 8-10ha / small stock unit (dependant on the tuning with regard to the rain/drought cycle). At present the area is just coming out of a particularly wet cycle of the past 5-6 years.

The aim of the rehabilitation programme is to restore the veld to its wilderness rating.

Natural vegetation / plant life

The study area falls within the Nama-Karoo Biome, on the edge of the Succulent Karoo Biome (Rutherford & Westfall 1986, Mucina & Rutherford 2006). The most recent and detailed description of the vegetation of this region is part of a national map (Mucina, Rutherford & Powrie, 2005; Mucina et al. 2006). This map show only one vegetation types occurring within the study site, namely Bushmanland Arid Grassland.

The most dominant grasses are *Stiptagrostis obtusa* whilst the non-grass species are dominated by *Salsola tubercualata* and *Pentzia spinescens*.

At a national scale this vegetation type has been transformed less than 1% although none is conserved. It is not considered to be a threatened vegetation type (Mucina et al. 2006). No signs of serious transformation, but scattered individuals of Prosopis sp. occur in some areas.

The natural vegetation type per se is not a threatened unit and no specific botanical survey was conducted to measure the local & regional conservation worthiness, but wish to reflect on the following aspects to reduce any potential impact:

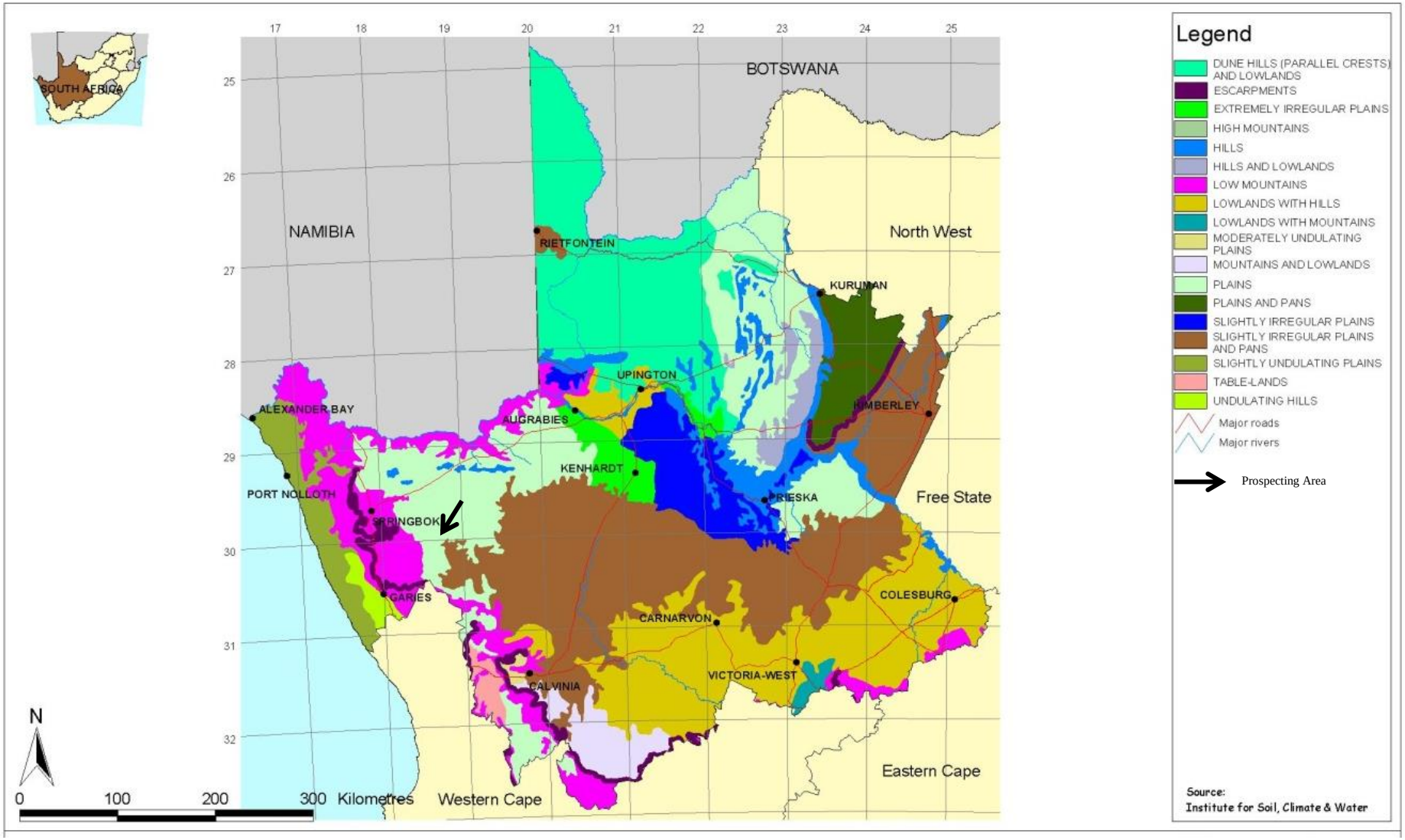
- Movement areas must be clearly demarcated and any movement outside of these areas must not be allowed
- No ad hoc roads, dumping or topsoil borrowing

Animal Life

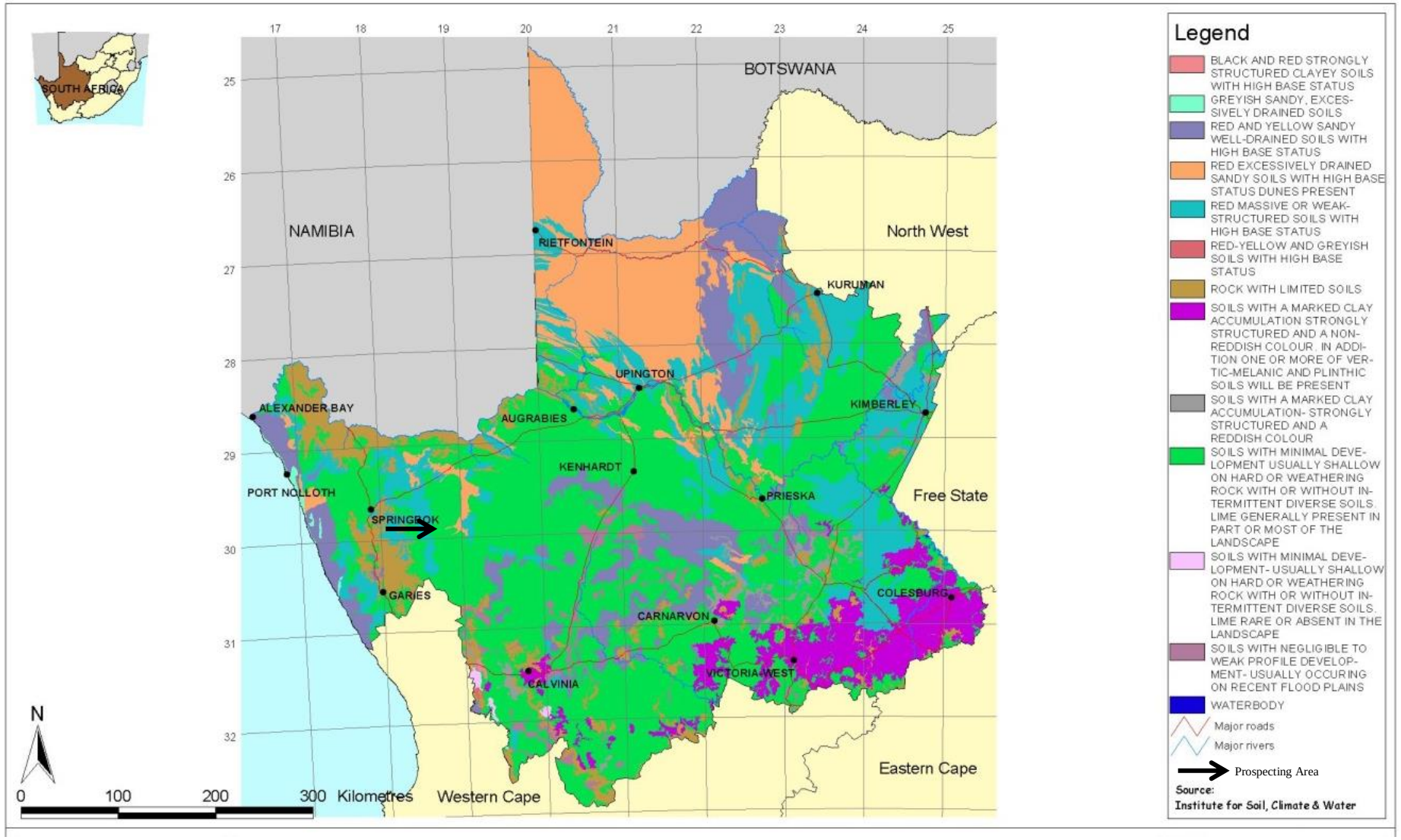
Vast expanses of similar vegetation in the area provide a habitat suitable for species typical of the area. These include small buck, rodents (meerkat, mice, shrews etc), reptiles (snakes and tortoises) birds and insects. The large scale of the habitat type when compared to the extent of the proposed activities negates any significance of any impact in this regard. The salt pans are transformed into bird sanctuaries after the summer rains (Nov-Mar). There are six threatened bird species (all VU) and four Near Threatened bird species that have a medium to high probability of utilising available habitats in the study area, either for foraging or breeding. The three species most likely to use parts of the site for breeding are the Kori Bustard, Ludwig's Bustard and Sclater's Lark.

There are no threatened amphibian species that have a distribution that includes the study area. There are no threatened reptile species have a distribution that includes the study area.

Map 2: Terrain Morphological units of the Northern Cape



Map 3: Generalised Soil Description of the Northern Cape



Surface Water

The area receives an average (but vary variable) annual rainfall of less than 100mm per year with most of the precipitation occurring during the summer months. Evaporation rates far exceed precipitation.

The prospecting area includes the Bitterputs pan but no drainage channels occur within the prospecting area and there is no dendritic system which could be disturbed.

