5.2 The total area of the excavations

The total excavation area of approximately 1090m² could be evident on the mining land.

5.3 The extent of the largest excavations

The largest excavation will be 750m² on the mining area.

5.4 The number of excavations that will be un-rehabilitated at any time on the property (Before it is filled up)

Three excavations are the number of un-rehabilitated excavations at any time on the property.

5.5 The preparation of food

A cook on site will prepare their food. The employees will then consume the food on site.

5.6 Description of the extraction of water

Water is being extracted from the channel for the mining activities. It is distracted with a pump for the mining activities.

5.7 The amount of water that will be used during a day for the employees and the operation

Employees will use an average of 4L water a shift. There are approximately 20 employees on shift and 1 shift a day. (22 x 1 x 4 = 88 Litres water a day). Operations will consume 180 000 Litre a shift and a day for the 1 shift. A total of 180 088 Litres of water will be consumed on a daily basis by the mining operations.

5.8 A description of the nearest open water source

The nearest open water source is the Vaalriver that is situated on the south eastern boundary of the farm Harrisdale No 226, District Barcly West. A water channel managed by The Department of water and Forestry, Vaalharts is running through the farm.

5.9 The depth of the water source/water table

The water source on the Farms Harrisdale No 226, District Barcly West is between 25 to 55 meters.

5.10 The toilette facilities

Two chemical toilette facilities will be available on the site.

5.10 The number of access roads that will be constructed, including the distance to the nearest public road, a description of the trees that will be uprooted for the construction of the roads, a description of the foreign material that will be used to construct the roads

No new roads will be constructed to access the mining site on Farms Harrisdale No 226, District Barcly West. Existing roads will be used. The uprooting of trees and foreign material for road construction will not be evident on the site because no new roads will be constructed. There is only 1 access road that leads to the land where the planned mining activities will take place.

5.11 The estimated time period for the mining

The Close Corporation is planning to mine on Farms Harrisdale No 226, District Barcly West for the full period of the applied term.

5.12 The number of people that will be employed (Including men and woman)

DIDIMALA DIAMONDS CC will employ up to 20 fulltime employees.

5.13 The places were employees would be obtained from (Own / local communities)

Employees will mostly be obtained from the local Barcly West and Kimberley communities.

5.14 The daily working hours

The mine will be operating for 1 shift of 9 hours a day. Each fulltime employee will be working five shifts of nine hours each week which includes a one hour lunch time a day. A Total week of 45 hours and no fixed overtime for each fulltime employee.

5.15 How far will the operations be from the nearest residential area

Barkly West is the nearest residential area with a distance of 14 km from the mining activities.

5.16 How far will the operations be from the nearest fence, built structure etc?

The nearest fence will be 500m from the operations. The office and storeroom will be 100m from the mining activities.

5.17 How far will the operations be from any graveyards/ houses etc?

The nearest farm buildings are about 2 kilometres from operations and the graveyard 1,5 kilometres.

5.18 Air quality Management and Control (Regulation 64)

The main wind direction is northwest. No community will be affected because they are situated to far from the suggested mining area. There are no affected parties in the downwind zone. August is the main windy period during the year that emphasizes the short windy period. The impact on the air quality will be short term

and minor. It will not be a health risk for the employees. In a rural context the degrading of air quality will be insignificant, and the only impact will be due to vehicle emissions and dust from mining and raw material handling. The impact will take place below detectable levels. The minor dust that may occur will be limited by watering the applicable area.

5.19 Fire Prevention (Regulation 65)

Fire prevention is not applicable seeing that it is alluvial diamond mining and not coal mining.

5.20 Noise Control (Regulation 64)

Existing noise levels in the area are mainly generated from surrounding agricultural and mining activities. Similar noise levels than conventional farming equipment operating in the district will take place. The Barkly West community is situated approximately 14 km from the mining site which minimizes noise disturbances to an almost undetectable level. Mining employees that are working on site, contract workers and visitors will be the other affected parties of noise pollution. The supply of earplugs to employees, possible contract workers and visitors will be effective in the effort to limit noise pollution for affected parties.

5.21 Blasting, vibration and shock (Regulation 67)

No blasting operations will take place on the Farm Harrisdale No 226, District Barcly West. If any vibration or shock is evident it will be caused by the earthmoving equipment or conventional farming equipment.

5.22 Disposal of waste material (Regulation 69)

Suitable covered receptacles will be available at all times and conveniently placed for the disposal of waste.

All used oils, grease or hydraulic fluids will be placed therein and these receptacles will be removed from site on a regular basis for disposal at a registered or licensed disposal facility.

All spills will be cleaned immediately by means of removing the spillage together with the polluted soil and by disposing of them in a recognized facility.

