ENVIRONMENTAL MANAGEMENT PLAN 13/2008 DME BORROW PIT 1

FOR: **THE REGISTRATION OF BORROW PIT 1 FOR UPGRADING FROM GRAVEL TO SURFACE ROAD D 300, MOTHIBISTAD**

LOCATION: **REMAINING EXTENT FARM 690 HM**
KURUMAN RESERVE
MOTHIBISTAD
NORTHERN CAPE PROVINCE

DATED: **MAY 2008**

WRITTEN BY:

VAN ZYL
ENVIRONMENTAL CONSULTANTS

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File number:……

DEPARTMENT OF MINERALS AND ENERGY

ENVIRONMENTAL MANAGEMENT PLAN

Submitted in support of application for a prospecting right or mining permit.
Section 39 and Regulation 52 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)

Application for a:		
	Prospecting Right	
	Mining Permit	**X**

Applicant: Department of Transport, Roads and Public Works, Northern Cape Province

Farm: Remaining Extent of Farm 690 HM, Kuruman Reserve (Borrow Pit 1)

District: Kgalagadi District Municipality, Northern Cape Province

Mineral: Calcrete and Weathered Grinite

Date: 15 May 2008

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Appendices:

A.1 INTRODUCTION

This document aims to provide a simplified national standard for applicants for prospecting rights and mining permits to comply with the relevant legislation and environmental regulations as apply to their respective applications in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)(MPRDA).
Applicants in this sector of the mining industry typically disturb smaller surface areas of land, whether drilling boreholes, small trenches, or mining on a small area, less than 1,5 hectares of land, under a mining permit as contemplated in Section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)

A.2 SCOPE

This document is intended for use by applicants for mining permits and prospecting rights.
Typically, operations in this sector of the mining industry:

- Use little or no chemicals to extract mineral from ore,
- Work on portions of land of 1,5 hectares in size or smaller,
- Disturb the topography of an area somewhat but have no significant impact on the geology

A.3 PURPOSE

This document aims to :

- Provide a national standard for the submission of Environmental Management Plans for the types of applications mentioned above.
- Ensure compliance with Regulation 52 of the MPRDA.
- Assist applicants by providing the information that the Department of Minerals and Energy (DME) requires in a simple language and in a structured, prescribed format, as contemplated in Regulation 52 (2) of the (MPRDA).
- Assist regional offices of the DME to obtain enough information about a proposed prospecting/ reconnaissance or mining permit operation to assess the possible environmental impacts from that operation and to determine corrective action even before such right is granted and the operation commences.

This document aims both to provide the DME regional offices with enough information about applicants for mining permits and applicants with guidance on environmental management matters pertaining to the mitigation of environmental impacts arising from their operations. Given this dual focus and the generic nature of the document, it might not be sufficient for all types of operations under various circumstances.
The document may therefore be altered or added to as the particular circumstances of the application in question may require.

A.4 USE OF THE DOCUMENT:

This document is designed for use by non-professionals and newcomers to the environmental management industry and it incorporates a *very simple* Environmental Impact Assessment (EIA). The EIA is contained in Section C of this document and was designed specifically with the target sectors of the mining industry (described in A.2 above) in mind.

The aim is ultimately to (a) gather information from applicants themselves; (b) to assess the impact of the operation based on that information and then (c) to guide the applicant to mitigate environmental impacts to limit damage to the environment.

Section B of the document gathers demographic information about the applicant. Section C gathers the information that will be used in the Environmental Impact Assessment. The applicant must complete the relevant sections of this document, but the regional office of the DME will do the scoring of these for the impact assessment rating in Section D.

Section F (the Environmental Management Plan) of the document is prescriptive and gives guidance to the miner or prospector on how to limit the damage of the operation on the environment. This part may be added to by the regional manager, who has the prerogative to decide whether this Environmental Management Plan will adequately address the environmental impacts expected from the operation or whether additional requirements for proper environmental management need to be set. Where these additional requirements are set, they will appear in Section G of this document. The Environmental Management Plan (Section F) of the document is legally binding once approved and, in the undertaking contained in Section H, the applicant effectively agrees to implement all the measures outlined in this Environmental Management Plan.

A.5 LEGISLATION/ REGULATIONS

The relevant sections of Mineral and Petroleum Resources Development Act and its supporting Regulations are *summarised below* for the information of applicants. The onus is on the applicant to familiarise him/herself with the provisions of the full version of the Mineral and Petroleum Resources Development Act and its Regulations.

Section of Act	**Legislated Activity/ Instruction/ Responsibility or failure to comply**	**Penalty in terms of Section 99**
5(4)	No person may prospect, mine, or undertake reconnaissance operations or any other activity without an approved EMP, right, permit or permission or without notifying land owner	R 100 000 or two years imprisonment or both
19	Holder of a Prospecting right must: lodge right with Mining Titles Office within 30 days; commence with prospecting within 120 days, comply with terms and conditions of prospecting right, continuously and actively conduct prospecting operations; comply with requirements of approved EMP, pay prospecting fees and royalties	R 100 000 or two years imprisonment or both
20(2)	Holder of prospecting right must obtain Minister's permission to remove any mineral or bulk samples	R 100 000 or two years imprisonment or both

Section of Act	Legislated Activity/ Instruction/ Responsibility or failure to comply	Penalty in terms of Section 99
26(3)	A person who intends to beneficiate any mineral mined in SA outside the borders of SA may only do so after notifying the Minister in writing and after consultation with the Minister.	R 500 000 for each day of contravention
28	Holder of a mining right or permit must keep records of operations and financial records AND must submit to the DG: monthly returns, annual financial report and a report detailing compliance with social & labour plan and charter	R 100 000 or two years imprisonment or both
29	Minister may direct owner of land or holder/applicant of permit/right to submit data or information	R 10 000
38(1)(c)	Holder of permission/permit/right MUST manage environmental impacts according to EMP and as ongoing part of the operations	R 500 000 or ten years imprisonment or both.
42(1)	Residue stockpiles must be managed in prescribed manner on a site demarcated in the EMP	A fine or imprisonment of up to six months or both
42(2)	No person may temporarily or permanently deposit residue on any other site than that demarcated and indicated in the EMP	A fine or imprisonment of up to six months or both
44	When any permit/right/permission lapses, the holder may not remove or demolish buildings, which may not be demolished in terms of any other law, which has been identified by the Minister or which is to be retained by agreement with the landowner.	Penalty that may be imposed by Magistrate's Court for similar offence
92	Authorised persons may enter mining sites and require holder of permit to produce documents/ reports/ or any material deemed necessary for inspection	Penalty as may be imposed for perjury
94	No person may obstruct or hinder an authorised person in the performance of their duties or powers under the Act.	Penalty as may be imposed for perjury
95	Holder of a permit/right may not subject employees to occupational detriment on account of employee disclosing evidence or information to authorised person (official)	Penalty as may be imposed for perjury
All sections	Inaccurate, incorrect or misleading information	A fine or imprisonment of up to six months or both
All sections	Failure to comply with any directive, notice, suspension, order, instruction, or condition issued	A fine or imprisonment of up to six months or both

A.6 OTHER RELEVANT LEGISLATION

Compliance with the provisions of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and its Regulations does not necessarily guarantee that the applicant is in compliance with other Regulations and legislation. Other legislation that may be immediately applicable includes, but is not limited to:

- National Monuments Act, 1969 (Act 28 of 1969).
- National Parks Act, 1976 (Act 57 of 1976)
- Environmental Conservation Act, 1989 (Act 73 of 1989)
- National Environmental Management Act, 1998 (Act No. 107 of 1998)
- Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965)
- The National Water Act, 1998 (Act 36 of 1998)
- Mine Safety and Health Act, 1996 (Act 29 of 1996)
- The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).

A.7 WORD DEFINITIONS

In this document, unless otherwise indicated, the following words will have the meanings as indicated here:

Act (The Act)	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)
Borehole	A hole drilled for the purposes of prospecting i.e. extracting a sample of soil or rock chips by pneumatic, reverse air circulation percussion drilling, or any other type of probe entering the surface of the soil.
CARA	The Conservation of Agricultural Resources Act
EIA	An Environmental Impact Assessment as contemplated in Section 38(1) (b)of the Act
EMP	an Environmental Management Plan as contemplated in Section 39 of the Act
Fauna	All living biological creatures, usually capable of motion, including insects and predominantly of protein-based consistency.
Flora	All living plants, grasses, shrubs, trees, etc., usually incapable of easy natural motion and capable of photosynthesis.
Fence	A physical barrier in the form of posts and barbed wire and/or "Silex" or any other concrete construction, ("palisade"- type fencing included), constructed with the purpose of keeping humans and animals within or out of defined boundaries.
House	any residential dwelling of any type, style or description that is used as a residence by any human being
NDA	National Department of Agriculture
NWA	National Water Act, Act 36 of 1998
Pit	Any open excavation
"Porrel"	The term used for the sludge created at alluvial diamond diggings where the alluvial gravels are washed and the diamonds separated in a water-and-sand medium.
Topsoil	The layer of soil covering the earth which- (a) provides a suitable environment for the germination of seed; (b) allows the penetration of water; (c) is a source of micro-organisms, plant nutrients and in some cases seed; and (d) is not of a depth of more than 0,5 metres or such depth as the Minister may prescribe for a specific prospecting or exploration area or mining area.
Trench	A type of excavation usually made by digging in a line towards a mechanical excavator and not pivoting the boom – a large, U-shaped hole in the ground, with vertical sides and about 6 – 8 metres in length. Also a prospecting trench.
Vegetation	Any and all forms of plants, see also Fauna
DWAF	The Department of Water Affairs and Forestry – both national office and their various regional offices, which are divided across the country on the basis of water catchment areas.
MPRDA	the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)
EMPlan	An Environmental Management Plan as contemplated in Regulation 52 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) – this document.

B. BIOGRAPHIC DETAILS OF THE APPLICANT:

B 1.1 Full name (and surname) of person or company applying for permit or right	**Department of Transport, Roads and Public Works, Northern Cape Province**
Contact Person	**Lorato Piki**
B 1.2 ID number of person or company/ CC registration number	**NA**
B 1.3 Postal address	**P.O. Box 3132**
	Kimberley
	8300
B 1.4 Physical/ residential address	**45 Schmidtsdrift Road**
	Carters
	Glen
B 1.5 Applicant's telephone number	**053 861 9696**
B 1.6 Applicant's cellular phone number	**083 605 9634**
B 1.7 Alternative contact's name	**Mr Phodiso Volstruis**
B 1.8 Alternative contact's telephone/cell phone numbers	**053 861 9687**
FAX	**053 861 9683/26**
Email	**pvolstruis@dre.ncape.gov.za**
	082 924 3680
B 2.1 Full name of the property on which mining/ prospecting operations will be conducted	**Farm 690, Kuruman Reserve**
Note: Appendix A – Figure 1 (Borrow Pit 1)	
B 2.2 Name of the subdivision	**Remaining Extent**
B 2.3 Approximate center of mining/prospecting area: Latitude	**23 º 31' 10.1" East**
Longitude	**27 º 22' 42.2" South**
B 2.4 Magisterial district	**Kgalagadi District Municipality**

B 2.5 Name of the registered owner of the property **Appendix K: Proof of Ownership**	**Provincial Government of the North West Province (Communal Property)**
Contact Person	**Keletso Kgarane** **Technical Manager** **Ga Segonyana Municipality**
B 2.6 His/her Telephone number	**053 712 9371**
Fax	**053 712 3581**
B 2.7 His/ her Postal address	**Ga-Segonyana Municipality**
	Private Bag X 1522
	Kuruman, 8460
Email	**keletso@ga-segonyana.gov.za**
B 2.8 Current uses of surrounding areas	
Agriculture - Commonage	
B 2.9 Are there any other, existing land uses that impact on the environment in the proposed mining/ prospecting area?	
Not any activities are taking place that is currently having a significant impact on the environment.	
B 2.10 What is the name of the nearest town?	
Mapoteng	

C. ENVIRONMENTAL IMPACT ASSESSMENT:

The information provided in this section will enable officials to determine how serious the impact of the prospecting/mining operation will be.

DESCRIBE THE ENVIRONMENT THAT WILL BE AFFECTED BY THE PROPOSED PROSPECTING/MINING OPERATIONS UNDER THE FOLLOWING HEADINGS:

C.1 DESCRIPTION OF THE ENVIRONMENT LIKELY TO BE AFFECTED BY PROPOSED PROSPECTING/MINING OPERATIONS: (REGULATION 52(2)(a))			
ENVIRONMENTAL ELEMENT/ IMPACTOR	**VALUE**	**TICK**	**OFFICE USE**
C 1.1 What does the landscape surrounding the proposed operation look like? (Open veldt/ valley/ flowing landscape/ steep slopes)			
The area is relatively flat and open veldt.			