Surface water only accumulates in the pan after exceptional good rains and given the variability of semi-arid rainfall, the calculation of the mean annual runoff (MAR) would be of no use. The MAR is in any event very low given the low rainfall occurring mainly in the summer months, high evaporation rates, and shallow grade of the slope toward the pan and the permeability of the soils

The surface water quality (when available) is suitable for animal consumption but not for potable water and will be the only water used for processing of gravels if needed.

Groundwater

The average water level measured at 'rest' in the region is about 80m depending on the season. Groundwater is extremely salty and unfit for human consumption.

The following information regarding the groundwater in the area has been obtained from the DWAF Hydrogeological map scries (Sheet Springbok 2916 dated 2001) as follows (with comment in brackets):

- Groundwater Zone A: No abstraction without permit (none required as processing will be off site at Bosluis Pan Mine)
- Aquifer type: Intergranular and fractured.
- Yield: 0.1 to 0.5 (median) l/s
- Quality:

Conductivity: >1000mS/m (and much higher in the pan floor)

N03 and N02 (as N) >10mg/l and F>1,5mg/l (and much higher in the pan floor)

Air Quality

The wind rose for Upington is considered representative of the wind regime in the area. The implications on proposed prospecting activities of this wind regime are as follows:

Prevailing wind direction is from the southwest and is especially strong in summer.

Winter winds have much less speed and generally blow from the north.

Infrequent berg winds blow during the winter months. These winds are hot and dry and carry regionally generated dust.

Existing dust sources in the area:

Vehicle generated dust on surfaced roads

Limited surrounding diamond mining generated dust (especially during topsoil /overburden removal / replacement).

Impacts arising from the proposed operation with regard to dust generation (and the proposed attenuation measures) are as follows:

During the digging of the prospecting trenches, dust will be generated during topsoil removal, overburden removal, gravel removal, transport of the gravel along the un-surfaced roadway, replacement of overburden and replacement of the topsoil.

These impacts are however so small as to be considered insignificant especially against the background of the small scale and isolation of the proposed prospecting.

Dust must however be minimised in terms of employee health and masks must be available at all times and the applicants must comply with the prescriptions of the Mine Health & Safety Act.

Noise

No surrounding land use or user will be impacted by noise generated from the proposed operation, given both the small scale of the operation and the isolation of the site. The following noise sources will arise as a result of the proposed operations:
Earthmoving equipment generated noise (observed estimate at ±55dBA).
Noise must however be minimised in terms of employee health and HPD s must be available to employees at all times and the applicants must comply with the prescriptions of the Mine Health & Safety Act.

Visual Impact

The only existing visual impact as a result of mining / prospecting is the existing facilities and excavations at the Bosluis Mine. It must be noted that the site is incredibly remote being accessed by way of servitude road. Public roads are few and far from the pans and carry very little traffic while farmsteads are extremely few and far between.

Sensitive Landscapes

Areas containing untransformed natural vegetation of conservation concern, high diversity or habitat complexity, Red List organisms or systems vital to sustaining ecological functions are considered potentially sensitive. In contrast, any transformed area that has no importance for the functioning of ecosystems is considered to have low sensitivity.

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

<u>Description of potential impacts identified on the cultural heritage environment</u>

The area is already transformed by historic mining activities and has very little potential to contain microfossils. Should any fossils be discovered or unearthed in the process of prospecting, the prospecting right holder will contact a South African Museum or University which employs palaeontologists so that the necessary palaeontological salvage operations can take place. No other heritage resources such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes are present on the prospecting area.

<u>Description of potential impacts identified on the socio- economic conditions</u>

Potential impacts arise as follows through the proposed prospecting activities:
Negative

- Potential impacts on farm integrity: Poaching, stock theft, stock loss (through road kill or gates being left open), security, and road condition deterioration
- Potential impacts on rural settlements: Raise false levels of expectancy, economic concerns if mine / prospect labour arc paid more than farm labour, immigration of workers, drugs etc.

Positive

- Potential for infrastructure development
- Potential for employment opportunity.

Note that should mining go ahead as a result of positive prospecting results then a social and labour plan is required which will address amongst other aspects, the above issues in more detail.
The only other land use in the area is small stock grazing and due to the small extends of the prospecting operation there will be no impact on productivity.

Description of potential impacts identified on: employment opportunities, community health, and community proximity

The prospecting operation itself will not create many employment opportunities but if economic viable ore bodies are discovered the spinoffs due to the larger mining operation will contribute to employment and skills development.

Description of potential impacts identified on the biophysical environment

Refer paragraph 2.2.

1.3 Confirmation that the description of the environment has been compiled with the participation of the community, the landowner and interested and affected parties,

The scoping report was made available to the landowners and all other interested parties for comment. All comments received were addressed in this EMPR.

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

Refer maps 1, 2 and 3 above and map 4 and 5 below

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 operation.

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

Map 4 show the main land uses on the proposed prospecting area and as can be seen more than 99% of the area is zoned as agricultural or unspecified land use.

With regard to the proposed prospecting activities no additional infrastructure including roads will be constructed that needs to be indicated on the plan.

The following factors have an important bearing on the nature of the planned prospecting:

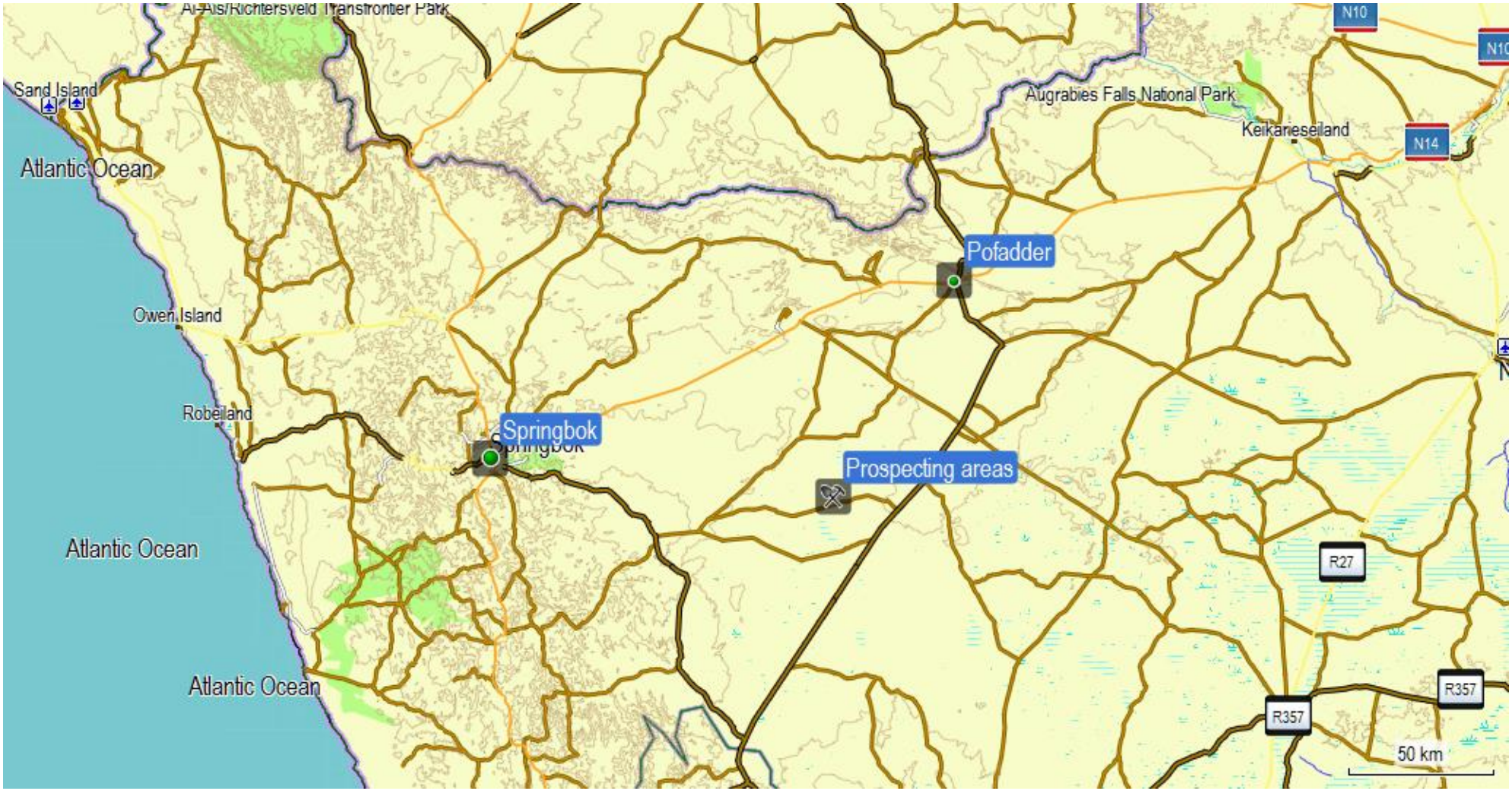
- The pan floor is subject to periodic inundation. Recent times have been very wet and working within the pan is difficult.
- The pan is surrounded by a thin layer (±1-2m deep) of sand which is inundated under severely wet conditions.
- The aerial photo shows an east west foliation in the exposed basement granites in the northern edge of the pan. This indicates that the palaeo river flow was in a south north direction.
- Deeper overburden is located east and west of the northern extension of the pan floor.

The above factors result in invasive prospecting consisting of 2 phases:

The first is the prospecting of the shallower overburden by means of prospecting trenches across the surmised palaeo river flow direction to determine the extent of the channel extending northwards from Bitterputs se Pan.

Once the direction of the gravels (and grade) has been determined then a bulk sample programme will be conducted to do a Diamond Ore Characterization (DOC) study for metallurgical purposes and to allow the sufficient recovery of diamonds for evaluation and foot printing purposes.