Waste piles (waste rock dumps)

Processing areas and waste piles will not be established within 100m of the edge of any river channel or other water bodies. Processing areas will be established, as

far as possible, near the edge of excavations to allow the waste (domestic and other) gravel and coarse material to be processed therein.

The areas chosen for this purpose will the minimum reasonably required and involve the least disturbance to vegetation. Once the locations and dimensions of these areas are established, the processing of ore containing precious stones shall be confined to these areas and no stockpiling or processing will be permitted on areas not correctly prepared.

Tailings from the extraction process will be treated and / or deposited in such a way that it will in no way prevent or delay the rehabilitation process.

Tailings dams (Slime dams)

The tailings dam will be constructed (with permission from the Regional Manager) to handle and dispose of the tailings from the prospecting operations.
The applicant will comply with the care and maintenance rules of the said tailings dams as stated in the Mineral and Petroleum Resources Development Act of 2002.

Domestic waste

Chemical toilet facilities or other approved toilet facilities such as a septic drain will be used and sited on the campsite in such a way that they do not cause water or other pollution.

All effluent water from the camp washing facility will be disposed of in a properly constructed French drain, situated as far as possible, but no less than 200m, of any stream, river, pan, dam or borehole.

Only domestic type wash water will enter this drain and any effluents containing oil, grease or other industrial substances will be collected in a suitable receptacle and removed from site, either for resale or for appropriate disposal at a recognized facility.

Spills will be cleaned up immediately. Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., will be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognized facility at the Barkly West, municipal dumping site . Specific precautions will be taken to prevent refuse from being dumped on or in the vicinity of the campsite.

Biodegradable refuse generated from the camp site, processing areas, vehicle yard, storage area or any other area will either be as stated above or be buried in a pit excavated for that purpose and be covered with layers of soil, incorporating a final 0,5m thick layer of topsoil.

5.23 Soil pollution and erosion control (Regulation 70)

5.23.1 The way topsoil will be handled

Topsoil will be removed from all areas where physical disturbance of the surface will occur. The removed topsoil shall be stored in a bund wall on the high ground side of the prospecting area outside the 1:50 flood level within the boundaries of the prospecting site.

Topsoil will be kept separate from overburden and will not be used for building or maintenance of access roads.

The topsoil stored in the bund wall shall be adequately protected from being blown away or eroded.

5.23.2 The managing of spills of oil, grease, diesel, acid or hydraulic fluid.

All used oils; grease or hydraulic fluids shall be placed in receptacles that will be removed from site on a regular basis for disposal at a registered or licensed disposal facility.

All spills will be cleaned immediately by means of removing the spillage together with the polluted soil and by disposing of them in a recognized facility. All maintenance will be done on a specific location. Two options could be used to

cover this maintenance area. Firstly the surface could be covered with a concrete slab and secondly they could make use of plastic covers.

5.23.3 Briefly describe the storage facilities available for the above fluids

Diesel is kept in a 23000L tank that is on a stand according to the health and safety legislation act. Oil and hydraulic oil are kept in 210L metal containers until use. Grease is supplied in different container sizes from 20 kg and is used from the original container. All these containers are stored with the smaller implements that are in use on the site.

6. A COMPARATIVE ASSESSMENT OF THE IDENTIFIED LAND USE AND DEVELOPMENT ALTERNATIVES AND THEIR POTENTIAL ENVIRONMENTAL SOCIAL AND CULTURAL IMPACTS

The land can either be used as grazing land for cattle or for alluvial diamond mining land. If the land is used for the farming of cattle it is estimated that 300 cows and 5 bulls can be farmed with on the farm. With a calf percentage of 80% and a reasonable selling price of R3000-00 a calf it is estimated that a gross income of R720 000-00 a year can be achieved. These activities will only create 3 new job opportunities and will the income hereof never be enough to help with the social upliftment of the community.

It can be estimated that the net income from alluvial mining activities can be at least 20 times more than that of the abovementioned farming activities. Mining activities will further create a lot more job opportunities and will also lead to the social and economic upliftment of the surrounding communities.

If the applicant wash 900 tons a gravel a day, finds 0,4 carat per 100 tons, works 22 days a month, 11 months a year, and the average selling price for the diamonds is R8761.02 a carat the total yearly income can be estimated to be R 7 632 600-58. With monthly costs of R500 000-00 this means a yearly net income of R 1 632 600-58.

It can thus be seen that the advantages of the proposed land use for mining activities outweighs the advantages if the land is used for the farming of cattle.