C 1.2 Describe the type of soil found on the surface of the site			
	VALUE	**TICK**	**OFFICE USE**
C 1.3 How deep is the topsoil?	0 – 300mm		8
	300 – 600mm		4
	600mm +	**X**	2
(Soilkraft and Visual observation during site visit)			
C 1.4 What *plants, trees and grasses* grow naturally in the area around the site?			
Appendix B: Endemic Fauna and Flora of the study Area			
C 1.5 What *animals* naturally occur in the area?			
Appendix B: Endemic Fauna and Flora of the study Area			
	VALUE	**TICK**	**OFFICE USE**
C 1.6 Are there any *protected areas* (game parks/nature reserves, monuments, etc) close to the proposed operation?	Yes		4
	No	**X**	0
C 1.7 What mineral are you going to prospect or mine for?			
Calcrete and Weathered Granite			
C 1.8 Describe the type of equipment that will be used:			
Back-actor, Graders, Trucks, Tractors, Water bunkers, Front end loaders, Bulldozers, Loaders			
C.2 HOW WILL THE PROPOSED OPERATION IMPACT ON THE *NATURAL* ENVIRONMENT? (REGULATION 52(2)(b))			
ENVIRONMENTAL ELEMENT/ IMPACTOR	**VALUE**	**TICK**	**OFFICE USE**
C 2.1 What will the ultimate depth of the proposed prospecting/mining operations be?	0 – 5m		2
	6 – 10m	**X**	4
	10 – 25m		8
	25m +		10
C 2.2 How large will the *total* area of all excavations be?	**1,499**	ha	

C 2.3 How large will each excavation be before it is filled up?	<10 X 10m		2
	<20 X 20m		4
	>20 X 20m	**X**	8
C 2.4 How many *prospecting* boreholes or trenches will there be?	**NA**		
	VALUE	**TICK**	**OFFICE USE**
C 2.5 Will employees prepare food on the site and collect firewood?	Yes		4
	No	**X**	0
C 2.6 Will water be extracted from a river, stream, dam or pan for use by the proposed operation?	Yes		4
	No	**X**	2
C 2.7 If so, what is the name of this water body?	**NA**		
C 2.8 If water will not be extracted from an open surface source, where will it be obtained?			
Water will be obtained from a source/borehole authorised by the community members of the different villages.			
	VALUE	**TICK**	**OFFICE USE**
C 2.9 How much water **per day** will the *mineral processing* operation require?	1000 – 10 000 Liters		2
	20 000 – 40 000 L		3
	40 000 – 60 000 L	**X**	5
	60 000 – 100 000L		8
	More		10
C 2.10 How far is the proposed operation from open water (dam, river, pan, lake)?	0 – 15m		8
	16 – 30m		6
	31 – 60m		4
	More than 60 metres	**X**	2
C 2.11 What is the estimate depth of the water table/ borehole? **Note: (measurements from 2 bore-holes at Ga-Ntatelang ~ 6 km from study area)**	**~8,6-12,5**		metres
			(WAGK, 2006)
C 2.12 How much water per day will the proposed operation utilize *for employees*?	**3000**		Liters

C 2.13 What toilet facilities will be made available to workers?	None		8
	Pit latrine (longdrop)		4
	Chemical toilet	**X**	2
C 2.14 Would it be necessary to construct roads to access the proposed operations?	Yes	**X**	4
	No		0
	VALUE	**TICK**	**OFFICE USE**
C 2.15 How long will these access road(s) be (from a public road to the proposed operations)	0 – 0,5 km	**X**	4
	0,6 – 1,5 km		2
	1,6 – 3 km		4
C 2.16 Will trees be uprooted to construct these access road(s)?	Yes		4
	No	**X**	0
C 2.17 Will any foreign material, like crushed stone, limestone, or any material other than the naturally occurring topsoil be placed on the road surface?	Yes	**X**	4
	No		0
C.3 TIME FACTOR			
C 3.1 For what time period will prospecting/mining operations be conducted on this particular site?	0 – 6 months		2
	6 – 12 months		4
	12 – 18 months	**X**	6
	18 – 24 months		8
	>24 months		10
C.4 HOW WILL THE PROPOSED OPERATION IMPACT ON THE *SOCIO-ECONOMIC ENVIRONMENT*? (REGULATION 52(2)(b))			
ELEMENT/ IMPACTOR	**VALUE**	**TICK**	**OFFICE USE**
C 4.1 How many people will be employed?	• **200+**		
C 4.2 How many men?	• **~175**		

C 4.3 How many women?	• **~25**		
C 4.4 Where will employees be obtained? (Own or employed from local communities?)	Own	**X**	2
	Local	**X**	4
C 4.5 How many hours per day will employees work?	Sunrise➔ Sunset	**X**	4
	Less		2
	More		8
	VALUE	**TICK**	**OFFICE USE**
C 4.6 Will operations be conducted within 1 kilometer from a residential area	Yes	**X**	6
The study area is located ~740 m from Mapoteng village	No		1
C 4.7 How far will the proposed operation be from the nearest fence/windmill/house/dam/built structure?	0 – 50 metres	**X**	8
Note: **Operation will be next to the fence of the D 300.**	51 – 100 metres		4
	150 or more metres		2
C.5 HOW WILL THE PROPOSED OPERATION IMPACT ON THE *CULTURAL HERITAGE* OF THE SURROUNDING ENVIRONMENT? REGULATION 52(2)(b)			
ELEMENT/ IMPACTOR	**VALUE**	**TICK**	**OFFICE USE**
C 5.1 Are there any graveyards or old houses or sites of historic significance within 1 kilometer of the area?	Yes		8
Note: During Public Meeting dd 14 May 2008 community members was requested to inform officials if such sites occur in the vicinity of proposed Borrow Pits.	No	**X**	0

C.6 SPECIFIC REGULATORY REQUIREMENTS

C.6.1 Air quality Management and Control (Regulation 64) Describe how the operation will impact on the quality of the air, taking into account predominant wind direction and other affected parties in the downwind zone:
The settlement of Mapoteng and also Mothibistad might be affected by dust and other Nuisances. Dust to be suppressed regularly when nuisances are experienced or when complaints are received.
Appendix C: Air Pollution Management
C.6.2 Fire Prevention (Regulation 65)

Applicants for permits, rights or permissions involving ***coal or bituminous rock*** must: • ***Indicate on a plan*** where the coal or rock discard dump will be located *(If applied for a permit to mine or prospect for coal or bituminous rock, indicate the exact location of the discard dump on the plan and write" EMPlan C6.2" next to it)*
NA

C.6.3 Noise control (Regulation 66) Indicate how much noise the operation will generate, and how it will impact on the surrounding environment, who might be influenced by noise from your operation.	
Same as C.6.1	
Appendix D: Noise	
C.6.4 Blasting, vibration and shock (Regulation 67) Please indicate whether any blasting operations will be conducted.	
Blasting: **Yes**/ No	How often? **One day per week**
Whenever blasting activities are required on the site, the Contractor will rigorously adhere to the relevant statutes and regulations that control the use of explosives.	
C.6.5 Disposal of waste material (Regulation 69) ***Indicate on your plan*** where waste will be dumped in relation to the beneficiation works/ washing pans. Also indicate below how domestic waste material will be managed.	
Not any beneficiation works/washing pans will be operated. Spoil material is covered in section C.6.6.	
All waste (general & hazardous) generated during the mining and construction of the road may only be disposed of at appropriately licensed waste disposal sites (in terms of Section 20 of the Environment Conservation Act, No 73 of 1989) (Martin, 2007). **Cognisance must also be taken of the relevant provincial legislation in this regard. It will be noted that all controlling authority regulations pertaining to litter in terms of the Environment Conservation Act (sections 19, 19A and 24A) have been delegated to the provinces.**	
Appendix E: Waste Management	
C.6.6 Soil pollution and erosion control (Regulation 70) 6.6.1 Indicate how topsoil will be handled on the area.	
Appendix F: Soil Management	
6.6.2 Describe how spills of oil, grease, diesel, acid or hydraulic fluid will be dealt with.	
Appendix G: Handling and Storage of Hazardous Substances	
6.6.3 Briefly describe the storage facilities available for the above fluids:	
Appendix G: Handling and Storage of Hazardous Substances	

C.6.7 If significant impacts on any element of the environment mentioned in Section C 1 to C 6.6 above have been identified, summarise all of them here: (Regulation 52(2)development)	C.6.8 How will the negative impacts on the environment be mitigated or managed (as described in C 6.11 to the left? (Regulation 57(2)development)
Example: Section C 6.4 Blasting. I have identified that the people living on the neighbouring property are sensitive to loud noises as they have children that must study during the afternoons	**Example:** I will mitigate the impact of my blasting operations on the Interested Parties by limiting blasting operations to school hours, when no one in the affected area is at home.
1. C.6.6 Soil pollution and erosion control may cause a significant impact on the environment if control measures are not effectively implemented	**1 Mitigation and management measures to be implemented is described in Appendix F and G.**
2	**2**
3	**3**

C.7 Financial provision: (Regulation 54)

The amount that is necessary for the rehabilitation of damage caused by the operation, both sudden closure during the normal operation of the project and at final, planned closure will be estimated by the regional office of the DME, based on the information supplied in this document. This amount will reflect how much it will cost the Department to rehabilitate the area disturbed in case of liquidation or abscondence.

Enter the amount of financial provision required here:	**R 13 160.00**

Note: Find attached calculation in Appendix J.

What method will be used to furnish DME with this financial provision?

Cash deposit	**X**
Bank guarantee	
Trust Fund	
Other: (specify) (Note: other methods must be approved by the Minister)	

The standard formats for each of these types of guarantees are available from your regional office of the DME.

C.8.1 Monitoring and performance assessment.

Regulation 55 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) clearly describes the process and procedure as well as requirements for monitoring and auditing of the performance of this plan to adequately address environmental impacts from the operation. The following information must be provided:

C.8.2 Please describe how the adequacy of this programme will be assessed and how any inadequacies will be addressed. (Regulations 55(1) and 52(2)(e))
E*xample: I will, on a bi-monthly basis, check every aspect of my operation against the prescriptions given in Section F of this document and, if I find that certain aspects are not addressed or impacts on the environment are not mitigated properly, I will rectify the identified inadequacies immediately.*
Appendix H: Management Procedures
C.9 Closure and Environmental objectives: (Regulation 52(2)(f)) Clearly state the intended end use for the area prospected/mined after closing of operations
Agricultural use
The following closure objectives exist:
• That negative impacts do not occur or will occur after closure and rehabilitation of site. • That health and safety standards are achieved. • That no negative impacts result during mining activities. • That minimal social impacts result during and after mining activities has ceased and closure certificate has been obtained. • Removal of all waste and material generated during the activities and after cessation of mining.

C.9.1 Describe, in brief terms, what the environment will look like after a closure certificate has been obtained.
The areas disturbed will be rehabilitated to a state similar to the surrounding area. Areas disturbed will be levelled and roughened to enable vegetation to grow on it again. Top soil removed will be replaced in the same areas. Where necessary reseeding will take place. Appropriate surface reshaping will be done to enable runoff to take place similar to before mining activities and to prevent or minimize potential for erosion.

Note: The proposed end-state of your area must be consulted with interested and affected parties in terms of Regulation 52(2) (g). Details of the acceptability of the end-state must appear in the section below.

C 10 CLOSURE

Regulations 56 to 62 outline the entire process of mine closure, and these are copied in Section F of this document, both as a guide to applicants on the process to be followed for mine closure, and also to address the legal responsibility of the applicant with regard to the proper closure of his operation. In terms of Section 37 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), the holder of a permit 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).

C.11 Public Participation: (Regulation 52(2) (g))

In terms of the above regulation consultation with interested and affected person or persons must take place prior to the approval of the environmental management plan. This regulation is quoted below for ease of reference.

"a record of the public participation undertaken and the results thereof"

C 11.1 Any comments lodged by an interested and affected person or persons in terms of section 10(1) (b) of the Act, must be in writing and addressed to the relevant Regional Manager.

C 11.2 Any objections lodged by an interested and affected person or persons against the application for a right or permit in terms of the Act, must set out clearly and concisely the facts upon which it is based and must be addressed to the relevant Regional Manager in writing.

C 11.3 The Regional Manager must make known by way of publication in a local newspaper or at the office of the Regional Manager, that an application for a right or permit in terms of the Act has been received.

In the table below, please list the names of people or organisations likely to be influenced by the proposed operations (these might include neighbours, other water users, etc.) Kindly indicate how these people were consulted (eg. By letter or by phone) *and provide proof* of that consultation. What were the main concerns/ objections raised by the interested and affected parties to the proposed operation?

Name of Interested/ affected party	Contact details: Address & telephone number	How did consultation take place?	What was his/her main concern about the operation?
1. Ga Segonyana Municipality	Mr K. Kgarane Technical Manager Private Bag X 1522 Kuruman 8460 053 712 9371 083 644 4099	Telephonic and email consultation dd: •6/3/08 •26/3/08 •6/5/08 •12/5/08 Letter dd 6/3/2008.	• Held meetings with chiefs whom confirmed that Borrow Pits and Water could be utilised. • Posted On Site Notices. • Chiefs want the road to be built. • Road is badly degraded, hamper farming activities and other economic activities. • Nuisances such as dust exist.
2. Communities/villages situated along the D 300 road or use the road. • Mapoteng • Ditshoswaneng • Logaganeng 1 • Logaganeng 2 • Mathanthanyaneng	Mr Ernest O. Leshope Councillor: Infrastructure Moshaweng Local Municipality Private Bag X 117 Mothibistad 8474 053 773 9300 082 829 2505	Meeting with chiefs and community members dd 14/5/08 Minutes attached in Appendix I.	•Area must be fenced to keep animals out and sloped to enable animals to escape and not get injured. •Gates and fences to be maintained and repaired to same state as before mining activities started. •Borrow Pits must be rehabilitated and environment must be improved through the rehabilitation of the current existing Borrow Pit that is located in that area. •Community needs work. •Road is needed but also animals and community members' safety need to be protected. •Community must from their side be involved in the project. •Availability of water needs to be addressed. Letters of confirmation of availability of water will be provided (Chief Baseboke)

Note: Appendix I: Public Participation Process
Appendix I – 1: On Site Notice
Appendix I – 2: Letters to Local Municipalities
Appendix I – 3: Minutes of Public/Community Meeting held
Appendix I – 4: Responding Letters from Villages/Communities and Municipalities

D SCORING OF EIA– FOR OFFICIAL USE ONLY

Instructions for officials:
In this table, complete the totals of each section indicated below and do the calculation. ***Remember to first add all the values of sections C 1,2,4 and 5 and then to multiply it by the time factor in Section C 3***
Note that the value for the time factor element of the impact rating appears in Section C3. This is the total amount of time that the operation is expected to impact on the environment and all other factors are MULTIPLIED by this value. Compare the score (Impact rating) with the table below to help you make a decision on the total impact of the operation and also on the sufficiency of this programme to address all expected impacts from the operation on the environment.