Map 4: Locality of prospecting areas



Map 5: Properties to be prospected

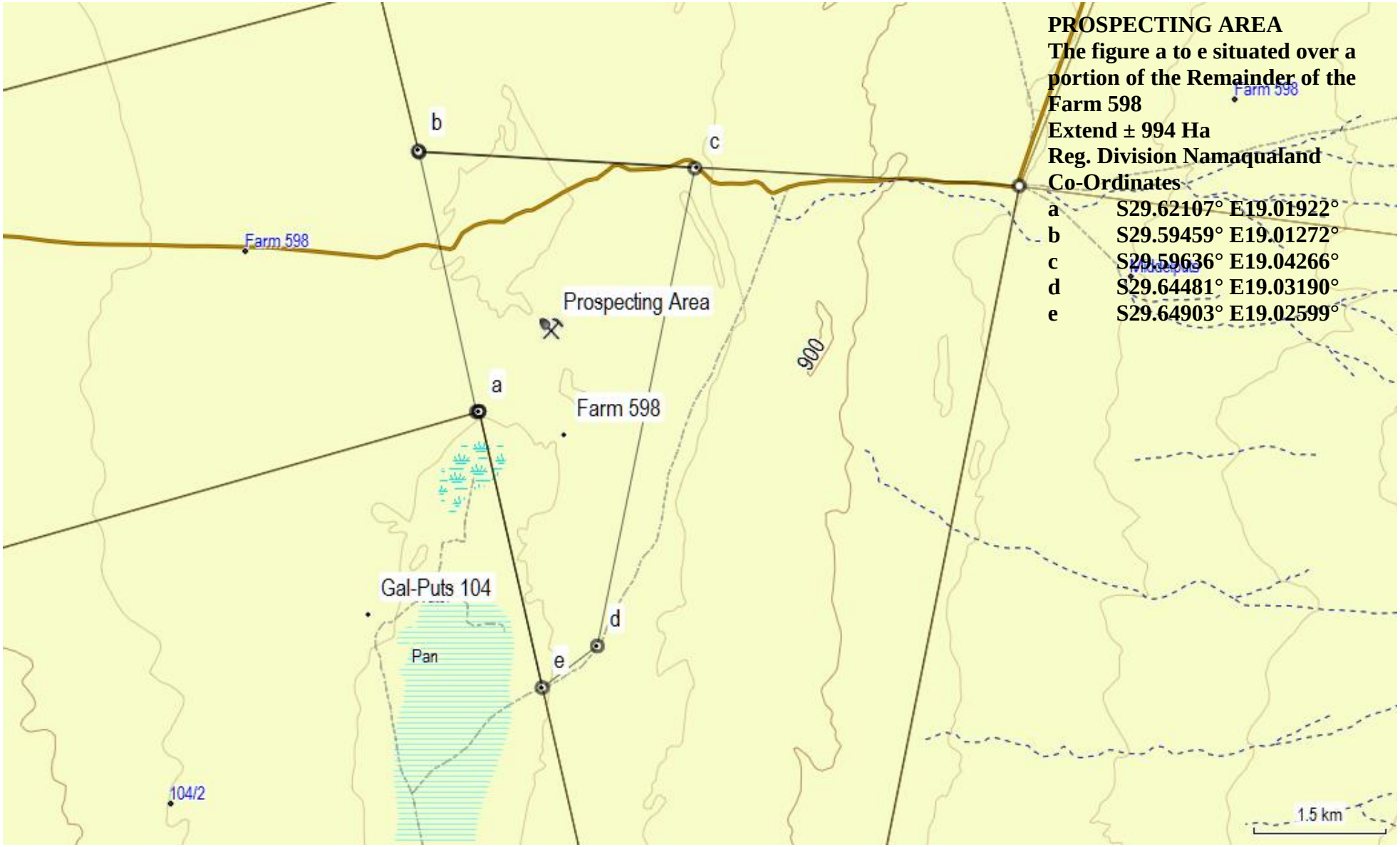
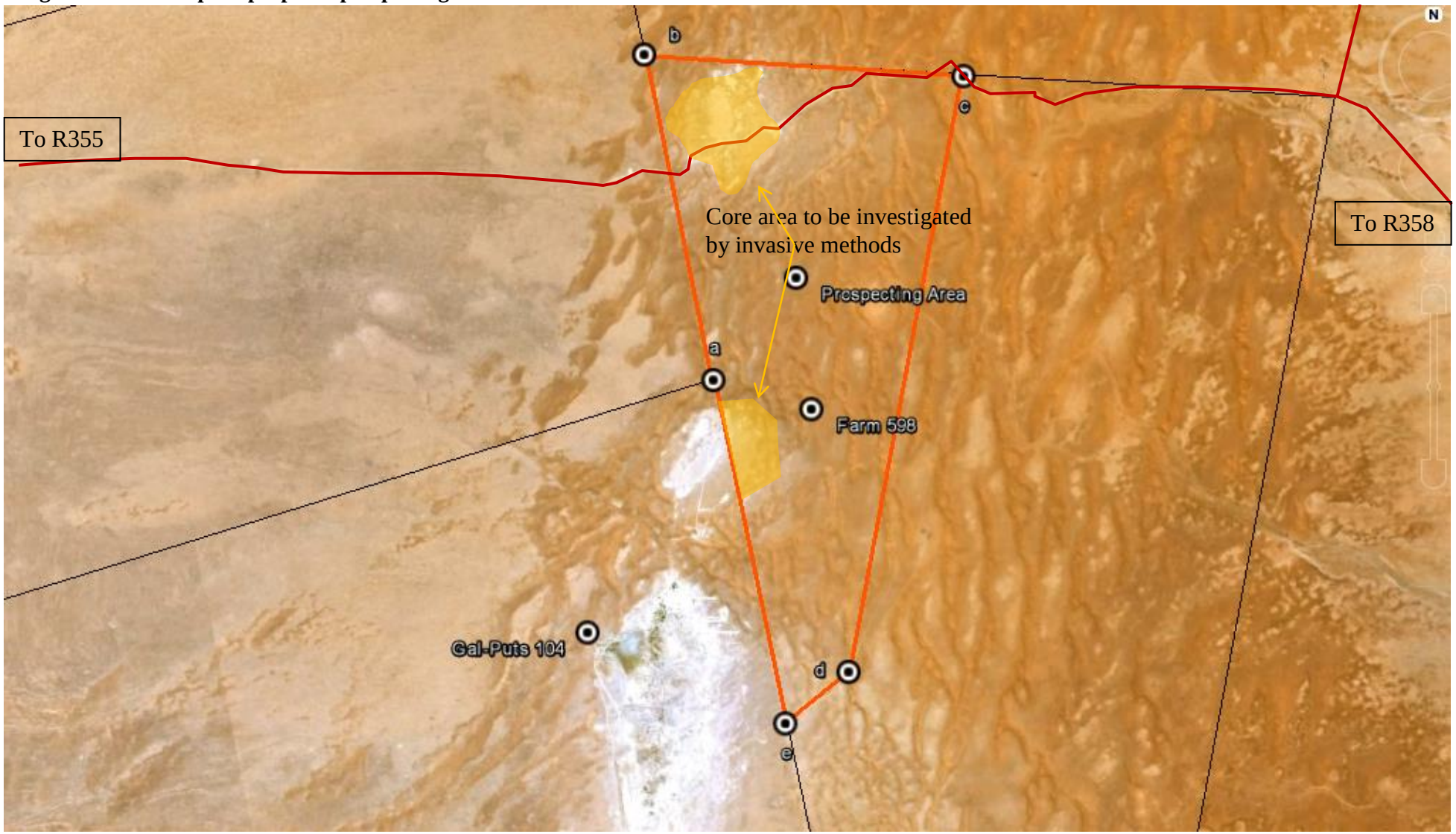


Diagram 2: Landscape of proposed prospecting area



2.1.2 Plan of the main activities with dimensions

The only prospecting related activity will be the development of prospecting pits to be developed during the operational phase. The development and dimensions are described in the operational phase below with dimensions in diagram 4.

2.1.3 Description of construction, operational, and decommissioning phases

Construction phase

Several existing tracks exist on the site and these will be used whenever possible. The Farmer's access road will be utilized in most cases, so no envisaged ground disturbance is planned or foreseen.

If prospecting proceeds to the stage of bulk sampling a mobile wash plant will be constructed.

Operational phase

Operational phase Non-invasive Phase 1

Literature Study

In order to direct the exploration programme in an efficient manner, there will be a review of all information and data gathered by previous exploration in the surrounding area. A desktop study will also be undertaken of the diamond potential of the area. 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

Aerial photographs and satellite images will be studied to ascertain additional target areas for possible gravel deposits. The aerial photographs will also be used to structurally and geologically map the area.

Geophysical Survey

A 5 line kilometre magnetic survey may be undertaken using a proton-5-magnetometer. This study will result in identifying potential cross-cutting dykes where diamonds could be trapped.

Geological mapping and grab sampling will also be carried out to narrow down the area for prospecting pits. This will result in defining target areas for pitting and reduce the total number of pits to be excavated.

The model for mineralisation in the area of interest is that of diamondiferous paleo channels and traps. Samples recovered from prospecting pits in the general area have shown good prospects to host economic diamond deposits.

It was further concluded by previous operators that potential exists to discover new paleo channels and traps in the area. The company's exploration programs are aimed at (i) discovering previously unknown paleo channels and traps (ii) evaluating the economic potential of potential gravel deposits.