7. A DETERMINATION OF THE APPROPRIATE MITIGATORY MEASURES FOR EACH SIGNIFICANT IMPACT OF THE PROPOSED MINING OPERATION

• Land capability	Rehabilitation activities will be key to ensure a level 3 grazing land when mining closure is performed.
• Ground water	Borehole water use must be regulated to ensure a constant water reserve on Farms Harrisdale No 226, District

	Barcly West
• Air quality	The use of dust masks and water–carts can minimize any possible air quality issues.
• Noise	Noise can be limited for employees and site visitors when supplying earplugs if it is an issue.
• Topography	Rehabilitation must be done strictly according to the EMP to ensure that the topography is acceptable.
• The way topsoil will be handled.	Topsoil must be kept separately to contamination with other soil. It should be replaced in their normal place.

8. DETAILS OF THE ENGAGEMENT PROCESS OF INTERESTED AND AFFECTED PARTIES FOLLOWED DURING THE COURSE OF THE ASSESSMENT AND AN INDICATION ON HOW THE ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES HAVE BEEN ADDRESSED (Regulation 50(f))

All identified Interested and Affected Parties were informed of the application. Advertisements were published within local newspapers and notices were placed on the farm gate as well as at the local municipality offices.

The scheduled meeting took place but nobody attended.

In the table below, a list of names of people or organizations appears that is likely to be interested or affected as a result of the application.

Name of Interested/ Affected party	Contact details: Address	How did consultation take place?	What was his/her main concern about the operation?
1.National Department of Agriculture	PO Box X5018 Kimberley 8300	By letter	None
2.Department of Water Affairs and Forestry	PO Box X6101 Kimberley 8300	By letter	None
3.Department of Mineral Resources	PO Box X6093 Kimberley 8300	By letter	None
4.Barkly West Municipality	PO Box X5 Barkly West 8375	By letter	None
5.Springfit Estates (Pty) Ltd	PO Box 19 Barkly West 8375	By letter	None
6.Hans Kanon Farms	PO Box 19 Barkly West 8375	By letter	None

7.Mr DC Wakeford	**PO Box 270** **Kimberley** **8300**	**By letter**	**None**
8.Mr CP Hugo	**PO Box 106** **Barkly West** **8375**	**By letter**	**None**
9.Me CM de Bruin	**PO Box 140** **Barkly West** **8375**	**By letter**	**None**

9. DESCRIPTION OF THE ARRANGEMENTS FOR MONITORING AND MANAGEMENT OF ENVIRONMENTAL IMPACTS

DIDIMALA DIAMONDS CC will monitor and manage the environmental impacts according to the Environmental Management Plan. An external company will be appointed to ensure Monitoring and management of the programme is on target.

10. INCLUSION OF TECHNICAL AND SUPPORTING INFORMATION AS ANNEXURE.

ENVIRONMENTAL MANAGEMENT PROGRAMME

D. GENERAL

This document is submitted by DIDIMALA DIAMONDS CC, for the application of conversion of an old order mining licence to a mining right.

This document aims to ensure compliance with Regulation 51 of the MPRDA

This Environmental Management Programme contains the operating procedures and rehabilitation/pollution control requirements, which will be binding on the holder on the mining right after approval of the Environmental Management Programme.

E. INTRODUCTION

The applicant proposes to develop an alluvial diamond processing plant at the farm Harrisdale No 226, District Barcly West. An economic feasibility of the project has been established and this report forms the environmental assessment. Alluvial gravels will be reclaimed from the ground and will be processed through a pan plant. The local economy will benefit from the project, as job opportunities and community development are likely to be significant. The EMP addresses the environmental issues relevant to all phases of the project. The aims and objectives are as follows:

- To identify the legislative requirements and the applicants corporate responsibilities
- To establish the environmental impact resulting from the development
- To determine the significance of the environmental impacts and to recommend ways in which these impacts may be ameliorated of controlled
- To identify areas of further investigation
- To assist in environmental management and planning decisions by incorporating these findings into the overall planning and management of the project in terms of integrated environmental management

11. CONTENTS IN TERMS OF REGULATION 51

11.1. A description of the environmental objectives and specific goals for-

11.1.1 Mine closure

11.1.1.1 General

Regulations 56 to 62 outline the entire process of mine closure. These regulations form part of this document, as a guide to the applicant on the process to be

followed for mine closure, and to address the legal responsibility of the applicant with regard to the proper closure of his operation.

In terms of section 37 and 39 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), the holder of a mining right is liable for any and all environmental damage or degradation emanating from his/her operation, until a closure certificate is issued in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 (act 28 of 2002).

Mine closure incorporates a process, which starts at the commencement of mining and continue throughout the life of a mine. It will be executed within the framework of sustainable development. Risk to elements of the environment will be quantified and managed pro-actively. For this information will be gathered throughout the life of a mine.