D 1.1 CALCULATION TABLE

Section **C 1** Total	+	Section **C 2** Total	+	Section **C 4** Total	+	Section **C 5** Total	=	*Subtotal*	X	Time Factor Section **C 3**	=	Score (Impact rating)
	+		+		+		=		X		=	

D 1.2 IMPACT RATING SCALE

SCORE ATTAINED	IMPACT RATING	REMARKS
46 – 300	Low	No additional objectives needed – this programme is sufficient
301 – 800	Medium	Some specific additional objectives to address focal areas of concern may be set.
801 – 1160	High	Major revision of Environmental Management Plan for adequacy and full revision of objectives.

Additional Objectives:

Based on the information provided by the applicant and the regional office's assessment thereof, combined with the interpretation of the scoring and impact rating attained for the particular operation above, the Regional Manager of the regional office of the DME may now determine additional objectives /requirements for the mine owner/manager to comply with. *These measures will be specific and will address specific issues of concern that are not adequately covered in the standard version of this document.* These requirements are not listed here, but are specified under Section G of this document, so as to form part of the legally binding part of this Environmental Management Plan.

E UNDERTAKING:

I, ……., representative of the Department of Transport, Roads and Public Works, Northern Cape Province, the applicant for a mining **permit**/ right hereby declare that the above information is true, complete and correct. I undertake to implement the measures as described in Sections F and G hereof. I understand that this undertaking is legally binding and that failure to give effect hereto will render me liable for prosecution in terms of Section 98 (b) and 99 (1)(g) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). I am also aware that the Regional Manager may, at any time but after consultation with me, make such changes to this plan as he/she may deem necessary.

Signed on this ……..…day of …….…… 200…..at ……...(Place)

……
Signature of applicant

F. ENVIRONMENTAL MANAGEMENT PLAN:

INTRODUCTION

This Environmental Management Plan contains guidelines, operating procedures and rehabilitation/pollution control requirements which will be binding on the holder of the mining permit/ prospecting permission/ reconnaissance permission after approval of the Environmental Management Plan. It is essential that this portion be carefully studied, understood, implemented and adhered to at all times.

F 1 GENERAL REQUIREMENTS

F 1.1 MAPPING AND SETTING OUT

F 1.1.1 LAYOUT PLAN

- A copy of the layout plan as provided for in Regulation 2.2 must be available at the prospecting/mining site for scrutiny when required.
- The plan must be updated on a regular basis with regard to the actual progress of the establishment of surface infrastructure, mining operations and rehabilitation (a copy of the updated plan shall be forwarded to the Regional Manager on a regular basis).
- A final layout plan must be submitted at closure of the mine or when operations have ceased.

NOTE: Regulation 2.2 of the regulations promulgated in terms of the Act requires:

"An application contemplated in sub-regulation (1) must be accompanied by a plan that must contain –

(a) the co-ordinates of the land or area applied for;
(b) the north point;
(c) the scale to which the plan has been drawn;
(d) the name, number and location of the land or area covered by the application; and
(e) in relation to farm boundaries and surveyed points-
  (i) the size and shape of the proposed area;
  (ii) the boundaries of the land or area comprising the subject of the application concerned;
  (iii) the layout of the proposed reconnaissance, prospecting, exploration, mining or production operations;
  (iv) surface structures and servitudes;
  (v) the topography of the land or area; "

F 1.1.2 DEMARCATING THE MINING/ PROSPECTING AREA

- The mining/ prospecting area must be clearly demarcated by means of beacons at its corners, and along its boundaries if there is no visibility between the corner beacons.
- Permanent beacons as indicated on the layout plan or as prescribed by the Regional Manager must be firmly erected and maintained in their correct position throughout the life of the operation.
- Mining/ prospecting and resultant operations shall only take place within this demarcated area.

F 1.1.3 DEMARCATING THE RIVER CHANNEL AND RIVERINE ENVIRONMENT

The following is applicable if operations are conducted within the riverine environment (See F 3.2):

- Beacons as indicated on the layout plan or as prescribed by the Regional Manager must be erected and maintained in their correct position throughout the life of the operation.
- These beacons must be of a permanent nature during the operations and must not be easily removable, especially those in a river channel. The beacons must, however, be removed at the end of the operations.
- The mining of and prospecting for any mineral shall only take place within this demarcated mining area.
- If riverine vegetation is present in the form of reeds or wetland vegetation, the presence of these areas must be entered in Part C 1.45 of the EMPlan and indicated on the layout plan.
- The holder of the mining permit/ prospecting right will also be required to permanently demarcate the areas as specified in F 1.1.2.

F 1.2 RESTRICTIONS ON MINING/ PROSPECTING

- On assessment of the application, the Regional Manager may prohibit the conducting of mining or prospecting operations in vegetated areas or over portions of these areas
- In the case of areas that are excluded from mining or prospecting, no operations shall be conducted within 5 m of these areas.

F 1.3 RESPONSIBILITY

- The environment affected by the mining/ prospecting operations shall be rehabilitated by the holder, as far as is practicable, to its natural state or to a predetermined and agreed to standard or land use which conforms with the concept of sustainable development. 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.
- It is the responsibility of the holder of the mining permit/ prospecting right to ensure that the manager on the site and the employees are capable of complying with all the statutory requirements which must be met in order to mine, which includes the implementation of this EMP.
- If operations are to be conducted in an area that has already been disturbed, the holder must reach specific agreement with the Regional Manager concerning the responsibilities imposed upon himself/herself pertaining to the rehabilitation of the area and the pollution control measures to be implemented.

F 2 INFRASTRUCTURAL REQUIREMENTS

F 2.1 TOPSOIL

- Topsoil shall be removed from all areas where physical disturbance of the surface will occur.
- All available topsoil shall be removed after consultation with the Regional Manager prior to the commencement of any operations.
- The topsoil removed, shall be stored in a bund wall on the high ground side of the mining/prospecting area outside the 1:50 flood level within the boundaries of the mining area/ prospecting.
- Topsoil shall be kept separate from overburden and shall 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 being eroded.

F 2.2 ACCESS TO THE SITE

F 2.2.1 Establishing access roads on the site

- The access road to the mining/prospecting area and the camp-site/site office must be established in consultation with the landowner/tenant and existing roads shall be used as far as practicable.
- Should a portion of the access road be newly constructed the following must be adhered to:

  - The route shall be selected that a minimum number of bushes or trees are felled and existing fence lines shall be followed as far as possible.
  - Water courses and steep gradients shall be avoided as far as is practicable.
  - Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary.

- If imported material is used in the construction or upgrading of the access road this must be listed in C 2.17
- The erection of gates in fence lines and the open or closed status of gates in new and existing positions shall be clarified in consultation with the landowner/tenant and maintained throughout the operational period.
- No other routes will be used by vehicles or personnel for the purpose of gaining access to the site.

NOTE: The design, construction and location of access to provincial roads must be in accordance with the requirements laid down by the Provincial or controlling authority.

F 2.2.2 Maintenance of access roads

- In the case of dual or multiple use of access roads by other users, arrangements for multiple responsibility must be made with the other users. If not, the maintenance of access roads will be the responsibility of the holder of the mining permit/ prospecting right.
- Newly constructed access roads shall be adequately maintained so as to minimise dust, erosion or undue surface damage.

F 2.2.3 Dust control on the access and haul roads

- The liberation of dust into the surrounding environment shall be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.

F 2.2.4 Rehabilitation of access roads

- Whenever a mining permit/ prospecting right is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the permit or right, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager.
- Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre mining/ prospecting situation.
- Roads shall be ripped or ploughed, and if necessary, appropriately fertilised (based on a soil analysis) to ensure the regrowth of vegetation. Imported road construction materials which may hamper regrowth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining/prospecting operation, be corrected and the area be seeded with a seed mix to the Regional Manager's specification.

F 2.3 OFFICE/CAMP SITES

F 2.3.1 Establishing office / camp sites

- Office and camp sites shall be established, as far as is practicable, outside the flood plain, above the 1 in 50 flood level mark within the boundaries of the mining/ prospecting area.
- The area chosen for these purposes shall be the minimum reasonably required and which will involve the least disturbance to vegetation. Topsoil shall be handled as described in F 2.1 above.

- No camp or office site shall be located closer than 100 metres from a stream, river, spring, dam or pan.
- No trees or shrubs will be felled or damaged for the purpose of obtaining firewood, unless agreed to by the landowner/tenant.
- Fires will only be allowed in facilities or equipment specially constructed for this purpose. If required by applicable legislation, a fire-break shall be cleared around the perimeter of the camp and office sites.
- Lighting and noise disturbance or any other form of disturbance that may have an effect on the landowner/tenant/persons lawfully living in the vicinity shall be kept to a minimum.

F 2.3.2 Toilet facilities, waste water and refuse disposal

- As a minimum requirement, the holder of a mining permit/ prospecting right shall, at least, provide pit latrines for employees and proper hygiene measures shall be established.
- Chemical toilet facilities or other approved toilet facilities such as a septic drain shall preferably be used and sited on the camp site in such a way that they do not cause water or other pollution.
- The use of existing facilities must take place in consultation with the landowner/tenant.
- In cases where facilities are linked to existing sewerage structures, all necessary regulatory requirements concerning construction and maintenance should be adhered to.
- All effluent water from the camp washing facility shall be disposed of in a properly constructed French drain, situated as far as possible, but not less than 200 metres, from any stream, river, pan, dam or borehole.
- Only domestic type wash water shall be allowed to enter this drain and any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility.
- Spills should be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.
- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognised disposal facility**.** Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the camp site.
- Biodegradable refuse generated from the office/camp site, processing areas vehicle yard, storage area or any other area shall either be handled as indicated above or be buried in a pit excavated for that purpose and covered with layers of soil, incorporating a final 0,5 metre thick layer of topsoil (where practicable). Provision should be made for future subsidence of the covering.

F 2.3.3 Rehabilitation of the office/camp site

- On completion of operations, all buildings, structures or objects on the camp/office site shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), which states:

  (*1*) *When a prospecting right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, the holder of any such right or permit may not demolish or remove any building, structure, object –*

  (a) which may not be demolished in terms of any other law;
  (b) which has been identified in writing by the Minister for purposes of this section; or development which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing.

  (2) The provision of subsection (1) does not apply to bona fide mining equipment which may be removed

- Where office/camp sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- Areas containing French drains shall be compacted and covered with a final layer of topsoil to a height of 10cm above the surrounding ground surface.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining/prospecting operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.
- Photographs of the camp and office sites, before and during the mining/ prospecting operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.

F 2.4 VEHICLE MAINTENANCE YARD AND SECURED STORAGE AREAS

F 2.4.1 Establishing the vehicle maintenance yard and secured storage areas

- The vehicle maintenance yard and secured storage area will be established as far as is practicable, outside the flood plain, above the 1 in 50 flood level mark within the boundaries of the mining/prospecting area.
- The area chosen for these purposes shall be the minimum reasonably required and involve the least disturbance to tree and plant life. Topsoil shall be handled as described in F 2.1 above.

- The storage area shall be securely fenced and all hazardous substances and stocks such as diesel, oils, detergents, etc., shall be stored therein. Drip pans, a

thin concrete slab or a facility with PVC lining, shall be installed in such storage areas with a view to prevent soil and water pollution.

- The location of both the vehicle maintenance yard and the storage areas are to be indicated on the layout plan.
- No vehicle may be extensively repaired in any place other than in the maintenance yard.

F 2.4.2 Maintenance of vehicles and equipment

- The maintenance of vehicles and equipment used for any purpose during the mining/prospecting operation will take place only in the maintenance yard area.
- Equipment used in the mining/prospecting process must be adequately maintained so that during operations it does not spill oil, diesel, fuel, or hydraulic fluid.
- Machinery or equipment used on the mining/prospecting area must not constitute a pollution hazard in respect of the above substances. The Regional Manager shall order such equipment to be repaired or withdrawn from use if he or she considers the equipment or machinery to be polluting and irreparable.

F 2.4.3 Waste disposal

- Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste.
- All used oils, grease or hydraulic fluids shall be placed therein and these receptacles will be removed from the site on a regular basis for disposal at a registered or licensed disposal facility.
- All spills should be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.

F 2.4.4 Rehabilitation of vehicle maintenance yard and secured storages areas

- On completion of mining/prospecting operations, the above areas shall be cleared of any contaminated soil, which must be dumped as referred to in section F 2.4.3 above.
- All buildings, structures or objects on the vehicle maintenance yard and secured storage areas shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002.
- The surface shall then be ripped or ploughed to a depth of at least 300mm and the topsoil previously stored adjacent the site, shall be spread evenly to its original depth over the whole area. The area shall then be fertilised if necessary (based on a soil analysis).
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining/prospecting operation be corrected and the area be seeded with a seed mix to his or her specification.

F 3 OPERATING PROCEDURES IN THE MINING AREA

F 3.1 Limitations on mining/prospecting

- The mining of or prospecting for precious stones shall take place only within the approved demarcated mining or prospecting area.
- Mining/ prospecting may be limited to the areas indicated by the Regional Manager on assessment of the application.
- The holder of the mining permit/ prospecting right shall ensure that operations take place only in the demarcated areas as described in section F 1.1.2 above.
- Operations will not be conducted closer than one and a half times the height of the bank from the edge of the river channel and in such manner that the stability of the bank of the river is effected.
- Precautions shall also be taken to ensure that the bank of the river is adequately protected from scouring or erosion. Damage to the bank of the river caused by the operations, shall be rehabilitated to a condition acceptable to the Regional Manager at the expense of the holder.
- Restrictions on the disturbance of riverine vegetation in the form of reeds or wetland vegetation must be adhered to. The presence of these areas must be entered in Part of the programme and indicated on the layout plan.