Operational phase Invasive Phase 2

The following factors have an important bearing on the nature of the planned prospecting:

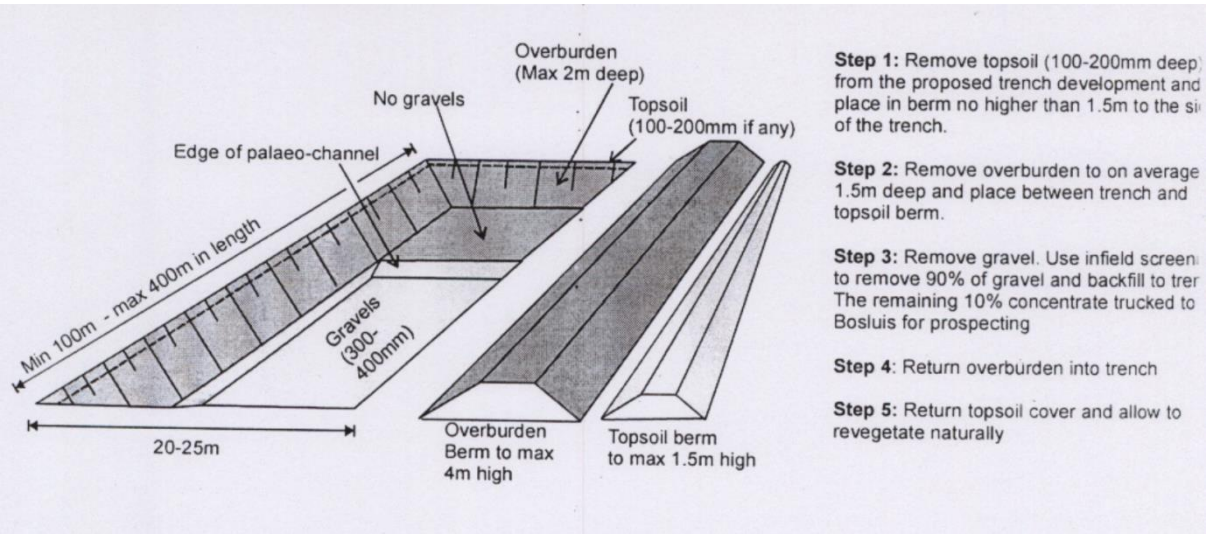
- The pan floor is subject to periodic inundation. Recent times have been very wet and working within the pan is difficult.
- The pan is surrounded by a thin layer (±1-2m deep) of sand which is inundated under severely wet conditions.
- The aerial photo shows an east west foliation in the exposed basement granites in the northern edge of the pan. This indicates that the palaeo river flow was in a south north direction.

- Deeper overburden is located east and west of the northern extension of the pan floor.

The above factors result in invasive prospecting consisting of 2 phases:
The first is the prospecting of the shallower overburden by means of prospecting pits across the surmised palaeo river flow direction to determine the extent of the channel extending northwards from Galputs.
Once the direction of the gravels (and grade) has been determined then a bulk sample programme will be conducted to do a Diamond Ore Characterization (DOC) study for metallurgical purposes and to allow the sufficient recovery of diamonds for evaluation and foot printing purposes.

The prospecting pitting programme will consist of approximately 6 pits to the north of the pan (Refer figure 4). The pits will be developed in an area of very shallow overburden (approximately 1 -2m deep) above the 300-400mm thick gravels. The pits will be developed to 20-25m long x 20-25m wide. Assuming an average overburden depth of 1.5m, then each pit will require the handling of some 1 000m³ overburden and topsoil.
Such pit development will be the same as for trench development as shown in the diagram below but on a much smaller scale:

Diagram 3 Footprint of trench development



Apart from gravel resources calculations the information will be used to construct gravel thickness, overburden thickness and bedrock elevation contour plans.
The trenches will be backfilled if results are unfavourable or left open for the purpose of continued bulk sampling by means of box cuts. The holes will be filled with overburden and covered with topsoil.
Operational phase Bulk sampling Phase 3
After prospecting pits has delineated alluvial traps and or paleo channels, a decision will be made whether to proceed to Bulk Sampling.
A bulk sample will consist of a box cut excavated perpendicularly to the paleo channel. The footprint of the proposed box cuts will be 70 X 70 meters (0.5Ha). There will only ever be one box cut open at any given time and it is anticipated that no more than 2 such cuts will be developed.

Bulk sampling will consist of the following procedures:

- Remove topsoil to either side of the eventual box cut lateral extension. Note that the upper 30cm will be treated as topsoil as it contains a seed bank. Say 5 000m² X.3 = 1500m³
- Then remove the overburden average 1 meter below the "topsoil" cover to a separate stockpile berm. Say 5 000m² X1m = 5 000m³
- Extract alluvial material to a depth of 1.5m. Say 5 000m² X.3m = 1500m³ alluvial gravel
- From 2 pits 3000m³ alluvial gravel will be extracted or 1150 tonnes at an SG of 2.6
- An average of 500 tonnes could then be processed from each of the two potential gravel deposits

The removed gravel will be sent through an in-field screening plant and only the concentrate will be trucked to the processing plant.

The applicant requires 250tonnes of concentrate product to obtain a representative sample for sufficient statistical analysis. 250tonnes of concentrate represents 50% of the ore therefore 50% will be backfilled through infield screening. When bulk sampling has been completed, then the entire excavation must be backfilled with the removed material in reverse order (starting with the in-field screened gravel).

Operational phase Feasibility studies –Resource estimation Phase 4

The project manager 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.

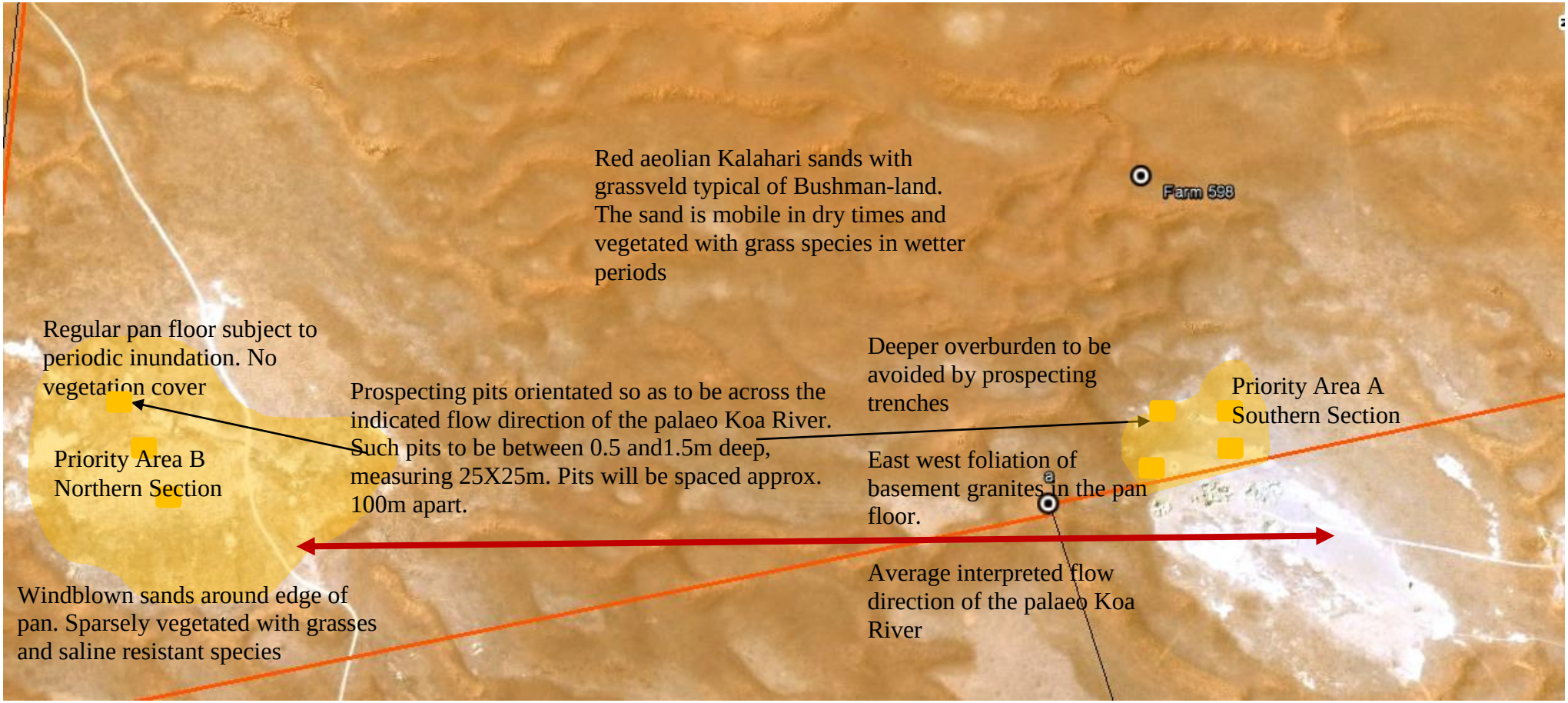
Decommissioning phase

Regulations 56 to 62 outline the entire process of mine closure, both as a guide to the process to be followed for mine closure, and also to address the legal responsibility with regard to the proper closure of operations. In terms of Section 37 of the MPRDAct, 2002 (Act 28 of 2002), the holder of a right is liable for any and all environmental damage or degradation emanating from his operation, until a closure certificate is issued in terms of Section 43 of the MPRDAct, 2002 (Act 28 of 2002).