During mining a consultation process will be followed to ensure integrated environmental management, which recognizes a holistic approach, a multi-disciplinary analysis and an interdisciplinary synthesis. The consultation will include the Department of Mineral and Energy Affairs, relevant government departments and the holder of the Mining Right.

The holder of the mining right will notify the regional manager concerned in writing before he intends to cease operations temporarily or permanently, and to provide

particulars in connection with the location, nature and extent of the operations. Notice of such intent shall be regarded as the commencement of the decommissioning phase of a mine and an environmental assessment shall be carried out by the mining company in consultation with the regional manager concerned in order to confirm or adapt the decommissioning strategy and closure objectives described in the EMP.

During the closing phase the applicant will comply with regulations regarding safety and health, pollution prevention and the demolishing of buildings, structures, etc. During the life of the mine the applicant will minimize the cost and amount of work required during the decommissioning and closure phases. For this reason, the operational phase should be utilized extensively as a data-gathering phase. From the date of cessation of operations and prior to the issuing of the required certificate by the regional manager, monitoring by the mining company of all the elements of the environment shall continue to take place over a period sufficient to indicate that the closure objectives as stipulated in the EMP or closure plan have been met.

When the holder intends closing down his/her operations, an environmental risk report will accompany the application for closure. The requirements of such a risk report are contained in Regulation 60 of the Regulation promulgated in terms of the Act.

11.1.1.2 Key Objectives for Mine Closure

The primary objective will be to obtain a closure certificate at the end of the mine operation at the minimum cost and in as short time period as possible whilst still complying with the requirements of the Act.

Mine closure will ensure that:

- The safety and health of humans and animals are safeguarded from hazards resulting from mining operations.
- Environmental damage or residual environmental impacts are minimized to such an extent that it is acceptable to all involved parties.
- The land is rehabilitated to, as far as is practicable, its natural state, or to a predetermined and agreed standard or land use which conforms to the concept of sustainable development.
- That the mining structures and installations be removed. If some of these are not removed to ensure that the physical and chemical stability of the remaining structures should be such that risk to the environment is not increased by naturally occurring forces to the extent that such increased risk cannot be contended with by the installed measures.

- The optimal exploitation and utilization of South Africa's mineral resources are not adversely affected.
- The mine is closed efficiently and cost effectively, not abandoned but closed in accordance with the principles as laid down in the act and the EMP.
- To rehabilitate all dangerous excavations or subsidence on surface by means of back filling
- Dust from any mine related source should be avoided through re-vegetation of all the exposed areas.
- To monitor the rehabilitation of areas for dust and erosion, so that remedial action can be instituted should a problem arise?
- All open pits shall be filled up and rehabilitated

11.1.1.3 Future Land Use Objectives

After mine closure the land will be used for agriculture land for the grazing of animals. This has been consulted with interested and affected parties. The land will be rehabilitated as close to its natural topography as possible, and will be made save for the grazing of animals.

11.1.1.4 Proposed Closure Cost

In determining the closure cost the following are taken in consideration:

- That alluvial diamonds will be processed
- There are no saleable mineral by products
- The primary risk class for the minerals being mined are C for the mine and B for the mine and plant
- There are no secondary risk class or risks class for minerals relating to quarrying
- The sensitivity area are classified as medium due to the social aspect of the selection criteria

11.1.1.5 Closure Plan

The applicant will submit a closure plan after the mining activities has stopped. The closure plan will be in compliance with legislation. For this is necessary that the closure plan contains the following:

(a) a description of the closure objectives and how these relate to the prospecting or mine operation and its environmental and social setting;

(b) a plan contemplated in Regulation 2(2), coordinated according to generally accepted standards, showing the land or area under closure;

(c) a summary of the regulatory requirements and conditions for closure negotiated and documented in the environmental management programme or plan;

(d) a summary of the results of the environmental risk report and details of identified residual and latent impacts;

(e) a summary of the results of progressive rehabilitation undertaken;

(f) a description of the methods to decommission each prospecting or mining component and the mitigation or management strategy proposed to avoid, minimize and manage residual or latent impacts;

(g) details of any long-term management and maintenance expected;

(h) details of financial provision for monitoring, maintenance and post closure management, if required;

(i) a plan or sketch at an appropriate scale describing the final land use proposal and arrangements for the site;

(j) a record of interested and affected persons consulted; and

(k) technical appendices, if any.

A final layout plan will be submitted at closure of the mine or when operations have ceased

11.1.2 The management of identified environmental impacts emanating from the proposed mining operation;

The following general recommendations are given for the management of the environmental impacts. The contents of this paragraph must be read with the contents of paragraph 3.2.