F 3.2 Mining/ prospecting operations within the riverine environment

NOTE: The Department of Water Affairs and Forestry may impose additional conditions which must be attached to this EMP. In this regard, please see the Best Practice Guideline for small scale mining developed by DWAF (BPG 2.1)
(available from http://www.dwaf.gov.za)

- The mining of or prospecting for precious stones in the river or the banks of the river will be undertaken only after the Regional Manager has consulted with the Department of Water Affairs and Forestry.
- The canalisation of a river will not be undertaken unless the necessary permission has been obtained from the Department of Water Affairs and Forestry. Over and above the conditions imposed by the said Department, which conditions shall form part of this EMPlan, the following will also apply:

    - ❖ The canalisation of the flow of the river over different parts of the river bed shall be constructed in such a manner that the following are adhered to at all times:

        - ♦ The flow of the river may not be impeded in any way and damming upstream may not occur.
        - ♦ The canalisation of the flow may not result in scouring or erosion of the river-bank.
        - ♦ Well points or extraction pumps in use by other riparian users may not be interfered with and canalisation may not impede the extraction of water at these points.

- Access to the riverbed for the purpose of conducting excavations in the river-bed, shall be through the use of only one access at a time. The location of the access to the river channel across the river-bank shall be at a point of the river-bank where the least excavation and damage to vegetation will occur and shall not be wider than is reasonably required. The position of the river access together with all planned future access points must be indicated on the layout plan.

F 3.2.1 Rehabilitation of access to river-bed

- When rehabilitating the access point, the original profile of the river-bank will be re-established by backfilling the access point with the original material excavated or other suitable material.
- The topsoil shall then be returned over the whole area to its original depth and if necessary fertilised and the vegetation allowed to grow.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining/prospecting operation be corrected and the area be seeded with a seed mix to his or her specification.
- In the event of damage from an occurrence where high flood waters scour and erode access points in the process of rehabilitation over the river-bank or an access point currently in use, repair of such damage shall be the sole responsibility of the holder of the mining permit or prospecting right.
- Repair to the river-bank to reinstate its original profile to the satisfaction of the Regional Manager must take place immediately after such event has occurred and the river has subsided to a point where repairs can be undertaken.
- Final acceptance of rehabilitated river access points will be awarded only after the vegetation has re-established to a point where the Regional Manager is satisfied that the river-bank is stable and that the measures installed are of durable nature and able to withstand high river-flow conditions.

F 3.2.2 Rehabilitation of mining/prospecting area in the bed of the river

- The goal of rehabilitation with respect to the area where mining/prospecting has taken place in the river-bed is to leave the area level and even, and in a natural state containing no foreign debris or other materials and to ensure the hydrological integrity of the river by not attenuating or diverting any of the natural flow.
- All scrap and other foreign materials will be removed from the bed of the river and disposed of as in the case of other refuse (see section F 2.3.2 above), whether these accrue directly from the mining/prospecting operation or are washed on to the site from upstream.
- Removal of these materials shall be done on a continuous basis and not only at the start of rehabilitation.
- Where reeds or other riverine vegetation have been removed from areas, these shall be re-established systematically in the approximate areas where they occurred before mining/prospecting.
- An effective control programme for the eradication of invader species and other exotic plants, shall be instituted on a regular basis over the entire

mining/prospecting area under the control of the holder of the mining permit/ prospecting right, both during mining/prospecting and at the stage of final rehabilitation.

2. THE WATER USE LICENCE

The National Water Act, (Act 36 of 1998), is based on the principles of sustainability, efficiency and equity, meaning that the protection of water resources must be balanced with their development and use.
In addition to being issued with a prospecting right or mining permit a small-scale miner may also need to get a **water use licence** for the proposed water uses that will take place, except in certain cases.
NOTE: The Department of Water Affairs and Forestry (DWAF) developed specific Best Practice Guideline for small scale mining that relates to stormwater management, erosion and sediment control and waste management. Copies of these guidelines can be obtained from the regional office of DME or DWAF.
Applications for a water use licence must be made in good time, such that approval can be granted before a water use activity can begin. The appropriate licence forms for each kind of expected water use should be completed together with supporting documentation. The main supporting document required is a technical report. To make the technical report easier, you can refer to sections in this EMPlan, as most of what the technical report requires has already been done in the EMPlan. If you refer to the EMPlan it must be attached to the technical report.

F 3.3 EXCAVATIONS

F 3.3.1 Establishing the excavation areas

- Whenever any excavation is undertaken for the purpose of locating and/or extracting ore bodies of all types of minerals, including precious stone-bearing gravels, the following operating procedures shall be adhered to:

  - ❖ Topsoil shall, in all cases (except when excavations are made in the river-bed), be handled as described in F 2.1 above.
  - ❖ Excavations shall take place only within the approved demarcated mining/prospecting area.
  - ❖ Overburden rocks and coarse material shall be placed concurrently in the excavations or stored adjacent to the excavation, if practicable, to be used as backfill material once the ore or gravel has been excavated.
  - ❖ Trenches shall be backfilled immediately if no ore or precious stone-bearing gravel can be located.

F 3.3.2 Rehabilitation of excavation areas

The following operating procedures shall be adhered to:

- The excavated area must serve as a final depositing area for the placement of tailings during processing.

- Rocks and coarse material removed from the excavation must be dumped into the excavation simultaneously with the tailings.
- Waste, as described in paragraph F 2.3.2 above, will not be permitted to be deposited in the excavations.
- Once excavations have been refilled with overburden, rocks and coarse natural materials and profiled with acceptable contours and erosion control measures, the topsoil previously stored, shall be returned to its original depth over the area.
- The area shall be fertilised if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining/ prospecting operation, be corrected and the area be seeded with a vegetation seed mix to his or her specification.

F 3.4 PROCESSING AREAS AND WASTE PILES (DUMPS)

F 3.4.1 Establishing processing areas and waste piles

- Processing areas and waste piles shall not be established within 100 metres of the edge of any river channel or other water bodies.
- Processing areas should be established, as far as practicable, near the edge of excavations to allow the waste, gravel and coarse material to be processed therein.
- The areas chosen for this purpose shall be the minimum reasonably required and involve the least disturbance to vegetation.
- Prior to development of these areas, the topsoil shall be removed and stored as described in paragraph F 2.1 above.
- The location and dimensions of the areas are to be indicated on the layout plan and once 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 must be so treated and/or deposited that it will in no way prevent or delay the rehabilitation process.

F 3.4.2 Rehabilitation of processing areas

- Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- On completion of mining/prospecting operations, the surface of the processing areas especially if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 300mm and graded to an even surface condition and the previously stored topsoil will be returned to its original depth over the area.
- Prior to replacing the topsoil the material that was removed from the processing area will be replaced in the same order as it originally occurred.
- The area shall then be fertilised if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.

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

F 3.5 TAILINGS DAM(S) (SLIMES DAM)

The permission of the Regional Manager must be obtained should a tailings dam be constructed for the purpose of handling the tailings of the mining/prospecting operations. The construction, care and maintenance of tailings dams have been regulated and the relevant regulation is copied herewith, both for your information and as a guideline to the management, operation, closing and aftercare of a tailings deposition facility.

Regulation 73 promulgated under the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) requires the following:

Management of residue stockpiles and deposits

56. *(1) The assessment of impacts relating to the management of residue stockpiles and deposits, where appropriate, must form part of the environmental impact assessment report and environmental management programme or the environmental management plan.*

(2) Residue characterisation

(a) Mine residue must be characterised to identify any potentially significant health and safety hazard and environmental impact that may be associated with the residue when stockpiled or deposited at the site(s) under consideration.

(b) Residue stockpiles and deposits must be characterised in terms of its –

(i) physical characteristics, which may include –

(aa) the size distribution of the principal constituents;
(bb) the permeability of the compacted material;
(cc) void ratios of the compacted material;
(dd) the consolidation or settling characteristics of the material under its own weight and that of any overburden;
(ee) the strength of compacted material;
(ff) the specific gravity of the solid constituents; and
(gg) the water content of the material at the time of deposition, after compaction, and at other phases in the life of the deposit.

(ii) chemical characteristics, which may include –

(aa) the toxicity;
(bb) the propensity to oxidize and /or decompose;
(cc) the propensity to undergo spontaneous combustion;
(dd) the pH and chemical composition of the water separated from the solids;
(ee) stability and reactivity and the rate thereof; and
(ff) neutralising potential.

(iii) mineral content, which include the specific gravity of the residue particles and its impact on particle segregation and consolidation;

(3) Classification of residue stockpiles and deposits

(a) All residue stockpiles and deposits must be classified into one or a combination of the following categories –

(i) *the safety classification to differentiate between residue stockpiles and deposits of high, medium and low hazard on the basis of their potential to cause harm to life or property; and*

(ii) *the environmental classification to differentiate between residue stockpiles and deposits with –*

(aa) *a potentially significant impact on the environment due to its spatial extent, duration and intensity of potential impacts; or*

(bb) *no potentially significant impact on the environment.*

(b) *All mine residue stockpiles and deposits must be classified by a suitably qualified person(s).*

(c) *The classification of residue stockpiles and deposits shall determine the –*

(i) *level of investigation and assessment required;*

(ii) *requirements for design, construction, operation, decommissioning, closure and post closure maintenance; and*

(iii) *qualifications and expertise required of persons undertaking the investigations, assessments, design, construction thereof.*

(d) *The safety classification of residue stockpiles and deposits shall be based on the following criteria –*

Number of residents in zone of influence	*Number of workers in zone of influence*	*Value of third party property in zone of influence*	*Depth to underground mine workings*	*Classification*
0	*< 10*	*0 – R2 m*	*> 200m*	*Low hazard*
1 – 10	*11 – 100*	*R 2 m – R20 m*	*50 m – 200 m*	*Medium hazard*
> 10	*> 100*	*> R20 m*	*< 50 m*	*High hazard*

(e) *A risk analysis must be carried out and documented on all high hazard residue stockpiles and deposits.*

(f) *The environmental classification of residue stockpiles and deposits must be undertaken on the basis of –*

(i) *the characteristics of the residue;*

(ii) *the location and dimensions of the deposit (height, surface area);*

(iii) *the importance and vulnerability of the environmental components that are at risk; and*

(iv) *the spatial extent, duration and intensity of potential impacts.*

(g) *An assessment of the environmental impacts shall be done on all environmental components which are significantly affected.*

(h) *The assessment of impacts and analyses of risks shall form part of the environmental assessment and management programme.*

(4) *Site selection and investigation:*

(a) *The process of investigation and selection of a site must entail -*

(i) *the identification of a sufficient number of possible candidate sites to ensure adequate consideration of alternative sites;*

(ii) *qualitative evaluation and ranking of all alternative sites;*

(iii) *qualitative investigation of the top ranking sites to review the ranking done in (ii);*

(iv) *a feasibility study to be carried out on the highest ranking site(s), involving –*

(aa) *a safety classification;*

(bb) *an environmental classification;*

(cc) *geotechnical investigations; and*

(dd) groundwater investigations.

(b) The geotechnical investigations may include-

(i) the characterization of the soil profile over the entire area to be covered by the residue facility and associated infrastructure to define the spatial extent and depth of the different soil horizons;

(ii) the characterization of the relevant engineering properties of foundations soils and the assessment of strength and drainage characteristics.

(c) The groundwater investigations may include-

(i) the potential rate of seepage from the residue facility;

(ii) the quality of such seepage;

(iii) the geohydrological properties of the strata within the zone that could potentially be affected by the quality of seepage;

(iv) the vulnerability and existing potential use of the groundwater resource within the zone that could potentially be affected by the residue facility.

(d) From these investigations, a preferred site must be identified.

(e) Further investigation on the preferred site, shall include –

(i) land use;

(ii) topography and surface drainage;

(iii) infrastructure and man-made features;

(iv) climate;

(v) flora and fauna;

(vi) soils;

(vii) ground water morphology, flow, quality and usage; and

(viii) surface water.

(f) The investigations, laboratory test work, interpretation of data and recommendations for the identification and selection of the most appropriate and suitable site for the disposal of all residue that have the potential to generate leachate that could have a significant impact on the environment and groundwater must be carried out by a suitably qualified person.

(5) Design of residue stockpile and deposit

(a) The design of the residue stockpile and deposit shall be undertaken by a suitably qualified person.

(b) An assessment of the typical soil profile on the site is required for residue stockpiles and deposits which –

(i) have a low hazard potential; and

(ii) have no significant impact on the environment.

(c) The design of the residue stockpile and deposit must take into account all phases of the life cycle of the stockpile and deposit, from construction through to closure and must include –

(i) the characteristics of the mine residue;

(ii) the characteristics of the site and the receiving environment;

(iii) the general layout of the stockpile or deposit, whether it is a natural valley, ring dyke, impoundment or a combination thereof and its 3-dimensional geometry at appropriate intervals throughout the planned incremental growth of the stockpile or deposit;

(iv) the type of deposition method used; and

(v) the rate of rise of the stockpile or deposit.

(d) Other design considerations, as appropriate to the particular type of stockpile and deposit must be incorporated –

(i) the control of storm water on and around the residue stockpile or deposit by making provision for the maximum precipitation to be expected over a period of 24 hours with a frequency of once in a 100 years, in accordance with the regulations made under section 8 of the National Water Act, 1998;

(ii) the provision, throughout the system, of a freeboard of at least 0.5 m above the expected maximum water level, in accordance with regulations made under the National Water Act, 1998, to prevent overtopping;

(iii) keeping the pool away from the walls; where there are valid technical reasons for deviating from this, adequate motivation must be provided and the design must be reviewed by a qualified person as required in terms of sections 9(6) or 9(7) of the Mine Health and Safety Act, 1996;

(iv) the control of decanting of excess water under normal and storm conditions;

(aa) the retention of polluted water in terms of polluted water in terms of GN R991(9), where measures may be required to prevent water from the residue deposit from leaving the residue management system unless it meets prescribed requirements;

(bb) the design of the penstock, outfall pipe, under-drainage system and return water dams;

(cc) the height of the phreatic surface, slope angles and method of construction of the outer walls and their effects on shear stability;

(dd) the erosion of slopes by wind and water, and its control by (ee) vegetation, berms or catchment paddocks; and

(ee) the potential for pollution.