"An application for a closure certificate must be accompanied by an environmental risk report which must include-

(a) the undertaking of a screening level environmental risk assessment where-
(b) the undertaking of a second level risk assessment on issues classified as
(c) assessing whether issues classified as posing potential significant risks are acceptable without further mitigation;
(d) issues classified as uncertain risks be re-evaluated and re-classified as either posing potential significant risks or insignificant risks;
(e) documenting the status of insignificant risks and agree with interested and affected persons;
(f) identifying alternative risk prevention or management strategies for potential significant risks which have been identified, quantified and qualified in the second level risk assessment;
(g) agreeing on management measures to be implemented for the potential significant risks

Diagram 4: Landscape with positions for trenches with the option of bulk sampling



Phase	Activity	Skill(s) required	Time frame	Outcome	Time frame for outcome	What technical expert will sign off on the outcome?
1	**Non-invasive** Literature Study Imagery Analysis Geological Mapping Geophysical Survey	Geologist Project Manager	Month 1-12	Maps, plan & report on previous work	Month 12	Geologist
2	**Invasive Prospecting** Scout Prospecting Pits	Project Manager	Month 13-24	Trench logs, Map & Report	Month 30	Project manager
3	Bulk sampling Box cut	Geologist Mining engineer	Month 25-48	Diamond Ore Characterization (DOC) study for metallurgical purposes and to allow the sufficient recovery of diamonds for evaluation and foot printing purposes.	Month 50	Geologist Mining engineer
4	Final analysis, quality control, database update and first stage of resource estimation	Geologist Economist	Month 49-54	Feasibility study and decision making if results prove negative then decommissioning and closure if results prove positive then continue with bulk sampling	Month 54	Project Manager
5	Application for mining right or decommissioning and closure	Project Manager	Month 55-60	Mining right or Closure certificate	Month 60	Project Manager

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

With regard to listed activities in terms of the Environmental Impact Assessment Regulations Listing Notice 2 of 2010, the competent authority in respect of the activities listed is the environmental authority in the province in which the activity is to be undertaken, unless - (b) the activity is to be conducted in or on a mining area or is to transform the area where the activity is to be conducted into a mining area in which case the competent authority is the Minister of Minerals and Energy. In this case all activities is to take place within an mining area therefore all activities will be covered by this EMPR.
The exception mentioned in (b) above does not apply to the following activities contained in the notice 1;2;5;8; 9; 10; 12; 13; 14; 17; 24 and 25.
The activities where environmental authorizations is required in addition to the approved EMPR are addressed below with their applicability to this specific operation

Activity Number	Activity description	
1.	The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.	Not applicable
2.	The construction of facilities or Infrastructure for nuclear reaction including energy generation, the production, enrichment, processing, reprocessing, storage or disposal of nuclear fuels, radioactive products and nuclear and radioactive waste.	Not applicable
5.	The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included In the list of waste management activities published In terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	Not applicable
8.	The construction of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.	Not applicable
9.	The construction of facilities or infrastructure for marine telecommunication.	Not applicable
10.	The construction of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day from and to or between any combination of the following: (i) water catchments (ii) water treatment works: or (iii) impoundments, excluding treatment works where water is to be treated for drinking purposes	Not applicable
12	The construction of facilities, infrastructure or structures for aquaculture of – (i) finfish, crustaceans, reptiles or amphibians where the facility, infrastructure or structures will have a production output of 200 000 or more kg per annum (live round weight), (ii) molluscs where the facility, infrastructure or structures will have a production output of 150000 or more kg per annum (live round weight) (iii) aquatic plants where the facility, infrastructure or structures will have a production output of 200 000 or more kg per annum (live round weight), excluding where the construction of facilities, infrastructure or structures is for purposes of offshore cage culture In which case activity 13 in this Notice will apply	Not applicable

13	The construction of facilities, infrastructure or structures for aquaculture of offshore cage culture of finfish, crustaceans, reptiles, amphibians, molluscs and aquatic plants where the facility, infrastructure or structures will have a production output of 100 000 or more kg per annum (live round weight).	Not applicable
14	The construction of an island, anchored platform or any other permanent structure on or along the sea bed.	Not applicable
17	The extraction or removal of peat or peat soils, including the disturbance of vegetation or soils in anticipation of the extraction or removal of peat or peat soils.	Not applicable
24	Construction or earth moving activities In the sea, an estuary, or within the littoral active zone or a distance of 100 metres Inland of the high-water mark of the sea or an estuary, whichever distance is the greater, in respect of: (i) facilities associated with the arrival and departure of vessels and the handling of cargo (ii) piers; (iii) inter- and sub-tidal structures for entrapment of sand; (iv) breakwater structures; (v) coastal marinas; (vi) coastal harbours or ports; (vii) structures for reclaiming parts of the sea; (viii) tunnels; or (ix) underwater channels; but excluding — (a) activities listed in activity 16 in Notice 544 of 2010, (b) construction or earth moving activities if such construction or earth moving activities will occur behind a development setback line; (c) where such construction or earth moving activities will occur in existing ports or harbours where there will be no increase of the development footprint or throughput capacity of the port or harbour; or (d) where such construction or earth moving activities takes place for maintenance purposes	Not applicable
25	The expansion of facilities for nuclear reaction including energy generation, the production, enrichment, processing, reprocessing, storage or disposal of nuclear fuels, radioactive products and nuclear and radioactive waste.	Not applicable

2.2 Identification of potential impacts

2.2.1 Potential impacts and listed activities

Prospecting will only consist of the development of prospecting pits and no infrastructure including roads will be constructed. No processing will take during the initial prospecting phases and if bulk sampling is to take place as a final stage of this project a mobile wash plant will be constructed next to the excavation.

The only activity that will have a potential impact on the environment will therefore be the development of the excavations during the pitting program. The potential impact of this activity on the different environmental aspects will be as follow:

Visual Impact - Due to the change in topography there is a potential for visual impact through the presence of stockpiles and the excavation. The earthmoving equipment and general activities on site can also cause visual impact.

Soil - The potential exist for ad hoc tracks to be developed. Soil compaction is also a possibility due to hauling and development of stockpiles. Soil pollution is also a possibility due to oil spills during routine maintenance of equipment.

Natural Vegetation – Prospecting can have a potential impact on the natural vegetation outside the pan floor due to stockpiles and if pitting are to continue into the adjacent dune areas.

Animal Life - The animal life around the affected area can possibly be chased away by the presence of prospecting activities.

Surface Water - The mining operation will take place within a pan and can lead to the altering of the bed, banks or characteristics of the watercourse.
Ground water - Any mining if to continue below the water table can have a potential impact on the groundwater. Oil pollution can also have an impact on groundwater.

2.2.2 Potential cumulative impacts
The only identified land use is small stock grazing and due to the temporarily nature of change in land use and small scale of the operation prospecting will not have any impact and the land will revert back to its former use grazing with no impact on production.

2.2.3 Potential impact on heritage resources
The area has very little potential to contain any heritage resources as it has been extensively mined in the past but should any fossils be discovered or unearthed in the process of prospecting, the prospecting right holder will contact a South African Museum or University which employs palaeontologists so that the necessary palaeontological salvage operations can take place. No other heritage resources such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes are present on the mining area.

2.2.4 Potential impacts on communities, individuals or competing land uses in close proximity
The only identified land use is small stock grazing and due to the temporarily nature of change in land use and small scale of the operation prospecting will not have any impact and the land will revert back to its former use grazing with no impact on production. The area is farmland that is not close to any settlement therefore no land development projects are in progress.

2.2.5 Confirmation that the list of potential impacts has been compiled with the participation of the landowner and interested and affected parties
All proposals received during the consultation process have been addressed in this EMP.

2.2.6 Confirmation of specialist report appended.
No specialist reports are deemed necessary as no sensitive areas are included in the proposed area and due to the small scale of operations.

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 impact on each of the aspects is measured according to the following table of significance:

Negative

Significant	Recommended level always exceeded with associated widespread community action Disturbance to areas that are pristine, have conservation value, are important resource to humans and will be lost forever Complete loss of land capability Destruction of rare or endangered specimens May affect the viability of the project
Moderate	Moderate measurable deterioration and discomfort Recommended level occasionally violated - still widespread complaints Partial loss of land capability Complete change in species variety or prevalence May be managed Is Insignificant if managed according to EMP provisions
Minor/Insignificant	Minor deterioration Change not measurable Recommended level will rarely if ever be violated Sporadic community complaints Minor deterioration in land capability Minor changes in species variety or prevalence

Positive

Minor	Improvements in local socio-economics
Significant	Major improvements in local socio-economics with some regional benefits

Criteria used for the significance rating

- All surface disturbances are rated high
- Dust is rated low if only minimal dust is expected to accumulate over the
- permit period, medium if it is expected to require dust suppression such
- as watering, and high if there is a risk that it will migrate beyond the
- permit area.
- Noise is rated no machinery is to be used, medium if machinery is to be
- used, and high if there is a potential for complaints from public and
- neighbours.
- All drainage is rated high
- All blasting is rated high
- All dust and noise from loading, hauling and transport is rated high
- Drainage from ablution facilities are rated high.

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

The following is the main activities that will take place during the operational phase and that will have an impact in terms of spatial disturbance:

Access Roads and Tracks-

Use of existing roads is emphasized. The existing formal (but un-surfaced) roads will be used. Formal roads (i.e. with imported material) will only be developed over short distances if at all where traffic exceeds a very nominal amount, as experience by farmers has shown that tracks quickly become degraded to such an extent to be impassable with the result that drivers develop new tracks next to the affected tracks thereby exacerbating the damage. Access requirements will generally be catered for by narrow tracks (with no topsoil removal).