TRAINING

All personal must undergo training that includes an environmental awareness programme.

FIRE

A Number of designated places for making fires must be demarcated and refuse bins must be supplied where eating takes place. These shall have to be regularly emptied when full and new black bags supplied.

VEHICLES

Vehicles for the mining process shall be restricted to designated roads and unrestricted vehicular movement must be forbidden.

CONSTRUCTION OF FACILITIES

Any construction or erection of facilities shall take place on areas that have been previously disturbed by human activities.

POTENTIAL POLLUTANTS

Any containers containing oil, fuels, chemicals, etc. shall be stored within bundled area or at least one and half times the capacity of the stores items.

SCRAP

The salvage yard shall be fenced off and all scrap metal, conveyor belting, etc. must be stored in this area.

EXPANSION

The expansion of the infrastructure area shall be restricted to already disturbed areas, rather than into the natural veldt.

MANAGEMENT

A manager must be appointed and he will be responsible for the environmental matters. The scope of responsibility of the environmental manager should include activities such as the monitoring, sampling and recording of all effluents, emissions and wastes emanating from gravel sites. All aspects of the site activities having a potential environmental impact must be integrated into an environmental management programme, which can be audited on a regular basis. Identified impacts must be managed during the operations phase until decommissioning activities begin.

ENVIRONMENTAL IMPACTS OF MINING										
Activity	**Disturbance**			**Pollution**						**visual**
	Land-form	Soil	Flora	Fauna	Heritage	Land	Water	Air	Noise	
Mining	M	M	M			M		L	X	X
Access	M		VL			L		L	X	X
Topsoil removal	M	M	L			L		L	X	X
Overburden removal	M	L	VL			M		L	X	X
Mineral Extraction	M	M	VL			M		VL	X	X
Tailings disposal	M	M	M	L		M	M			X
Water Abstraction	M		L				L			
Pipeline route	VL		VL			VL				X

Transport	M	L	VL			M		L	X	X
Accommodation	L	VL	L			L		VL	X	X
Waste Disposal	L	VL	VL			L	VL	VL	X	X
Electricity	VL	VL				VL				X
Workforce	L		VL			L	L			X

Please indicate VL, L, M, H, and VH for Very Low, Low, Medium, high and Very High in each column to determine the main area and severity of impact.

14.1.3 The socio-economic conditions as identified in the social and labour plan; and historical and cultural aspects, if applicable;

GENERAL

The Northern Cape lies to the south of its most important asset, the mighty Orange River, which provides the basis for a healthy agricultural industry. The landscape is characterised by vast arid plains with outcroppings of haphazard rock piles. The cold Atlantic Ocean forms the western boundary.

This region covers the largest area of all the provinces and has the smallest population. Its major airports are situated at Kimberley, the capital, and Upington. The Northern Cape is serviced by an excellent road network, which makes its interior easily accessible from South Africa's major cities, harbours and airports.

Important towns are Upington, centre of the karakul sheep and dried-fruit industries, and the most northerly wine-making region of South Africa; Springbok, in the heart of the Namaqualand spring-

flower country; Kuruman, founded by the missionary Moffat; De Aar, hub of the South African railway network; Sutherland, the coldest town in the country; and the sheep-farming towns of Carnarvon, Colesberg, Kenhardt and Prieska.

Apart from a narrow strip of winter-rainfall area along the coast, the Northern Cape is a semi-arid region with little rainfall in summer. The weather conditions are extreme cold and frosty in winter, with extremely high temperatures in summer.

The largest part of the province falls within the Nama-Karoo biome, with a vegetation of low shrubland and grass, and trees limited to watercourses. The area is known worldwide for its spectacular display of spring flowers that, for a short period every year, attracts thousands of tourists.

This biome is home to many wonderful plant species, such as the elephant's trunk (halfmens), tree aloe (kokerboom) and a variety of succulents.

The province has several national parks and conservation areas. The Kalahari Gemsbok National Park, together with the Gemsbok

National Park in Botswana, is Africa's first transfrontier game park, known as the Kgalagadi Transfrontier Park. It is one of the largest nature-conservation areas in southern Africa and one of the largest remaining protected natural ecosystems in the world. The Park provides unfenced access to a variety of game between South Africa and Botswana and has a surface area of more than two million ha.

The Ai-Ais-Richtersveld Transfrontier Conservation Park spans some of the most spectacular scenery of the arid and desert environments in southern Africa. Bisected by the Orange River, which forms the border between South Africa and Namibia, it comprises the Ai-Ais Hot Springs Game Park in Namibia and the Richtersveld National Park in South Africa. Some of the distinctive features in the area include the Fish River Canyon (often likened to the Grand Canyon in the United States of America) and the Ai-Ais Hot springs. This arid zone is further characterised by a unique and impressive variety of succulent plant species.