(e) A design report and operating manual shall be drawn up for all residue stockpiles and deposits which –

(i) have a medium to high hazard; and

(ii) have a potentially significant impact on the environment.

(f) Relevant information must be included in the draft environmental management programme or environmental management plan.

(6) Construction and operation of residue deposits:

(a) The holder of any right or permit in terms of the Act, must ensure that-

(i) the residue deposits, including any surrounding catchment paddocks, is constructed and operated in accordance with the approved environmental management programme or environmental management plan;

(ii) the design of the residue deposit is followed implicitly throughout the construction thereof, and that any deviations from the design be approved by the Regional Manager and the environmental manage programme and environmental management plan be amended accordingly;

(iii) as part of the monitoring system, measurements of all residues transported to the site and of all surplus water removed from the site are recorded;

(iv) the provision for appropriate security measures be implemented to limit unauthorised access to the site and intrusion into the residue deposit;

(v) specific action be taken in respect of any sign of pollution;

(vi) adequate measures be implemented to control dust pollution and erosion of the slopes; and

(vii) details of rehabilitation of the residue deposit be provided in the draft environmental management programme or environmental management plan.

(b) A system of routine maintenance and repair in respect of the residue deposit must be implemented to ensure the ongoing control of pollution, the integrity of rehabilitation and health and safety maters at the site.

(7) Monitoring of residue stockpiles and deposits:

(a) A monitoring system for residue stockpiles and deposits with respect to potentially significant impacts as identified in the environmental assessment must be included in the environmental management programme or environmental management plan.

(b) In the design of a monitoring system for a residue stockpile or deposit, consideration must be given to –

(i) baseline and background conditions with regard to air, surface and groundwater quality ;
(ii) the air, surface and groundwater quality objectives;
(iii) residue characteristics;
(iv) the degree and nature of residue containment;
(v) the receiving environment and the climatic, local geological, hydrogeological and geochemical conditions;
(vi) potential migration pathways;
(vii) potential impacts of leachate;
(viii) the location of monitoring points and the prescribed monitoring protocols; and
(ix) the reporting frequency and procedures.

(8) Decommissioning, closure and after care:

(a) The decommissioning, closure and post closure management of residue deposits must be addressed in the closure plan, which must contain the following –

(i) the environmental classification, including assumptions on which the classification were based;
(ii) the closure objectives, final land use or capability;
(iii) conceptual plans and details for closure and post closure management;
(iv) cost estimates and financial provision for closure and post-closure management; and
(v) residual impacts, monitoring and requirements to obtain mine closure in terms of the Act.

F 3.6 FINAL REHABILITATION

- All infrastructure, equipment, plant, temporary housing and other items used during the mining period will be removed from the site (section 44 of the MPRDA)
- Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the mining area and disposed of at a recognised landfill facility. It will not be permitted to be buried or burned on the site.
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

F 4 MONITORING AND REPORTING

F 4.1 Inspections and monitoring

- Regular monitoring of all the environmental management measures and components shall be carried out by the holder of the prospecting right, mining permit or reconnaissance permission in order to ensure that the provisions of this programme are adhered to.
- Ongoing and regular reporting of the progress of implementation of this programme will be done.

- Various points of compliance will be identified with regard to the various impacts that the operations will have on the environment.
- Inspections and monitoring shall be carried out on both the implementation of the programme and the impact on plant and animal life.
- Visual inspections on erosion and physical pollution shall be carried out on a regular basis.

Regulation 55 promulgated in terms of the MPRDA requires the following:

Monitoring and performance assessments of environmental management programme or plan

(1) As part of the general terms and conditions for a prospecting right, mining right or mining permit and in order to ensure compliance with the approved environmental management programme or plan and to assess the continued appropriateness and adequacy of the environmental management programme or plan, the holder of such right must-

(a) conduct monitoring on a continuous basis;
(b) conduct performance assessments of the environmental management programme or plan as required; and
(c) compile and submit a performance assessment report to the Minister to demonstrate adherence to sub-regulation (b).

(2) The frequency of performance assessment reporting shall be-

(a) in accordance with the period specified in the approved environmental management programme or plan , or, if not so specified;
(b) as agreed to in writing by the Minister; or
(c) biennially (every two years).

(3) The performance assessment report, shall be in the format provided in guidelines that will from time to time be published by the Department and shall as a minimum contain-

(a) information regarding the period that applies to the performance assessment;
(b) the scope of the assessment;
(c) the procedure used for the assessment;
(d) the interpreted information gained from monitoring the approved environmental management programme or plan;
(e) the evaluation criteria used during the assessment;
(f) the results of the assessment; and
(g) recommendations on how and when deficiencies that are identified and/or aspects of non-compliance will be rectified.

(4) The holder of a prospecting right, mining right or mining permit may appoint an independent qualified person(s) to conduct the performance assessment and compile the performance assessment report provided that no such appointment shall relieve the holder of the responsibilities in terms of these regulations.

(5) Subject to section 30(2) of the Act, the performance assessment report submitted by the holder shall be made available by the Minister to any person on request.

(6) If upon consideration by the Minister, the performance assessment executed by the holder is not satisfactory or the report submitted by the holder is found to be unacceptable, the holder must-

(a) repeat the whole or relevant parts of the performance assessment and revise and resubmit the report; and/or
(b) submit relevant supporting information; and/or
(c) appoint an independent competent person(s) to conduct the whole or part of the performance assessment and to compile the report.

(7) If a reasonable assessment indicates that the performance assessment cannot be executed satisfactorily by the holder or a competent person(s) appointed by the holder, the Minister may appoint an independent performance assessment person(s) to conduct such performance assessment. Such appointment and execution shall be for the cost of the holder.

(8) When the holder of a prospecting right, mining right or mining permit intends closing such operation, a final performance assessment shall be conducted and a report submitted to the Minister to ensure that –

(a) the requirements of the relevant legislation have been complied with;

(b) the closure objectives as described in the environmental management programme or plan have been met; and

(c) all residual environmental impacts resulting from the holder's operations have been identified and the risks of latent impacts which may occur have been identified, quantified and arrangements for the management thereof have been assessed.

(9) The final performance assessment report shall either precede or accompany the application for a closure certificate in terms of the Act.

F 4.2 Compliance reporting / submission of information

- Layout plans will be updated on a regular basis and updated copies will be submitted on a biennial basis to the Regional Manager
- Reports confirming compliance with various points identified in the environmental management programme will be submitted to the Regional Manager on a regular basis and as decided by the said manager .
- 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 programme was compiled shall be carried out and added as a corrective action.

F 5 CLOSURE

When the holder of a prospecting right, mining permit or reconnaissance permission intends closing down his/her operations, an environmental risk report shall accompany the application for closure. The requirements of such a risk report is contained in Regulation 60 of the Regulations promulgated in terms of the Act and is quoted below:

F 5.1 ENVIRONMENTAL RISK REPORT

"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-

(i) all possible environmental risks are identified, including those which appear to be insignificant;

(ii) the process is based on the input from existing data;

(iii) the issues that are considered are qualitatively ranked as –

(aa) a potential significant risk; and/or

(bb) a uncertain risk; and/or

(cc) an insignificant risk.

(b) the undertaking of a second level risk assessment on issues classified as potential significant risks where-

(i) appropriate sampling, data collection and monitoring be carried out;

(ii) more realistic assumptions and actual measurements be made; and

(iii) a more quantitative risk assessment is undertaken, again classifying issues as posing a potential significant risk or insignificant risk.

(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 which must include-

(i) a description of the management measures to be applied;
(ii a predicted long-term result of the applied management measures;
(iii) the residual and latent impact after successful implementation of the management measures;
(iv) time frames and schedule for the implementation of the management measures;
(v) responsibilities for implementation and long-term maintenance of the management measures;
(vi) financial provision for long-term maintenance; and
(vii) monitoring programmes to be implemented."

F 5.2 CLOSURE OBJECTIVES

Closure objectives form part of this EMPlan and must-

(a) identify the key objectives for mine closure to guide the project design, development and management of environmental objectives;
(b) provide broad future land use objective(s) for the site; and
(c) provide proposed closure cost

F 5.3 CONTENTS OF CLOSURE PLAN

A closure plan forms part of the EMP and must include 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.

F 5.4 TRANSFER OF ENVIRONMENTAL LIABILITIES TO A COMPETENT PERSON

Should the holder of a prospecting right, mining permit or reconnaissance permission wish to transfer any environmental liabilities and responsibilities to another person or persons, the following will pertain:

(1) An application to transfer environmental liabilities to a competent person in terms of section 48) of the Act, must be completed on Form O as set out in Annexure 1 to the Regulations and be lodged to the Minister for consideration.

(2) The holder of a prospecting right, mining right or mining permit may transfer liabilities and responsibilities as identified in the environmental management plan and the required closure plan to a competent person as contemplated in Regulation 58.

(3) When considering the transfer of environmental liabilities and responsibilities in terms of section 48) of the Act, the Minister must consult with any State department which administers any law relating to matters affecting the environment.

(4) No transfer of environmental liabilities and responsibilities to a competent person may be made unless the Chief Inspector of Mines and the Department of Water Affairs and Forestry have confirmed in writing that the person to whom the liabilities and responsibilities is transferred to, have the necessary qualifications pertaining to health and safety and management of potential pollution of water resources.

F 5.5 NOTES ON LEGAL PROVISIONS

NOTE: The holder of a prospecting right, mining permit or reconnaissance permission must also take cognisance of the provisions of other legislation dealing with matters relating to conservation, and which include, *inter alia,* the following:

* National Monuments Act, 1969 (Act 28 of 1969).
* National Parks Act, 1976 (Act 57 of 1976)
* Environmental Conservation Act, 1989 (Act 73 of 1989)
* National Environmental Management Act, 1998 (Act No. 107 of 1998)
* Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965)
* The National Water Act, 1998 (Act 36 of 1998)
* Mine Safety and Health Act, 1996 (Act 29 of 1996)
* The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).

G. SPECIFIC ADDITIONAL REQUIREMENTS DETERMINED BY THE REGIONAL MANAGER.

Officials in regional offices may use the following matrix to determine the necessity for additional objectives to be included in this Section of the document:

POTENTIAL ENVIRONMENTAL IMPACTS OF MINING										
Activity	**Disturbance**					**Pollution**				**Visual**
	Landform	**Soil**	**Flora**	**Fauna**	**Heritage**	**Land**	**Water**	**Air**	**Noise**	
Mining										
Access										
Topsoil removal										
Overburden removal										
Mineral Extraction										
Tailings disposal										
Water Abstraction										
Pipeline route										
Transport										
Accommodation										
Waste Disposal										
Electricity										
Hydrocarbon storage										
Workforce										

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.

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

H. UNDERTAKING

I,.....
....., the undersigned and duly authorised thereto by.....……..
.....……
Company/Close Corporation/Municipality (Delete that which is not applicable) have studied and understand the contents of this document in it's entirety and hereby duly undertake to adhere to the conditions as set out therein including the amendment(s) agreed to by the Regional Manager in Section G and approved on ……

Signed at ..... this.....day of…….....20.....

..... **.....**
Signature of applicant **Designation**

Agency declaration: This document was completed by Van Zyl Environmental Consultants on behalf of the Department of Transport, Roads and Public Works, Northern Cape Province

J. APPROVAL

Approved in terms of Section 39(4) of the Mineral and Petroleum Resources Development Act, 2002 (Act 29 of 2002)

Signed at…….this.....day of…….....20.....

.....……..
REGIONAL MANAGER

REGION:……

This document has been compiled by the Directorate: Mine Environmental Management of the Department of Minerals and Energy at their Head Office in Pretoria. Any comments, suggestions or inputs will be sincerely appreciated. If you have any comments or suggestions regarding this document or its application, please forward your contribution to:

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Appendix A

Aerial Photograph 1: Boundaries of Borrow Pit 1 Mothibistad

Coordinates of Borrow Pit 1 Mothibistad			
S/no	Name of Point	WGS 84 Coordinate	
		E(Long)	S (Lat)
01	**Mothibistad BP 1 TP 1**	**23°31'10.5"**	**27°22'40.5"**
02	**Mothibistad BP 1 TP 2**	**23°31'12.3"**	**27°22'42.2"**
03	**Mothibistad BP 1 TP 3**	**23°31'10.2"**	**27°22'43.6"**
04	**Mothibistad BP 1 TP 4**	**23°31'08.4"**	**27°22'42.2"**