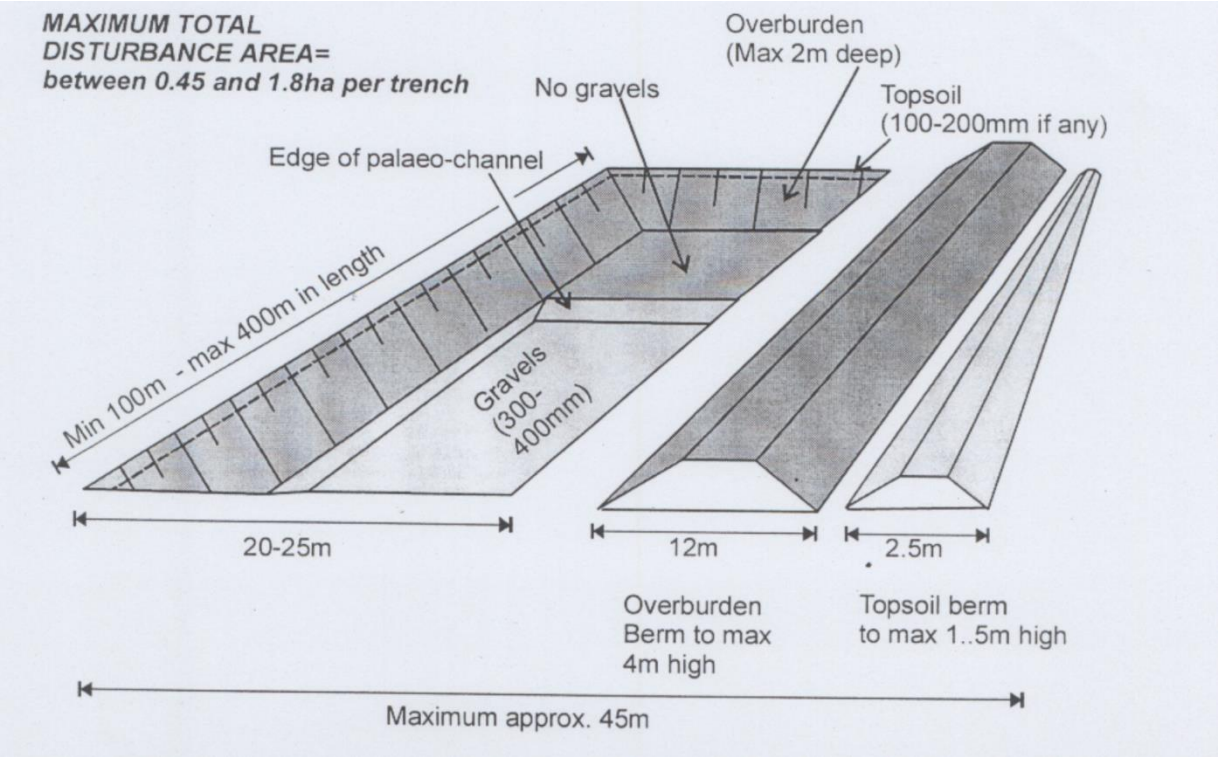
Prospecting pits

A maximum of 6 pits will be developed to test for the presence of diamondiferous material and presence and flow direction of palaeo-channels. Each measuring a maximum of 25 X 25m and maximum 1.5m deep. The topsoil and overburden will be temporarily stockpiled to the side of the pit for later backfill during the rehabilitation of the site yielding a disturbance area footprint of 30X45m or 0.13ha per pit or a total disturbance area footprint of 0.78ha (for 6 prospecting pits)

Bulk sample trenches

Only one bulk sample is planned if a diamond trap is discovered for metallurgical and test plant work measuring a maximum of 400m in length and on average 20m wide. The topsoil and overburden will be temporarily stockpiled to the side of the trench for later backfill during the rehabilitation of the site yielding a disturbance area footprint of 0.45ha (for 100m long trench) as shown in diagram 5 below:

Diagram 5: Footprint of bulk sample if implemented



The following is an assessment of the significance of the impacts that the above activities will have on the different environmental aspects.

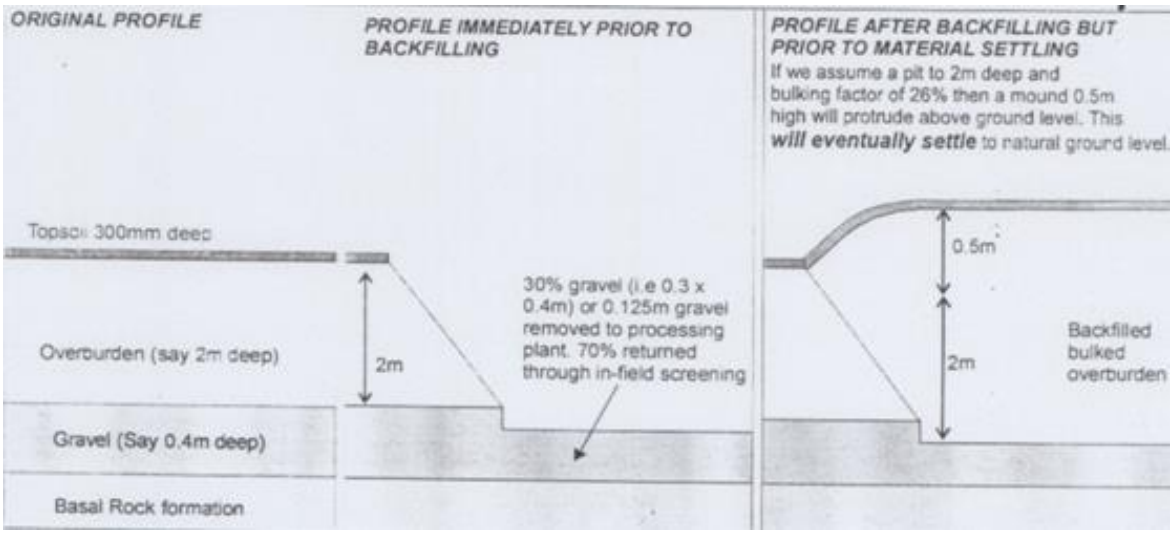
Topography

The impact of excavations on topography will be twofold:

- The excavations itself will be excavated to a maximum depth of 1.5 m over a maximum length of 100m to an average width of 25m
- The overburden will be dumped in a heap to 4m high across a width of 12m and the topsoil dump will cover a further 2.5m as shown in diagram 5 above

It must be noted that the overburden will bulk by 26% when backfilled. As such, a mound will remain after backfilling of the pit. Such mound will eventually settle without interference. The amount of gravel removed to the plant will have a negligible impact on the eventual topography as shown in the diagram 6 below:

Diagram 6: Rehabilitation of trench



Duration of impact	Life of phase 2 and 3
Probability of impact	Definite
Significance of impact	Insignificant for prospecting pits but significant for bulk sample and increases as cumulative impact of 6 pits and 1 trench is considered.

Visual Impact

When quantifying the visual impact of the operation, such quantification must be conducted with complete isolation of the site in mind. The few roads in the area suffer little traffic. The servitude farm access road is located to the north of the proposed prospecting area. Only the excavations to the north will straddle the public road that links the R355 and R358 public roads (refer diagram 2).

Visual impact will thus occur through the following:

- The denuded and excavated trenches will be visible on both sides of the road.
- The overburden stockpiles and topsoil berms will also be visible
- The earthmoving equipment and general activities on site will also cause visual impact

Duration or impact	Phase 2 and 3 only as traffic passes the site.
Probability of impact	Definite
Significance of impact	Significant

Soil

The prospecting trenches will result in the following impacts on topsoil & subsoil:

- Topsoil to at least 200mm will be removed from the excavation position prior to activities taking place. Such topsoil will be removed along with vegetation, seed and bulb bank. It will be stockpiled in a berm no higher than 1.5m to the side of the excavation as shown in diagram 5.
- Subsoil (i.e. the sandy overburden) will be removed to a maximum depth of 2m and stockpiled in a berm up to 4m deep alongside the trench as shown in the diagram 5.

The potential also exists for:

- Oil fuel leaks onto virgin soil through the earthmoving and transport mobile plant
- The spillage of fuel during transfer from fuel bowser to equipment in the field

Duration of impact	Phase 2 and 3
Probability of impact	Definite for excavations and possible for oil spills
Significance of impact	Insignificant for prospecting pits but significant for bulk sample and increases as cumulative impact of 6 pits and 1 trench is considered.

Land Capability

The land is classified as wilderness area with subordinate grazing. This classification is more restrictive than pure grazing classification. In any event, the carrying capacity of the veld is between 8-10ha / small stock unit, but the aim of the rehabilitation programme is to restore the veld to its wilderness rating.

If we assume the worst-case scenario, in which all 6 pits are developed to search for the palaeo channels together with one bulk sample trench, then a total of less than 8ha will be temporarily lost as a wilderness area (and as grazing). The impact on grazing can be quantified: prospecting will result in the temporary loss of grazing for 1 small stock unit.

Duration of impact	Phase 2 and 3
Probability of impact	Definite
Significance of impact	Insignificant and temporary per site but increases when the cumulative impact is considered (until full rehabilitation of all sites has taken place).

Natural Vegetation

If we assume the worst-case scenario, in which all 6 pits are developed to search for the palaeo channels together with one bulk sample trench, then a total of less than 8ha will be temporarily disturbed when topsoil (and its vegetation content) is removed to the topsoil berm.

Duration of impact	Phase 2 and 3
Probability of impact	Definite
Significance of impact	Insignificant when considered separately but increases when the cumulative impact is considered and then significant.

Animal Life

The animal life around the affected area will be chased away by the presence of such activities. There is a vast expanse of similar habitat type around every proposed activity area and it is unlikely that any impact on animal life will occur from the proposed activities. Should any impact occur it would be insignificant.

Duration of impact	Life of operation
Probability of impact	Probably
Significance of impact	Insignificant

Surface Water

No impact on natural surface water quality or quantity will occur through the proposed prospecting excavations. However the potential exists for fuel/oil spillage onto the surface of the soil. The potential impact of such an occurrence will be limited by the implementation of the measures as proposed above.

Duration of impact	Life of mine
Probability of impact	Possibly
Significance of impact	Insignificant

Ground Water

It is unlikely that groundwater will be encountered in the shallow prospecting trenches, however should it be encountered the impact would be negligible given the small size of the pit and that up to 70% of the gravels will be returned to the hole (through infield screening) before backfilling with the overburden

Water required during processing of the gravels if bulk sampling is implemented (an absolute maximum of 4-4.5kl of water per day) will be pumped from one of the existing excavations in the pan. The water will be used at the processing plant and all water less that which may be lost to evaporation will be returned as groundwater. Note the gravel is inert and no impact on groundwater quality will occur.

Duration of impact	Phase 2 and 3
Probability of impact	Definitely will occur but will most likely be less than the maximum impact is described above
Significance of impact	Insignificant

Air Quality

The dust impact is so minor as to not warrant any particular measures. However, employees must be supplied with masks (from a mine health and safety point of view).

Duration of impact	Life of mine
Probability of impact	Possibly
Significance of impact	Insignificant

Noise

Noise will not result in any impact any land user or use during the prospecting pit development given the isolation of the sites. Provide employees with HPD's.

Duration of impact	Life of mine
Probability of impact	Possibly
Significance of impact	Insignificant

3.1.3 Assessment of potential cumulative impacts.

The only identified land use is small stock grazing and due to the temporarily nature of change in land use and small scale of the operation mining will not have any impact and the land will revert back to its former use grazing with no impact on production.