Nowhere is the Orange River more impressive than at the Augrabies Falls, which ranks among the world's greatest cataracts

on a major river. The Augrabies Falls National Park was established to preserve this natural wonder.

Northern Cape

Capital: Kimberley	
Princ	Afrikaans
ipal	68,0%
lang	Setswana
uage	20,8%
s:	isiXhosa
	6,2%
Population: 822 727	
Area (km²): 361 830	
% of total area: 29,7%	
GGP* at current prices	
(2001): R19 585 million	
% of total GDP**: 2,0%	

* GGP (Gross Geographical Product) = GDP of a region

** GDP (Gross Domestic Product)

THE KEY ECONOMIC ACTIVITIES OF THE AREA IN, WHICH THE MINE OPERATES, AND THE NEEDS OF THE AREA

The district of Kimberley compromises the following economic activities, mining, manufacturing and agriculture.

MINING

The Northern Cape is rich in minerals. The country's chief diamond pipes are found in the Kimberley district. In 1888, the diamond industry was formally established with the creation of De Beers Consolidated Mines. Alluvial diamonds are also extracted from the beaches and sea between Alexander Bay and Port Nolloth. The Sishen Mine near Kathu is the biggest source of iron ore in South Africa, and the copper mine at Okiep is one of the oldest mines in the country. Copper is also mined at Springbok and Aggenys. The province is also rich in asbestos, manganese, fluorspar, semi-precious stones and marble.

Until recently, the majority of small- to medium-scale alluvial operations were concentrated along or near the current Vaal River

system. With the rapidly depleting deposits available for mining, there has been a gradual shift towards the Orange River system, with Trans-Hex holding 50% of concessions issued along the Orange River. Two recent larger scale investments also show continued prospects in this sector.

MANUFACTURING AND AGRICULTURE

The Northern Cape is an important contributor to South Africa's primary production and has considerable potential for the beneficiation of these primary commodities. However, the province only contributed 2, 0% to the economy of South Africa in 2001, making it the smallest contributor among all the nine provinces (Census 2001).

The province is displaying a tremendous growth in value-added activities, including game farming. Food production and processing for the local and export market is growing significantly. Underpinning the growth and development plan of the province are the investment projects that link up with the existing plans of the Namaqua Development Corridor. The focus is on the beneficiation and export of sea products.

The economy of a large part of the Northern Cape, the interior Karoo, depends on sheep farming, while the karakul-pelt industry is one of the most important in the Gordonia district of Upington. The province has fertile agricultural land. In the Orange River Valley, especially at Upington, Kakamas and Keimoes, grapes and fruit are intensively cultivated.

Some 14 million crates of table grapes were produced in 2001/02, mainly for the export market. In line with grape production being higher than expected, raisins also showed a significant increase with the South African Dried Fruit Co-op paying out more than R200 million to some 200 producers. Wheat, fruit, peanuts, maize and cotton are produced at the Vaalharts Irrigation Scheme near Warrenton.

THE IMPACT OF THE MINE ON THE LOCAL AND SENDING COMMUNITIES, WHICH INCLUDES COMMUNITY DEVELOPMENT

Mining contributes 33, 2% to the economy and 17, 8% of total employment in the Northern Cape Province. Between February 2002 and February 2003, additional investments in the mining

industry created more than 3 000 jobs, at an investment value of more than R4 billion in the Northern Cape Province. The mine of the applicant will have a big economic and social impact on the Warrenton, Barclay West and Kimberley communities. The community is currently struck by poverty and partial famine. The mine will create new jobs for the people of the Farms Harrisdale No 226, District Barcly West and surrounding communities. It is estimated that at least 20 new jobs can be created once the mine are in full production.

The mine of the applicant will stimulate the economy of the district. The mine is too small to solely lead to the development of enterprises but it can be assumed that the mine of the applicant will contribute with the rest of the alluvial mining industry in the region and in the district so that the industry as a whole will stimulate the growth and development of small, micro and medium enterprises.

The Northern Cape is sparsely populated and houses some 822 727 people on 361 830 km^2 of land. About 68% of the people speak Afrikaans. Other languages spoken are Setswana, isiXhosa and English.

The official unemployment rate of the Northern Cape is 14, 4% (Labour Force Survey).

The last remaining true San (Bushman) people live in the Kalahari area of the Northern Cape. The whole area, especially along the Orange and Vaal Rivers, is rich in San rock engravings. A good collection can be seen at the McGregor Museum in Kimberley. The province is also rich in fossils.