Figuur 1 – Makroplan

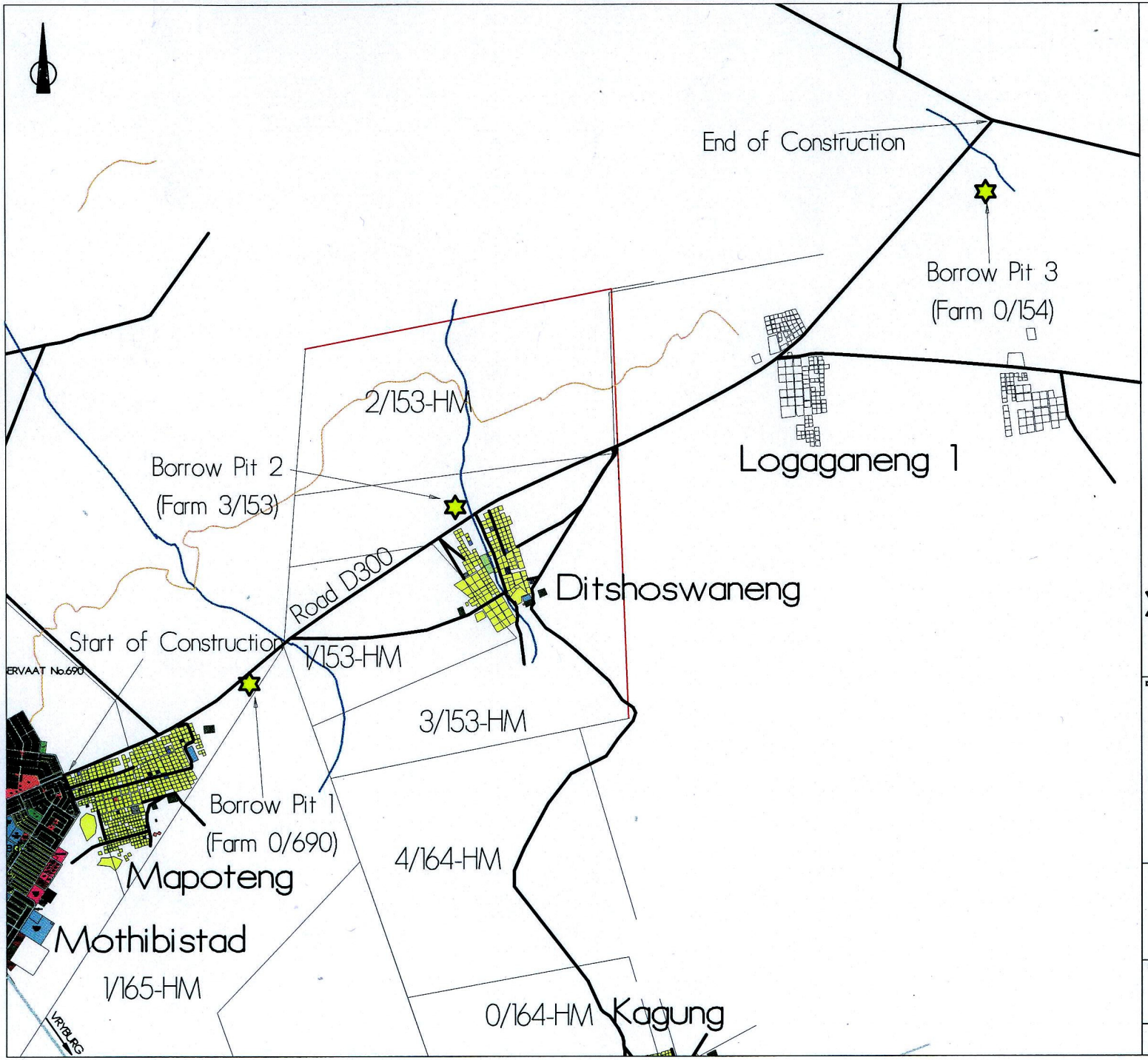

Figure 1
Location of Proposed Borrow Pits needed for the upgrading for road D300, Kgalagadi District Municipality, Northern Cape Province

Borrow Pits

KONSULTANT
Van Zyl Environmental Consultants
P.O. Box 567
Upington
8800

PLAN Nr. No.
U/KG/DIT/01

SKAAL SCALE	ONTWERP DESIGNED	Irme van Zyl
1 : 65 000	GETEKEN DRAWN	Thys Neels
DATUM DATE February 2008	NAGESIEN CHECKED	

Location Plan Borrow Pits - Bvi

Bvi - Mothibistad XY - Borrowpits

MTH BP1TP1	23 Y-051398 X3029614	1345 m
MTH BP1TP2	23 Y-051448 X3029664	1342 m
MTH BP1TP3	23 Y-051390 X3029709	1342 m
MTH BP1TP4	23 Y-051340 X3029665	1349 m
MTH BP1TP5	23 Y-051387 X3029665	1348 m
MTH BP2TP1	23 Y-054159 X3027187	1337 m
MTH BP2TP2	23 Y-054231 X3027181	1337 m
MTH BP2TP3	23 Y-054237 X3027256	1336 m
MTH BP2TP4	23 Y-054166 X3027263	1336 m
MTH BP2TP5	23 Y-054200 X3027226	1335 m
MTH BP3TP1	23 Y-060030 X3023297	1277 m
MTH BP3TP2	23 Y-059968 X3023336	1292 m
MTH BP3TP3	23 Y-060006 X3023400	1293 m
MTH BP3TP4	23 Y-060067 X3023365	1296 m
MTH BP3TP5	23 Y-060016 X3023353	1303 m
MTH EXSBP2	23 Y-054027 X3027229	1326 m
MTH EXSBP3	23 Y-060057 X3023284	1300 m
MTH XSTBP1	23 Y-051375 X3029602	1332 m

MTH BP1TP1	S27 22 40.5 E23 31 10.5	1345 m
MTH BP1TP2	S27 22 42.2 E23 31 12.3	1342 m
MTH BP1TP3	S27 22 43.6 E23 31 10.2	1342 m
MTH BP1TP4	S27 22 42.2 E23 31 08.4	1349 m
MTH BP1TP5	S27 22 42.2 E23 31 10.1	1348 m
MTH BP2TP1	S27 21 21.3 E23 32 50.6	1337 m
MTH BP2TP2	S27 21 21.1 E23 32 53.2	1337 m
MTH BP2TP3	S27 21 23.5 E23 32 53.4	1336 m
MTH BP2TP4	S27 21 23.8 E23 32 50.9	1336 m
MTH BP2TP5	S27 21 22.6 E23 32 52.1	1335 m
MTH BP3TP1	S27 19 14.0 E23 36 23.5	1277 m
MTH BP3TP2	S27 19 15.3 E23 36 21.3	1292 m
MTH BP3TP3	S27 19 17.4 E23 36 22.7	1293 m
MTH BP3TP4	S27 19 16.2 E23 36 24.8	1296 m
MTH BP3TP5	S27 19 15.9 E23 36 23.0	1303 m
MTH EXSBP2	S27 21 22.7 E23 32 45.8	1326 m
MTH EXSBP3	S27 19 13.6 E23 36 24.5	1300 m
MTH XSTBP1	S27 22 40.1 E23 31 09.7	1332 m

Appendix B:

Fauna and flora naturally occurring around the study area

1. Flora

1.1 Vegetation and Landscape Features

The study area falls within the Kuruman Vaalbosveld (SVk 8) which falls into the Eastern Kalahari Bushveld Bioregion and Savanna Biome. This veld type occurs in the North West and Northern Cape Provinces and typically form belts alternating with belts of Gordonia Duneveld (SVkd 1).

This vegetation type is least threatened. The conservation target is 16%. None is statutorily conserved. Erosion is very low. (Mucina et.al., 2006)
The land type in the majority of 2722 Kuruman is Ai1 with more than 80% of the area that has slopes less than 8%. The local relief between the highest and lowest points in the landscape is between 0 m and 30 m. The flat landscape comprises approximately 95 % of the area with riverines comprising the remaining 5%. (AGIS, 2007)

1.2 General Flora

The study area consists of an open tree layer characterised by *Acacia erioloba*, *A. karroo*, *Rhus lancea* and *Ziziphus mucronata*. The shrub layer is poorly developed, with *Grewia flava* and *Tarchonanthus camphorates* and grass layer open, with much bare soil in places. (Mucina et. al., 2006)

The biogeographically important taxon that is endemic to the Kalahari is the graminoid *Anthephora argentea*.

2. Fauna

Red Data Mammals

Latin Name	Common Name	Status
Acinonyx jubatus	Cheetah	Vulnerable
Crocuta crocuta	Spotted hyaena	Near threatened
Hyaena brunnea	Brown hyaena	Near threatened
Lycaon pictus	African Wild dog	Endanger
Mellivora capensis	Honey badger	Near threatened
Miniopterus schreibersii	Schreibers' long-fingered bat	Near threatened
Manis temminckii	Pangolin	Vulnerable
Rhinolophus denti	Dent's horseshoe bat	Near threatened

3. Birds

Common Name	Scientific Name	Status
Abdim's Stork	Ciconia abdimii	Common
African Black Duck	Anas sparsa	Uncommon
African Cuckoo	Cuculus gularis	Uncommon
African Fish Eagle	Haliaeetus vocifer	Common
African Hoopoe	Upupa africana	Common
African Marsh Warbler	Acrocephalus baeticatus	Common
African Rail	Rallus caerulescens	Common
African Spoonbill	Platalea alba	Common
Alpine Swift	Tachymarptis melba	Common
Anteating Chat	Myrmecocichla formicivora	Endemic-Common
Ashy Tit	Parus cinerascens	Endemic-Uncommon
Barn Owl	Tyto alba	Common
Bateleur	Terathopius ecaudatus	Locally Common
Black Crake	Amaurornis flavirostris	Common
Black Crow	Corvus capensis	Common
Black Cuckoo	Cuculus clamosus	Common
Black Eagle	Aquila verreauxii	Uncommon
Black Harrier	Circus maurus	Endemic-Uncommon
Black Kite	Milvus migrans	Locally Common
Black Stork	Ciconia nigra	Uncommon/Rare
Blackbreasted Snake Eagle	Circaetus pectoralis	Uncommon
Blackcheeked Waxbill	Estrilda erythronotos	Locally Common
Blackchested Prinia	Prinia flavicans	Endemic-Common
Blackcrowned Night Heron	Nycticorax nycticorax	Common
Blackheaded Canary	Alario alario	Endemic-Uncommon
Blackheaded Heron	Ardea melanocephala	Common
Blackshouldered Kite	Elanus caeruleus	Common
Blacksmith Plover	Vanellus armatus	Very Common
Blackthroated Canary	Serinus atrogularis	Common
Blackwinged Pratincole	Glareola nordmanni	Locally Abundant
Blackwinged Stilt	Himantopus himantopus	Common
Blue Crane	Anthropoides paradisea	Endemic-Uncommon
Bokmakierie	Telophorus zeylonus	Endemic-Common
Booted Eagle	Hieraaetus pennatus	Common
Bradfield's Swift	Apus bradfieldi	Endemic-Common
Bronzewinged Courser	Rhinoptilus chalcopterus	Rare/Uncommon

Brown Snake Eagle	Circaetus cinereus	Uncommon
Brownthroated Martin	Riparia paludicola	Common
Brubru	Nilaus afer	Common
Buffy Pipit	Anthus vaalensis	Uncommon
Burchell's Courser	Cursorius rufus	Endemic-Uncommon
Burchell's Sandgrouse	Pterocles burchelli	Endemic-Common
Cape Bunting	Emberiza capensis	Common
Cape Penduline Tit	Anthoscopus minutus	Endemic-Common
Cape Robin	Cossypha caffra	Common
Cape Shoveller	Anas smithii	Endemic-Common
Cape Sparrow	Passer melanurus	Endemic-Very Common
Cape Teal	Anas capensis	Common
Cape Turtle Dove	Streptopelia capicola	Very Common
Cape Vulture	Gyps coprotheres	Endemic-Locally Common
Cape Wagtail	Motacilla capensis	Common
Capped Wheatear	Oenanthe pileata	Common
Cardinal Woodpecker	Dendropicos fuscescens	Common
Caspian Plover	Charadrius asiaticus	Uncommon
Cattle Egret	Bubulcus ibis	Common
Chat Flycatcher	Bradornis infuscatus	Endemic-Common
Chestnutbanded Plover	Charadrius pallidus	Uncommon
Common Moorhen	Gallinula chloropus	Common
Common Quail	Coturnix coturnix	Common
Common Sandpiper	Actitis hypoleucos	Common
Common Waxbill	Estrilda astrild	Common
Crimsonbreasted Shrike	Laniarius atrococcineus	Endemic-Common
Crowned Plover	Vanellus coronatus	Common
Curlew Sandpiper	Calidris ferruginea	Very Common
Dabchick	Tachybaptus ruficollis	Common
Desert Cisticola	Cisticola aridulus	Common
Diederik Cuckoo	Chrysococcyx caprius	Very Common
Doublebanded Courser	Rhinoptilus africanus	Locally Common
Doublebanded Sandgrouse	Pterocles bicinctus	Endemic-Common
Dusky Sunbird	Cinnyris fusca	Endemic-Common
Eastern Clapper Lark	Mirafra fasciolata	Endemic-Common
Egyptian Goose	Alopochen aegyptiacus	Abundant
Ethiopian Snipe	Gallinago nigripennis	Locally Common
Eurasian Bee-eater	Merops apiaster	Common
Eurasian Golden Oriole	Oriolus oriolus	Uncommon

Eurasian Nightjar	Caprimulgus europaeus	Uncommon
Eurasian Roller	Coracias garrulus	Common
Eurasian Swallow	Hirundo rustica	Abundant
Eurasian Swift	Apus apus	Common
Fairy Flycatcher	Stenostira scita	Endemic-Common
Familiar Chat	Cercomela familiaris	Common
Fantailed Cisticola	Cisticola juncidis	Very Common
Fawncoloured Lark	Calendulauda africanoides	Common
Feral Pigeon	Columba livia	Abundant
Fiscal Flycatcher	Sigelus silens	Endemic-Common
Fiscal Shrike	Lanius collaris	Common
Forktailed Drongo	Dicrurus adsimilis	Common
Gabar Goshawk	Melierax gabar	Common
Garden Warbler	Sylvia borin	Common
Giant Eagle Owl	Bubo lacteus	Uncommon
Glossy Starling	Lamprotornis nitens	Endemic-Common
Goldenbreasted Bunting	Emberiza flaviventris	Uncommon
Goldentailed Woodpecker	Campethera abingoni	Common
Grassveld Pipit	Anthus cinnamomeus	Common
Great Sparrow	Passer motitensis	Uncommon
Great Spotted Cuckoo	Clamator glandarius	Uncommon
Greater Flamingo	Phoenicopterus ruber	Locally Abundant
Greater Kestrel	Falco rupicoloides	Common
Greater Striped Swallow	Hirundo cucullata	Common
Greenshank	Tringa nebularia	Common
Grey Heron	Ardea cinerea	Common
Grey Hornbill	Tockus nasutus	Common
Greybacked Cisticola	Cisticola subruficapillus	Endemic-Common
Greybacked Finchlark	Eremopterix verticalis	Endemic-Very Common
Greyheaded Gull	Larus cirrocephalus	Very Common
Groundscraper Thrush	Psophocichla litsipsirupa	Common
Gymnogene	Polyboroides typus	Common
Hadeda Ibis	Bostrychia hagedash	Abundant
Hamerkop	Scopus umbretta	Common
Helmeted Guineafowl	Numida meleagris	Very Common
House Sparrow	Passer domesticus	Very Common
Icterine Warbler	Hippolais icterina	Common
Jackal Buzzard	Buteo rufofuscus	Endemic-Common
Jacobin Cuckoo	Clamator jacobinus	Common