3.2 Concomitant list of appropriate technical or management options

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

Due to the small scale op operations less than 8 Ha total footprints for all disturbances and the fact that all disturbances will concentrate in a salt pan denude of all vegetation and excavations will be limited to 1.5m deep the significant impacts will be minimal. The only environmental aspects that will require mitigating and or management actions will be topography, visual impact, soil pollution and topsoil handling and natural vegetation.

3.2.2. Concomitant list of appropriate technical or management options

Topography

The impact of excavations on topography will be through the pit development and the temporary overburden stockpile along the length of the excavation.

Impact mitigation will take place through:

- Limiting the depth of the excavation to a maximum of 2m deep. Prospecting in deeper soils will take place through probe small diameter drilling
- The temporary overburden stockpile will be developed to a maximum of 4m high as per the diagram 5.
- Should prospecting yield negative results and the project be terminated at any stage then the excavations will be backfilled with the stockpiled overburden and covered with the stockpiled topsoil.
- Should prospecting yield positive results, then the rehabilitation of the trenches will be postponed pending the application for full mining rights on the site.

Note: The stockpiled overburden will be used to backfill the excavation. Bulking of the overburden (by up to 26%) will result in a heap developing above the backfilled excavation. This heap will eventually settle naturally.

Visual Impact

The impact of the excavations will be on all road users using the seldom used un-surfaced servitude farm road. The excavations will only straddle this road to the northern part of the prospecting area.

Impact mitigation of this impact is not feasible but it must be noted that:

- The impact is insignificant given the small scale of the activities and the isolation of the site
- The impact is temporary and if full mining application is not considered, then the excavations will be backfilled, topsoiled and allowed to revegetate naturally resulting in no residual impact.

Soil

The impact on soil will arise during the removal of at least 200mm (up to 300mm) topsoil prior to the excavation of the overburden. Such topsoil will be removed along with the vegetation (seeds and bulbs) to berm to the side of the excavation and the topsoil will be used as cover material after the overburden has been replaced.

The topsoil will also be removed prior to the development of the overburden dump.
All removed topsoil will be placed in heaps not exceeding 1.5m. The purpose of such restriction is an attempt to retain a viable seed bank within the stockpiled topsoil
When the trench excavation is to be rehabilitated, the procedure entails replacement of the overburden, levelling of the replaced overburden surface, replacing of topsoil and allowing natural re-vegetation. The topsoil must also be replaced over the disturbed overburden stockpiling area.

Natural Vegetation

The vegetation must be removed along with the topsoil removed from the trench and overburden dump footprint to be placed in the topsoil berm. Such berm may not measure higher than 1.5m in an attempt to preserve a viable seed/bulb bank.
After backfilling of the excavation with overburden, the stockpiled topsoil is replaced over the excavation & dump footprint (with its resident seed bank) and allowed to re-vegetate naturally. No unnecessary access into the surrounding veld is to be permitted.
No vegetation will be removed to develop tracks as experience (by other prospectors) has shown that by not removing existing vegetation from area disturbed by traffic, the impact is that the vegetation is merely flattened and that such vegetation recovers quickly. Vehicles must use the same tracks and no haphazard turning in virgin veld is to be permitted.

Ancillary management and mitigating requirements

The following are other aspects of the operation that could result in environmental impact if not properly controlled or mitigated as specified.

Roads & Tracks

a) Formal roads: Farm tracks quickly deteriorate should they experience more than the minimum traffic. The result is that drivers leave the deteriorated track and drive in the veld next to the track, causing extensive damage to the veld. In order to prevent such damage, these "well-traveled' routes will have to be armoured with imported material. No new roads are likely be affected by such armouring. The following roads will experience regular traffic as follows:

- Haul roads between the prospect on the northern part and the plant to be developed on the southern part. This approximate 10km route is already a well-established road and no more formalization of the road will be required.
- Access to each of the excavations will be directly from the established road and no further roads or tracks will be required for these.

Should a formal road be developed, then such road will / may require the importing of foreign material for surfacing (likely to be existing coarse tailings from the processing plant). Should such material be required and the farmer does not wish to retain the road, then the rehabilitation of such road must take place as follows:

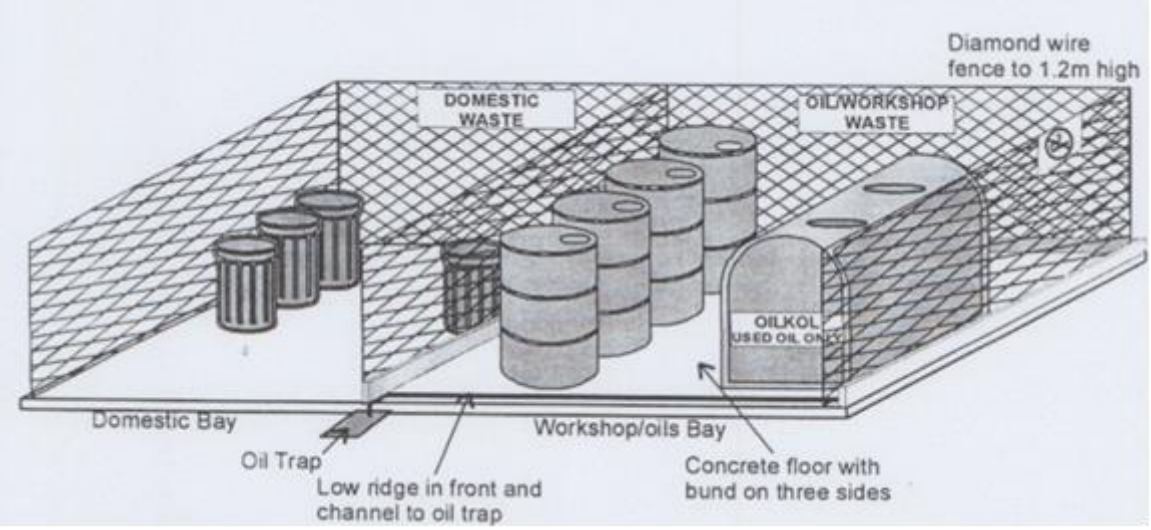
1. Before developing the road, remove all topsoil to berms to the side of the road for re-use in rehabilitation of the road
2. During the rehabilitation of the road the following must occur:

a. Scarify hardened road area
b. Return and spread stockpiled topsoil

b) Tracks are less formal than roads and will result where very little traffic will be required, for instance, along the small pit traverses. Existing farm tracks will be used where possible. Any new tracks will not have topsoil removed but will be rehabilitated through a single pass of a 2 toothed scarifier (avoiding disturbance of the "middelmannetjie") only after consultation with the farmer.

Domestic Waste Management Facilities:

Each prospecting site must be provided with a bin. Refuse will be removed daily from that bin for transport to the main facility located at the plant area. Such facility must be developed according to the following guidelines for temporary storage of domestic and industrial waste:



Oil/Fuel Leak Management:

Fuel receipt, storage and dispensing:

In the management of fuel supply, receipt, storage and use, the following procedures will be followed, cautions taken and facilities built to properly manage this operational sector:

- The fuel delivery bowser driver will be cautioned to adhere to safe driving
- speeds and drive cautiously on the 10km of gravel roads from the main tanks at the processing plant to the northern prospecting site.
- The fuel tank at the processing plant must be developed according to the following design guidelines:
  - ✓ Construction of a bund wall capable of holding the full capacity of the mobile tanks parked within it.
  - ✓ Construction of a concreted floor or PVC facility.
  - ✓ Construction of a concreted or PVC service apron sufficiently large to catch fuel spills during receipt and supply of fuel.
  - ✓ Such apron to be dished to lead rain-water or wash-water to drain pit (sump) for collection of oily-run-off and suitable decontamination disposal thereof.
- During dispensing of fuel to other facilities (plant, and other tanks) or field vehicles via tanker, the dispensing vehicle is to be fitted with suitable pumps and funnel extensions to reduce the risk of spillage in the transfer of fuels.

Emergency repairs on site:

In the event of a breakdown repair being required in the field, the staff should be trained in use of drip trays and suitable funnels (not to drain oil into the sand) for filling and draining of lubricants and the staff shall be provided with such equipment to prevent oil contamination.

In addition:

- Used/replaced filters, hoses, belts, cloths, etc. are to be placed in a bin for return to the used oil and lubricant storage area which is to be constructed as

shown above. Used filters are not to be buried at the site of repair (nor discarded in the excavation to be backfilled).

- In the event of soil contamination, the soils arc to be treated with a suitable decontaminant such as the OT8 product range or Spillsorb or similar product.

All staff involved in mobile plant operation and maintenance is to be made aware of these oil and lubricant procedures. Staff will require instruction in the:

- Deleterious effects of oil / fuel on the environment
- Neutralization of oil leaks on the concrete apron,
- The operation of the oil trap (including the storage of trapped oil); and
- Use ofOT8/Spillsorb products.

General Provisions

- All operators are to check their equipment for leaks and report such leaks on a daily basis.
- No used oils are to be used as dust suppressants on manoeuvring areas.

All staff to be instructed to report oil spills immediately and be trained in fire fighting and the use of biodegradable solvents such as OT8 or Spillsorb or similar products in the clean-up operation

Process Water

The bulk sample gravels will be processed at the processing plant to be developed at the southern area. Such plant has a capacity of 15tonnes'hour (at SG of 1.85tonnes/m^3 = 8.1m^3 gravel processed) and uses approximately 7.5kl of water per hour. Assuming the plant runs at 80% of capacity, then 6.5m^3 gravel is processed in the hour using 7.5kl of water (a ratio of approximately 0.86m^3 gravel per kl (m^3) of water or 1m^3 gravel requires about 1.2kl of water).

So per bulk sample it equates to the following water requirement:

50m gravel exposure length x 22m wide trench x 0.35m deep gravel= 385m^3 gravel

In field screening to remove +40mm material results in say 70% of gravel being backfilled into the trench i.e. 115m^3 being transported to the plant for processing

So at a requirement of 1.2m^3 water per m^3 gravel, approximately 138m^3 of water will be required per bulk sample, over a period of 2 weeks (or say 10-12m^3 day).