THE INFRASTRUCTURE AND POVERTY ERADICATION PROJECTS OF THE MINE

In this the applicant will be proactive, and will encourage the local authorities to become involved in development. The proposed development activities will be part of Integrated Development Plans (IDP's) of the local authorities. The DMR has stated that the development of small scale or artisan mining could be regarded as an element of community development. A target is set for the development of small-scale mining for the community, within 5 years from the date of the issuing of the mining right.

It is important to note that the structure of the applicant is of such a nature that the proposed projects may undermine the operator to survive financially. For this the applicant will try and group together with other operators in the region for engagement in community

infrastructure and poverty eradication projects. Projects regarding the improvement of housing condition, skills development etc, as stipulated in the social and labour plan will be implemented:

THE MEASURES TO ADDRESS THE HOUSING AND LIVING CONDITIONS OF THE MINE EMPLOYEES

The key issues here are whether the applicant has established measures to improve housing at the mine, to have a demonstrable plan and to be implementing the plan. There can be no minimum requirement here – given the disparate nature, needs and standards between mining companies. Rather, the requirement is to improve over a period. Where the applicant has already had a plan and improved housing to a high level the burden of proof will be on the applicant to show progress made and that it would be difficult to improve further.

It should be noted that undertakings relate to "company provided" housing and nutrition. However, an applicant would get credit for promoting home ownership amongst its employees, and this might also contribute towards mine community development. It should be noted that the MPRDA in section 100(1) requires the Minister to develop a housing and living conditions standard within 5 years.

The provision of housing should be integrated with IDP's, which means that interaction with the local community council would be important.

The DME has suggested that applicants conduct a needs analysis of employees, and then develop plans, which should be interfaced with IDP's. With regard to new operations, mines should avoid unsustainable settlements. The DME said that they would want an indication from applicants regarding the financial resources set aside for improving hostels, and particularly the conversion of hostels and the promotion of home ownership.

The applicant does not provide housing and accommodation on the site. Therefore the applicant cannot meet this requirement. The applicant is in a process to develop the housing conditions provided for his employees. The next phase to be implemented by the applicant is to connect all the houses with electricity to improve the living conditions of the workers. The applicant is also in a process to encourage and to help his workers to own their own houses. The most of the workers that will be employed from the surrounding Communities already owns their own houses.

THE MEASURES TO ADDRESS THE NUTRITION OF THE MINE EMPLOYEES

The applicant will provide the employees with three meals a day. All of these meals will be decent meals for the employees.

MINE COMMUNITY AND RURAL DEVELOPMENT

The contents of this paragraph must be read with the rest of the proposals in the social and labour plan. The proposed methods of skills development must also be seen as mine community and rural development as well as the other proposals. The applicant undertakes to co-operate in the formulation of an integrated development plan with the local municipalities and Communities. The applicant will further co-operate with the government in the implementation of these projects. It is very difficult for the applicant to comply with these requirements before the mining right has been issued. Once the mining right has been issued the applicant will engage in negotiations with the communities and the local government to help with rural development. After these negotiations the applicant will formulate a plan that he will submit to the Department of Mineral en Energy Affairs within 6 months from the date of the issuing of the permit. The applicant nonetheless

proposes detailed measures for development in the submitted social and labour plan.

11.2. An outline of the implementation programme which must include –

11.2.1 A description of the appropriate technical and management options chosen for each environmental impact, socio-economic condition and historical and cultural aspects for each phase of the mining operation;

11.2.2 Action plans to achieve the objectives and specific goals contemplated in paragraph (a) which must include a time schedule of actions to be undertaken to implement mitigate measures for the prevention, management and remediation of each environmental impact, socio-economic condition and historical and cultural aspects for each phase of the mining operation;

GEOLOGY

Aspect: Removal of alluvial gravel for abstraction of diamonds

Impact: Residual impacts of mining operations and destruction of geology.

The impact on the geology are essentially associated with the change to the geological structure were the topsoil, growth medium and overburden will be removed temporally and the alluvial gravel removed for washing.

Action Plan:

The surface and sides of pits must be monitored through regular inspections, especially after rainfall events. If signs of subsidence are evident, relevant counter measures must be implemented

Time frame:

Continuously

TOPOGRAPHY

Aspect: Construction of dumps, dams, stockpiles, infrastructure etc that will influence the topography of the area.

Impact: Change to natural topography

The site is basically flat.

Any permanent or temporary buildings, stockpiles, pits, dumps etc. will affect the topography for the duration of the mine operation. After proper rehabilitation there will be very little effect on the topography. The area will stabilize in time.

The topography has already been impacted upon by previous mining activities in the sense that rehabilitated areas have no plant growth. Most of the old diggings are covered with plants and there is very little overall effect on the topography.

Action plan:

All waste rock and excess sand must be returned to the open pits and must be rehabilitated by planting seeds of locally occurring

species. Permanent or temporary structures that are associated with mining activities shall be removed in its entirety. Then after rehabilitation there will be very little overall effect on the topography and the topography will stabilize in time.

Time frame:

Continuously

SOIL

Aspect:

The spillage of fuels; oils, lubricants during the handling, storage and transport thereof. Ineffective waste management and separation. Spillage from slimes piping and other process related activities

Impact: Soil contamination

Aspect: Soil erosion.

Ineffective topsoil management

Impact: Soil depletion and degradation

The soil varies in dept. They are of Aeolian origin. These soils are used for farming with animals as gracing land. Some cal Crete occurs. It has almost no topsoil and is not as deep as the soils on the plains.

The soil profile on the mine area is as below.

0.3m-4m	Top Soil
0.3m-4m	Lime
2m –4m	Alluvial gravel

Loss of soil will mainly take place during mining and vehicular traffic in the form of dust. Erosion through water will be minimal due to the flat topography of the area and relatively low rainfall. The returned topsoil will probably lack organic material to a large extent and surface compaction after rehabilitation would cause problems in the sense that seeds cannot germinate because of runoff of rainwater.

Action Plan:

- Engines and hydraulics of earth-moving equipment and vehicles will be serviced regularly to prevent oil leaks or spills.

- All chemicals and oils will be stored in secure covered stores with budded floors. The workshop shall be provided with oil traps and all used oil will be removed from the site.

- Any sub-contractors that may supply and service earthmoving equipment will remove all oils and filters from the site.

- All exposed soil will be re-vegetated.

- Reduce dust levels by water spraying of the roads, working and preparation areas and gravel reclamation areas.

- Separate waste and dump it in a fenced area. Where pollution of soil will not occur.

- After proper rehabilitation the soil structure will be stabilized in time.

- If the mine management team see that:

- Bounded areas are used for storage
- Draining lines are kept clean
- Storm water trenches are not polluted
- Waste is separated
- Oil / Acid spills are cleaned
- All incidents re reported
- Water is not wasted.

Pollution of soil will have minimal effect.

Time frame:

Continuously

VEGETATION

The natural veldt
(1) Cal Crete Kopje
(2) Riparian vegetation wont be effected by mining
(3) Soils are used for natural veldt

No Red data species or protected species have been observed.

Overall A. Karoo, A.tortilas, R. lancea and Z dominate the veldt. *Mucrondata.*

Aspect: Effects of mining operations on the natural occurring vegetation.

Impact: Effect of invasive plant species on the indigenous plant species

Aspect: Removal of vegetation on mine site

Impact: Destruction of habitats on the mine area

Aspect: Unnecessary removal of vegetation on the mine

Impact: Destruction of micro habitats on the mine area

Aspect: Fire

Impact: Destruction of vegetation

Aspect: Promotion of indigenous plant growth

Impact: Improves indigenous plant growth

The cleaning of plants on the mine site will be of necessity destroy of disturb existing flora. However, the site is highly disturbed and does not appear to be inhabited by any rare or endangered

species. The prime cause of soil erosion is the destruction of plant growth. Plant growth impedes wind speed and binds the soil, lessening the effect of the wind by reducing the number of wind-blown particles as well as dust. It also improves water retention and water penetration.

The region is exposed to violent thunderstorms and cloudbursts. With no vegetation to reduce the velocity of the raindrops, the speed of water across the soil surface, and no roots to bind the soil, there is no resistance to erosion.

Action Plan:

- Barren soil is not a seedbed for seeds. Thus after rehabilitation the mine management team must help with the re-establishment of vegetation on the barren rehabilitated areas

- As much as possible of the natural vegetation in the plant list shall be reintroduced were applicable. At time of re-vegetation a qualified botanist will advice mine management of suitable species and methods for establishment?

- Plant invaders will be controlled throughout the lifetime of the mine. As far as possible mechanical and manual methods must be applied. If any herbicide is to be used, it shall first be discussed with a suitable ecologist before usage.

- Of significance is the protection of the draining lines, irrespective of size

- The mine company must remove alien invasive plants on rehabilitated areas after rehabilitation.

- Progressive and ongoing rehabilitation of the area must form part of both the project development and environmental management programmers.

- Retain large trees as far as possible to lesson visual impact and for the nestling of bird life.

ANIMAL LIFE

Aspect: The effect of mining operations on the habitat of locally occurring animals.

Impact: Disturbance of habitats.