Approximately 60% of water is usually recycled from the fine tailings dam, therefore a maximum top-up requirement of 4 -4.5kl/day is anticipated.

Potable Water

Potable water will be bottled and brought to site by the employees as required from the header tank at the processing plant. Such water is obtained from Gamoep (65km away) as the water on site is not potable.

Mineral Processing

No mineral processing will take place on site, except for the infield screening of the prospecting pit gravels. Such infield screening at the bulk sample site will result in the requirement for the trucking of only 30% of the gravels to the prospecting plant. That 30% equates to maximum of 115m^3 that will require. At a conservative SG of 1.85 tonnes/m^3 each bulk sample will require the transport of 213 tonnes of material to the plant.

Plant residue consists of the following material:

- Coarse tailings (-40mm + 1.5mm): Approximately 85% of the material sent through the plant will be discarded as coarse tailings. This will be added to the existing coarse tailings backfill of the excavation. It will make an insignificant contribution to the existing proposed backfilling of the pit.
- Fine tailings: Approximately 15% of the run of plant will be disposed of also as backfill of one of the excavations.

- Concentrate: Amounts to less than 1% of material passing through the plant. It will also be dumped as backfill in the excavation.

3.3 Review the significance of the identified impacts

The potential significant impacts as identified in paragraph 3.1 after implementation of the proposed mitigation measures and management options in paragraph 3.2.can all been regarded as insignificant.

4 REGULATION 52 (2) (d): Financial provision.

4.1 Plans for quantum calculation purposes.

Refer diagram 4 and 5 above.

4.2 Alignment of rehabilitation with the closure objectives

The goal of rehabilitation with respect to the area where prospecting will take place is to leave the area level and even, and in a natural state containing no foreign debris or other materials.

All scrap and other foreign materials will be removed from the area and disposed of as in the case of other refuse, whether these accrue directly from the prospecting operation or are brought on to the site.

Removal of these materials shall be done on a continuous basis and not only at the start of final rehabilitation and closure.

The area will be profiled to blend in with the topography of the surrounding environment. The mitigating measures described in paragraph 3 are compatible with these closure objectives.

4.3 Quantum calculations.

The area will be rehabilitated with the original land use namely small stock farming in mind and the productivity of the area after closure will be the same as before prospecting operations started. Rehabilitation cost is estimated with the proposed end-state in mind and although the applicant has his own equipment and rehabilitation will take place concurrent with prospecting the tariffs for equipment was based on local hiring tariffs in Springbok the closest major town 150Km to the east.

The provision for rehabilitation of the site will be supplied by means of a bank guarantee to be supplied to the Department of Minerals & Energy. The purpose of such a fund provision is to provide for rehabilitation of the site by State nominated contractors should the applicant for any reason be unable to complete the rehabilitation activities or complete them insufficiently.

Rehabilitation of access roads

No access roads or infrastructure will be constructed only existing farm roads will be used.

Rehabilitation of the office/camp site

No permanent structure will be build.

Rehabilitation of vehicle maintenance yard and secured storage areas

No vehicle maintenance yard or secure storage areas will be.

Rehabilitation of surface disturbance

In determining the quantum, the following assumptions apply:

1. That 3 prospecting pits require rehabilitation
2. That 1 bulk sample site require rehabilitation
3. That 3km tracks require rehabilitation.

The following calculation applies:
Prospecting Pits
Assume 1.5m deep pit 25long X 25m wide X 2 pits =1250m² and 1875m³
Bulk sample Trench
Assume 1.5m deep 100m long X 25m wide = 2500m² and 3750m³
Rehabilitation at the excavations will consist of backfilling of infield screen material, overburden and top soiling of excavation and levelling of the site.

Backfilling	5000 m³ @ R 6.00 /m³	R30 000.00
Spread topsoil	5 500 m² @ R 2.00 /m²	R11 000.00
SUB-TOTAL		R41 000.00
Roads and tracks		
All tracks to be ripped with 2 groped scarifier		
Ripped 3km 9000 m² @	R0.15 /m²	R 1 350.00
SUB-TOTAL		R 1 350.00
GRAND TOTAL		R42 350.00

Final rehabilitation
All equipment and other items used during the prospecting period must be removed from the site. Waste material of any description, including receptacles, scrap, rubble and tyres, must be removed entirely from the mining area and disposed of at a recognised landfill facility. It will not be buried or burned on the site.

Extent:	1Ha
Duration of rehabilitation:	1 day
Equipment required:	
Manual labor @ R500.00/day for clean-up	R 500.00
Cost of rehabilitation:	R 500.00

The applicant is willing to escalate the total estimated amount of R 42 850.00 that is needed for rehabilitation to R45 000.00 that is more than is needed for the rehabilitation of damage caused by the operation, both at sudden closure during the normal operation of the project or at final, planned closure.

4.4 Undertaking to provide financial provision
Financial provision required under Regulation 54 for the amount of R 45 000.00 will be furnish to DME. The quantum will be updated again within a year or at a shorter interval if there is any deviation from the prospecting work program.

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

5.1 List of identified impacts requiring monitoring programmes.
None of the impacts identified required specific monitoring programs but inspections and monitoring shall be carried out on both the implementation of the program and the impact on the natural and cultural environment. Visual inspections on erosion and physical pollution shall be carried out on a regular basis together with fixed point photography.

5.2 Functional requirements for monitoring programmes
Every aspect of the operation must be checked against the prescriptions given in this document and if find that certain aspects are not addressed or impacts on the

environment are not mitigated properly, the identified inadequacies will be rectified immediately.
Regular monitoring of all the environmental management measures and components shall be carried out to ensure that the provisions of this program are adhered to.
Layout plans will be updated on a regular basis and updated copies will be submitted on an annual basis to the Regional Manager. The plans will also be updated before commencing with drilling and the rehabilitation quantum will also be updated.
Reports confirming compliance with various points identified in this program will be submitted to the Regional Manager on an annual basis together with an update of the rehabilitation cost. Any emergency or unforeseen impact will be reported as soon as possible. An assessment of environmental impacts that were not properly addressed or were unknown when the program was compiled shall be carried out and added as a corrective action.

5.3 Roles and responsibilities for the execution of monitoring programmes
The project manager will be responsible for monitoring and Reports confirming compliance with various points identified in the environmental management program.

5.4 Committed time frames for monitoring and reporting
The project manager must on a bi-monthly basis, check every aspect of the operation against the prescriptions given in this document and, if find that certain aspects are not addressed or impacts on the environment are not mitigated properly, the project manager must rectify the identified inadequacies immediately.

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

6.1 Rehabilitation plan
The goal of rehabilitation with respect to the area where drilling will take place is to leave the area level and even, and in a natural state containing no foreign debris or other materials.
All scrap and other foreign materials will be removed from the area and disposed of as in the case of other refuse, whether these accrue directly from the prospecting operation or are brought on to the site.
Removal of these materials shall be done on a continuous basis and not only at the start of final rehabilitation and closure.
The overburden from the trenches will be back filled into the holes and covered with topsoil. The area will be profiled to blend in with the topography of the surrounding environment.
The mitigating measures described in paragraph 3 are compatible with these closure objectives.

6.2 Closure objectives and their extent of alignment to the pre-mining environment
The environment affected by the prospecting operations shall be rehabilitated, as far as is practicable, to its natural state. Land use will be the same as before prospecting with the same production with regard to grazing by livestock. The affected environment shall be maintained in a stable condition that will not be detrimental to the safety and health of humans and animals and that will not pollute the environment or lead to the degradation thereof.

6.3 Confirmation of consultation

A copy of the consultation report that includes environmental objectives in relation to closure was made available to the landowner and all other interested parties for comment. All comments received were addressed in this EMPR.

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

7.1 Identification of interested and affected parties.

The only interested and affected party is deemed to be the landowner and the surrounding community members.

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.

The consultation report and a copy of the draft EMP were made available to all interested and affected parties.

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

The landowner is deemed the only affected party and consultation has taken place by means of registered letters and/or personal communication. The surrounding community were also consulted by means of an advertisement in the local press.

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

No views or comment received

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

No views or comment received

7.2.5 Other concerns raised by the aforesaid parties

No views or comment received

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

The consultation report together with copies of the communication with interested and affected parties was uploaded on the SAMRAD system as part of this application.

7.2.7 Information regarding objections received.

No objections against the proposed prospecting operation that need to be dealt with by the REMDEC committee were received. All comments received were addressed as part of the EMP.

7.3 The manner in which the issues raised were addressed.

No objections against the proposed prospecting operation received

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

8.1 Employee communication process

General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensures that environmental accidents are minimized and environmental compliance maximized.

Environmental awareness will be fostered in the following manner:

a) Induction course for all workers on site, before commencing work on site.

b) Refresher courses as and when required

c) Daily toolbox talks at the start of each day with all workers coming on site, where workers can be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working.

d) Taking part in national and international environmental campaigns like National Marine Week, National arbour day, National Wetlands day exacta.

e) Displaying of information posters and other environmental awareness material in the general assembly points.

8.2 Description of solutions to risks

Specific environmental awareness performance criteria will form part of the job descriptions of employees, to ensure diligence and full responsibility at all levels of the organisational work force.

General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensures that environmental accidents are minimized and environmental compliance maximized.

8.3 Environmental awareness training.

The goal of training is to enable a shared understanding and common vision of the environment, the impact of a mining operation on the environment (and why this is important) and the role of mining personnel in terms of environmental management and compliance.

The induction course will compose of the following steps:

- The first step will include background discussion of the environment concept: of what it comprises and how we interact with it.
- The second step will be a description of the components and phases of the specific mining operation.
- The third step will be a general account of how the mining operation and its associated activities can affects the environment, giving rise to what we call Environmental Impacts.
- The fourth and most important step will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading our environment. This is known as Environmental Impact Management.

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

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

Refer to section 4 that covers regulation 52 (2) (d) that handles with financial provision.

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

This amount was provided for in the cost estimate for the implementation of the PWP and proof of access to the necessary funds were supplied with the prospecting work program.

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	**Johannes Christiaan Kotze**
Identity Number	**6306055184084**

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