Kalahari Robin	Cercotrichas paena	Endemic-Common
Karoo Robin	Cercotrichas coryphoeus	Endemic-Common
Karoo Thrush	Turdus smithi	Endemic-Common
Kori Bustard	Ardeotis kori	Endemic
Kurrichane Buttonquail	Turnix sylvatica	Uncommon
Lanner Falcon	Falco biarmicus	Common
Lappetfaced Vulture	Torgos tracheliotus	Uncommon
Larklike Bunting	Emberiza impetuani	Endemic-Very Common
Laughing Dove	Streptopelia senegalensis	Very Common
Layard's Titbabbler	Parisoma layardi	Endemic-Uncommon
Lesser Flamingo	Phoenicopterus minor	Locally Abundant
Lesser Grey Shrike	Lanius minor	Common
Lesser Kestrel	Falco naumanni	Very Common
Levaillant's Cisticola	Cisticola tinniens	Common
Lilacbreasted Roller	Coracias caudata	Common
Little Banded Goshawk	Accipiter badius	Common
Little Bittern	Ixobrychus minutus	Uncommon
Little Egret	Egretta garzetta	Common
Little Stint	Calidris minuta	Common
Little Swift	Apus affinis	Very Common
Longbilled Crombec	Sylvietta rufescens	Common
Ludwig's Bustard	Neotis ludwigii	Endemic-Uncommon
Maccoa Duck	Oxyura maccoa	Uncommon
Malachite Kingfisher	Alcedo cristata	Common
Marabou Stork	Leptoptilos crumeniferus	Endemic-Locally Common
Marico Flycatcher	Bradornis mariquensis	Endemic-Common
Marico Sunbird	Cinnyris mariquensis	Common
Marsh Sandpiper	Tringa stagnatilis	Common
Martial Eagle	Polemaetus bellicosus	Uncommon
Masked Weaver	Ploceus velatus	Common
Melba Finch	Pytilia melba	Common
Monotonous Lark	Mirafra passerina	Endemic-Common
Montagu's Harrier	Circus pygargus	Endemic
Mountain Chat	Oenanthe monticola	Endemic-Common
Namaqua Dove	Oena capensis	Very Common
Namaqua Sandgrouse	Pterocles namaqua	Endemic-Common
Orange River Francolin	Scleroptila levaillantoides	Common
Orange River White-eye	Zosterops pallidus	Endemic-Very Common
Ostrich	Struthio camelus	Common

Pale Chanting Goshawk	Melierax canorus	Endemic-Common
Palewinged Starling	Onychognathus nabouroup	Endemic-Common
Palm Swift	Cypsiurus parvus	Common
Pearlbreasted Swallow	Hirundo dimidiata	Common
Pearlspotted Owl	Glaucidium perlatum	Common
Peregrine Falcon	Falco peregrinus	Endemic
Pied Avocet	Recurvirostra avosetta	Locally Common
Pied Babbler	Turdoides bicolor	Endemic-Common
Pied Barbet	Tricholaema leucomelas	Endemic-Common
Pied Crow	Corvus albus	Abundant
Pied Kingfisher	Ceryle rudis	Common
Pinkbilled Lark	Spizocorys conirostris	Endemic-Common
Pintailed Whydah	Vidua macroura	Common
Pririt Batis	Batis pririt	Endemic-Common
Purple Gallinule	Porphyrio madagascariensis	Common
Purple Heron	Ardea purpurea	Uncommon
Purple Roller	Coracias naevia	Uncommon
Pygmy Falcon	Polihierax semitorquatus	Common
Quail Finch	Ortygospiza atricollis	Common
Red Bishop	Euplectes orix	Common
Redbacked Shrike	Lanius collurio	Common
Redbilled Firefinch	Lagonosticta senegala	Common
Redbilled Francolin	Pternistis adspersus	Endemic-Common
Redbilled Quelea	Quelea quelea	Locally Abundant
Redbilled Teal	Anas erythrorhyncha	Common
Redbreasted Swallow	Hirundo semirufa	Common
Redcapped Lark	Calandrella cinerea	Common
Redcrested Korhaan	Eupodotis ruficrista	Endemic-Common
Redeyed Bulbul	Pycnonotus nigricans	Endemic-Very Common
Redeyed Dove	Streptopelia semitorquata	Common
Redfaced Mousebird	Urocolius indicus	Common
Redheaded Finch	Amadina erythrocephala	Endemic-Very Common
Redknobbed Coot	Fulica cristata	Abundant
Rednecked Falcon	Falco chicquera	Endemic
Reed Cormorant	Phalacrocorax africanus	Common
Rock Bunting	Emberiza tahapisi	Locally Common
Rock Kestrel	Falco rupicolis	Common
Rock Martin	Hirundo fuligula	Common

Rock Pigeon	Columba guinea	Common
Rock Pipit	Anthus crenatus	Endemic-Locally Common
Ruff	Philomachus pugnax	Common
Rufouscheeked Nightjar	Caprimulgus rufigena	Common
Rufouseared Warbler	Malcorus pectoralis	Endemic-Common
Sabota Lark	Calendulauda sabota	Endemic-Common
Sacred Ibis	Threskiornis aethiopicus	Common
Sand Martin	Riparia riparia	Common
Sanderling	Calidris alba	Common
Scalyfeathered Finch	Sporopipes squamifrons	Endemic-Common
Scimitarbilled Woodhoopoe	Rhinopomastus cyanomelas	Common
Secretarybird	Sagittarius serpentarius	Uncommon
Shafttailed Whydah	Vidua regia	Endemic-Common
Shorttoed Rockthrush	Monticola brevipes	Endemic-Uncommon
Sociable Weaver	Philetairus socius	Endemic-Common
South African Cliff Swallow	Hirundo spilodera	Endemic-Locally Common
South African Shelduck	Tadorna cana	Endemic-Common
Southern Greyheaded Sparrow	Passer diffusus	Endemic-Common
Southern Pochard	Netta erythrophthalma	Common
Southern Yellowbilled Hornbill	Tockus leucomelas	Endemic-Common
Spikeheeled Lark	Chersomanes albofasciata	Endemic-Common
Spotted Dikkop	Burhinus capensis	Common
Spotted Eagle Owl	Bubo africanus	Common
Spotted Flycatcher	Muscicapa striata	Common
Spurwinged Goose	Plectropterus gambensis	Very Common
Stark's Lark	Spizocorys starki	Endemic-Common
Steppe Buzzard	Buteo vulpinus	Common
Striped Cuckoo	Clamator levaillantii	Uncommon
Striped Kingfisher	Halcyon chelicuti	Common
Swallowtailed Bee-eater	Merops hirundineus	Locally Common
Tawny Eagle	Aquila rapax	Locally Common
Temminck's Courser	Cursorius temminckii	Uncommon
Threebanded Plover	Charadrius tricollaris	Common
Threestreaked Tchagra	Tchagra australis	Common
Titbabbler	Parisoma subcaeruleum	Endemic-Common
Violeteared Waxbill	Granatina granatina	Endemic-Locally Common

Wattled Starling	Creatophora cinerea	Locally Abundant
Whimbrel	Numenius phaeopus	Common
Whiskered Tern	Chlidonias hybridus	Locally Common
White Stork	Ciconia ciconia	Common
Whitebacked Mousebird	Colius colius	Endemic-Common
Whitebacked Vulture	Gyps africanus	Common
Whitebrowed Sparrowweaver	Plocepasser mahali	Very Common
Whitefaced Owl	Ptilopsus granti	Common
Whiterumped Swift	Apus caffer	Very Common
Whitethroated Canary	Serinus albogularis	Endemic-Common
Whitethroated Swallow	Hirundo albigularis	Common
Whitewinged Korhaan	Eupodotis afraoides	Endemic-Very Common
Whitewinged Tern	Chlidonias leucopterus	Abundant
Willow Warbler	Phylloscopus trochilus	Very Common
Wood Sandpiper	Tringa glareola	Common
Yellow Canary	Serinus flaviventris	Endemic-Common
Yellowbellied Eremomela	Eremomela icteropygialis	Uncommon
Yellowbilled Duck	Anas undulata	Abundant
Yellowbilled Egret	Egretta intermedia	Uncommon
Yellowbilled Kite	Milvus aegyptius	Common

Appendix C:

Air Pollution Management

1 Air Quality

Sources:

- Fuel burning engines;
- Fire; and
- Dust generation at borrow pit and on access roads.

Controls:

- All activities on site must comply with the requirements of the Atmospheric Pollution Prevention Act (Act No. 45 of 1965) and/or the National Environmental Management: Air Quality Act (Act No. 39 of 2004);
- Burning of materials including wood, grass and refuse which emit visible smoke will not be permitted on construction sites and at borrow pits;
- Waste must be disposed, as soon as possible at a licensed municipal site. Waste must not be allowed to stand on site to decay, resulting in malodours and attracting vermin; and
- No open fires are to be allowed on site.

Maintenance:

The Contractor will ensure that all vehicles and machinery are fitted with appropriate emission control equipment, are maintained frequently and serviced to the manufacturers' specifications.

Corrective Actions:

- If monitoring results or complaints indicate inadequate compliance with the EMP, the source of the problem must be identified and existing procedures or equipment modified to ensure that the problem is rectified.

2 Dust Control

Potential Impacts:

Dust and particulates from vehicle usage, mining, temporary stockpiles and land clearing affecting the surrounding community and site visibility.

Sources:

- Clearing of vegetation and topsoil;
- Mining, grading/scraping and transport of material;
- Loading and unloading of trucks;
- Re-entrainment of deposited dust by vehicle movement; and
- Wind erosion from borrow pits, stockpiles and unsealed roads and surfaces.

Controls:

- Speed limits must be enforced in all areas, including public roads and private property to limit the levels of dust pollution. Max speed of 40km/h maintained on the construction site;
- Dust must be suppressed on access roads, borrow pits and construction sites during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that will not result in the generation of run-off;
- Dust dispersion from mining and construction activities, unsurfaced roads, spoil dumps and other construction locations will be limited and suppressed to the maximum extent practical;
- Spoil dumps will be positioned such that they are not vulnerable to wind erosion;
- Spoil and other dust-generating dumps which are left unused for 28 days or longer will be sprayed with water to control dust;
- Untared roads will be sprayed with water from a water cart to limit dust generation by mining and construction vehicles; and
- An appropriate freeboard will be maintained in trucks hauling dirt, sand, soil and other loose material when leaving the road reserve.

Maintenance:

- Roads must be sealed as soon as possible and maintained to ensure that dust from road or vehicle sources will not exceed prescribed levels; and
- Any cleared areas must be watered to ensure that dust levels are minimised prior to sealing or revegetation.

Corrective Actions:

If monitoring results or complaints indicate inadequate compliance with the EMP, the source of the problem must be identified and existing procedures modified to ensure that the problem is rectified.

Appendix D:

Noise

Potential Impact:

Nuisance noise from mining and construction activities affecting the surrounding areas (Martin, 2007).

Sources:

- Mining and associated earthworks;
- Site preparation and earthworks;
- Blasting;
- Mining and construction related transport;
- Foundations and equipment installation; and
- Building activities. (Martin, 2007)

Controls:

- Borrow Pits, construction site yards, construction worker camps (accommodation) and other noisy fixed facilities should be located well away from noise sensitive areas adjacent to the development site;
- Surrounding communities and adjacent landowners are to be notified upfront of mining and construction activities;
- With regard to unavoidable very noisy mining and construction activities in the vicinity of noise sensitive areas, the contractor should liaise with local residents on how best to minimise impact;
- In general operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No 85 of 1993);
- Routine monitoring of the ambient and source/activity-specific noise levels by the SHE representative; and
- Construction and mining staff working in areas where the 8-hour ambient noise levels exceed 5dBA should wear ear protection equipment. (Martin, 2007)

Maintenance:

- All mining and construction equipment must be maintained in good working order; and
- Silencers on mining and construction equipment will be maintained to ensure no deterioration in noise-dampening capacity. (Martin, 2007)

Corrective Actions:

- The Contractor will respond timeously in the event of any complaints by local residents or others about disturbing noise. The noise source will be identified and appropriate noise mitigatory measures instituted in consultation with the affected party(ies); and
- In the case of legitimate complaints the noise level must be tested by a specialist. (Martin, 2007)

Appendix E:

Waste Management

Potential Impacts:

- Inefficient use of resources resulting in excessive waste generation; and
- Litter or contamination of the site or water through poor waste management practices. (Martin, 2007)

Sources:

- Packaging;
- Construction wastes;
- Waste dirt or rock from excavation;
- Storage of oils and fuels; and
- Domestic waste form site offices and construction camp. (Martin, 2007)

Controls:

- Adhere to waste management guidelines and any relevant license conditions imposed.
- Where possible, construction wastes on site must be reused or recycled;
- Disposal of waste must be in accordance with relevant legislative requirements;
- The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation;
- The contractor will appoint a person to manage and control waste;
- Integrated waste management on site will be carried out by applying, in order of preference, waste avoidance, reuse, recycling and environmentally responsible disposal;
- Burning of waste material will not be permitted;
- The Contractor will provide and maintain adequate facilities for litter collection (e.g. bins) at strategic locations around the site camp such as the office, parking, housing facilities and locations where food is consumed. All refuse receptacles shall be weather-, tamper- and vermin- proof;
- A high quality of housekeeping will be maintained on the mining and construction sites to ensure that materials are not left where they can be washed or blown away to become litter;
- Littering must be prohibited and routine clean-up drives must be implemented;
- Stockpiled waste must not remain on site for longer than 30 days;
- The Contractor must supply waste bins/skips throughout the site at locations where mining and construction personnel or labourers are working. The bins must be provided with lids and an external closing mechanism to prevent contents from blowing out, and must be scavenger proof to prevent animals attracted to waste. Bins must be emptied on a regular basis and the waste

removed to the construction camp where it must be contained in scavenger, water and windproof containers until disposed of;
- Waste (general and hazardous) generated during the construction phase may only be disposed of at appropriately licensed sites in terms of applicable Environmental legislation;
- The collection, storage and disposal of waste may not cause any nuisance (odours, fumes, aesthetic impacts, etc.);
- No waste may be disposed of on neighbouring land;
- Anything recyclable must be recycled; and
- Illegal dumping must be prohibited. (Martin, 2007)

Maintenance:

- Litter collection at the mining and construction sites will be undertaken at least once per working day. Work teams will be supplied with refuse bags which can be disposed of daily in skips at centralised locations;
- All waste containers will be emptied at least once a week; and
- Waste documentation must be completed and kept on site. (Martin, 2007)

Corrective actions:

- A complaints register must be maintained, in which any complaints from the community must be logged. All complaints must be investigated and, if appropriate, acted upon; and
- Corrective actions are required to be undertaken immediately after a complaint is made or a non-conformance is identified. (Martin, 2007)

Appendix F:

Soil Management

1. Topsoil

Controls:

- Topsoil will be sourced from areas which are cleared for mining, construction and spoil dumps, conserved and used judiciously in the rehabilitation of disturbed land;
- The Contractor is required to strip topsoil together with grass from all areas where structures are located, construction related activities occur, and access roads are to be constructed. Topsoil must be stockpiled for later use;
- Topsoil stripping will be scheduled for the dry season, as far as possible;
- Topsoil is to be handled twice only – once to strip and stockpile, and secondly to replace, level shape and scarify;
- Topsoil must not be compacted in any way, nor should any object be placed or stockpiled upon it. No vehicles may be allowed access onto the stockpiles after they have been placed;
- Topsoil is to be replaced along the contour;
- Topsoil stripped from different sites must be stockpiled separately and clearly identified as such;
- Land to which topsoil has been applied will be vegetated as soon as possible after application; and
- The disposal of unused topsoil (i.e. topsoil leftover after site rehabilitation and landscaping is complete) must be undertaken in consultation with the surrounding landowners and relevant authorities.

Maintenance:

- Stored topsoil will be free of deleterious matter such as large roots, stones, refuse, stiff or heavy clay and noxious weeds which would adversely affect its suitability for planting; and
- Topsoil stockpiles are not to exceed 2 (two) meter in height. Topsoil, which is to be stockpiled for periods exceeding 28 days, must be treated with mulch, roughened and seeded with and approved grass mixture or ground cover specified by the ECO. The mulch cover must be kept free of alien vegetation/seeds.

2. Spoil Material

Controls:

- The location of spoil stockpile sites will be agreed by the ECO prior to the onset of any operations that will generate spoil materials. No spoil material will be dumped outside the defined site. The Contractor will ensure that the material does not blow or wash away. If the spoil material is in danger of being washed or blown away, the contractor will cover it with suitable material such as Hessian or plastic;
- All cut material will be tested against quality requirements for other works;
- If material meets quality requirements for other works it must be taken to the relevant area on instruction of the Project Manager;
- If material does not meet the quality requirements for other works, the material must be disposed of at a relevant waste disposal site;
- Spoil dumps will be located at least 10 (ten) meter away from natural drainage lines;
- Spoil dumps will be placed wherever practical in topographical sheltered locations to obtain maximum protection from wind exposure;
- All spoil dumps assessed as being unstable will be encircled with silt fences or drainage systems that will collect and dispose of contaminated water;
- Spoil dumps will have slopes not greater than 1:2 (vertical to horizontal). Less steep slopes will be applied in conditions where erosion risks are indicated to be high; and
- Spoil dumps will be smoothed and contoured and compacted to prevent ponding.

3. Excavation, Backfilling and Trenching

Controls:

- Excavations should not be undertaken until such time that all required materials/services etc. are available on-site, to facilitate immediate laying of such services or the construction of subsurface infrastructure;
- Any such excavations must be undertaken within the confines of an established construction site – i.e. a site that is either protected with a peripheral fence, or a site that has a regular/continual human presence. Failing this, regular daily inspections are essential. All excavations, regardless of depth, must be provided with escape ramps, suitably constructed with a stable gravel or similar material at a minimum gradient of 1:2;
- Consider using any excess rock and boulders that were excavated from the construction site for any erosion protection work which is required on site;
- Excess material as a result of excavation activities is not to be dumped along the roadsides, but must, together with construction rubble be removed once constructions are completed, and appropriately disposed of.

- Suitable excavated material is to be stockpiled next to the excavations for use as backfill and all unsuitable or excess material must be loaded onto trucks and hauled to designated spoil areas;
- Backfill material must be from excavated material or imported from a suitable source if the excavated material does not conform to the required specifications; and
- Areas to be backfilled must be cleared of all unsuitable material and debris.

4. Erosion Control

Controls:

- Areas susceptible to erosion must be protected by installing the necessary temporary and/or permanent drainage works as soon as possible and by taking other measures necessary to prevent surface water from being concentrated in streams and from scouring slopes, banks or other areas;
- Any tunnels or erosion channels developed during the construction period or during the vegetation establishment period shall be backfilled and compacted, and the areas restored to a proper condition;
- Anti-erosion compounds shall consist of an organic or inorganic material to bind soil particles together and shall be a proven product able to suppress dust and erosion. The application rate shall conform to the manufacturer's recommendations. The material used shall be of such quality that grass seeds may germinate and not prohibit growth;
- The following erosion control methods can be considered where required:
  - Brushcut packing;
  - Mulch or chip cover;
  - Straw Stabilisation;
  - Watering;
  - Planting/sodding;
  - Hand seeding/sowing;
  - Hydro seeding;
  - Retaining walls;
  - Soil binders and anti-erosion compounds; or
  - Log/pole fencing.
- These erosion control measures, including storm water drainage systems, will be installed before mining and construction commences;
- Installed erosion control measures will be appropriate to site conditions to handle a one-in-two-year storm event for temporary structures, and a one-in-fifty year storm event for permanent structures which provide ongoing sediment control after a site has been rehabilitated;
- Contingency plans will be in place for extreme storm events;
- Blocking of storm water drainage systems must be prevented and storm water must be managed to prevent soil erosion;
- Natural storm water run-off, which is not polluted by the site operations, must be diverted around spoil dumps and soil stockpiles;

- Where storm water has accumulated in the working area and needs to be pumped out, it must be disposed of into the nearest stream or river in such a way that erosion does not occur along the course of its passage;
- Maintain soil erosion structures such as stone pitching, gabions, etc to enable effectiveness;
- Site activities will take overall recognition of the importance of measures to avoid and reduce erosion by phasing the work programme to minimise land disturbance in the planning and design stage, by keeping the areas of land cleared to a minimum, and by ensuring that the period of time for which areas remain cleared are kept to a minimum;
- All cleared areas will be proactively rehabilitated and in accordance with specific instructions from the Project Manager;
- Soil must be exposed for the minimum time possible once cleared of invasive vegetation. The timing of clearing and grubbing must be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion;
- Stockpiled topsoil must be either vegetated with indigenous grasses or covered with a suitable fabric to prevent erosion and invasion by weeds; and
- Only light equipment may be used for transport and delivery of construction material in areas of unstable soils. (Martin, 2007)

Appendix G:

Handling and Storage of Hazardous Substances

Potential Impacts:

- Release of contaminated water from contact with spilt chemicals;
- Fuel source for on-site fires; and
- Generation of contaminated wastes from used chemical containers.

Controls:

- The storage of flammable and combustible liquids such as oils will comply with all relevant legislation and regulations;
- Any spills will be rendered harmless and arrangements made for appropriate collection and disposal including cleaning materials, absorbents and contaminated soils;
- Ensure that spill kits are available on site to clean up spills and leaks;
- Obtain any storage and disposal permits/approvals necessary and comply with the conditions attached to such permits and approvals;
- Ensure that any delivery drivers are appropriately supervised by an individual familiar with all procedures and restrictions on site. This is of particular importance during off and on-loading of materials;
- Ensure that only designated areas are used for the handling or storage of mining and construction materials;
- All materials must be stored at one location, to be approved by the ECO;
- The Contractor must comply with all national, regional and local legislation with regard to the storage, transport, use and disposal of chemicals, harmful and hazardous substances and materials;
- The Contractor will furthermore be responsible for the training and education of all personnel on site who must be handling the material about it's proper use, handling and disposal as well as spill response;
- The Contractor must be responsible for establishing an emergency procedure for dealing with spills;
- Storage of all hazardous materials is to be safe, tamper proof and under strict control;
- Fuels, solvent and other wastes must be stored in vessels equipped with secondary containment structures and must be moved from the mining and construction areas being disposed of in compliance with the relevant legislation and regulations;
- The containers in which the products are kept must, in compliance with hazardous material management procedures, be removed from the site once empty. Hazardous products must otherwise be stored on adequately bunded surfaces in the designated hazardous material storage areas;

- All manufactured and/or imported materials must be stored in an appropriate manner in the construction camp. Depending of the type of material, storage areas will be roofed with impervious material (e.g. cement and chemicals);
- Fluids must not be stored together with solids; instead fuels, lubricants, transmission and hydraulic fluids must be stored in a designated area for fluids;
- Cement, building sand, topsoil and subsoil must also be stockpiled separately in their designated areas;
- Separate material delivery and storage, and lay-down areas must be demarcated as needed.
- All material storage areas must be sited away from ecologically sensitive areas;
- Hazardous chemicals used during construction must be stored in secondary containers. The relevant Material Safety Data Sheets (MSDS) must be available on site;
- The Contractor must provide adequate and approved facilities for the storage and recycling of used oil and contaminated hydrocarbons. Such facilities must be designed and situated with the intention of preventing pollution of the surrounding area and environment;
- Identify and maintain a register of all activities that involve the handling of potentially hazardous substances, as well as devise and supervise the implementation of protocols for the handling of these substances. This will include all fuels, oils, lubricants and grease;
- Ensure that all hazardous substances are handled in accordance with the manufacturer's specifications and legal requirements; and
- Store all hazardous substances (including oils, fuels, chemicals, tar etc.) in a manner prescribed in the relevant Acts and Regulations.

Maintenance:

- Any accidental chemical/fuel spills to be corrected immediately;
- Keep MSDS records of chemicals in use up to date;
- Waste records must be kept available for review; and
- Implement appropriate actions and measures to reduce or prevent contamination of the ground and surface water as a result of a spill of potentially hazardous substances.

Corrective Actions

- Observation and supervision of chemical storage and handling practises and vehicle maintenance throughout the construction phase;
- Arrange and supervise the implementation of cleanup operations and appropriate disposal of contaminated materials at the hazardous waste disposal site;
- A complaints register must be maintained, in which any complaints from the community must be logged. All complaints must be investigated and, if appropriate, acted upon;
- Keep written records detailing the type of spill, the corrective and remedial measures implemented in the stopping or reduction of the spill, and the clean

up of the spill. Such progress reporting is important for monitoring and auditing purposes and the written reports may afterwards be used for training purposes in an effort to prevent similar future occurrences;
- Report the nature and extent of the spill to the ECO or Project Manager, as soon as reasonably possible, but within 24 hours; and
- The ECO will prescribe measures to be implemented in order to prevent spills of potentially hazardous substances.

1. Cement and Concrete

Controls:

- Concrete must be mixed only in an area demarcated for this purpose. All concrete spilled outside this area, must be promptly removed by the Contractor and taken to a permitted waste disposal site. After all concrete mixing is complete all waste concrete must be removed and disposed of at an approved waste disposal site;
- Operators must wear suitable safety clothing;
- All runoff must be strictly controlled. Cement contaminated water must be collected, stored and disposed of at a site approved by the Project Manager;
- Appropriate measures for overflow, e.g. during heavy rains, must be put in place;
- Waste concrete and cement sludge must be scraped off the site daily and removed to an approved landfill site. (To prevent pollution during rain);
- Solidified concrete can be disposed of at a registered general waste landfill site; and
- Concrete must not be mixed directly on the ground. Plastic liners or mixing trays are to be used. (Martin, 2007)

2. Fuel Storage

- • All legal compliance requirements with respect to fuel storage and dispensing must be met;
- All fuel storage tanks (temporary or permanent) and associated facilities must be designed and installed in accordance with the relevant oil industry standards, SANS codes and other relevant requirements;
- The Contractor must ensure that all liquid fuels and oils are stored in tanks with lids, which are kept firmly shut and under lock and key at all times;
- Areas for storage of fuels and other flammable materials must comply with standard fire safety regulations and may require the approval of the Municipal Fire Prevention Officer;
- Flammable fuel and gas must be well separated from all welding workshops, assembly plants and loading bays where ignition of gas by an accidental spark may cause an explosion or fire;
- The tank must be erected at a safe distance from buildings, boundaries, welding sites and workshops and any other combustible or flammable materials;
- Symbolic safety signs depicting “No Smoking”, “No Naked Flames” and “Danger” are to be prominently displayed in and around the fuel storage area;

- The capacity of the tank must be clearly displayed and the product contained within the tank clearly identified;
- There must be adequate fire fighting equipment at the fuel storage and dispensing area or areas
- The storage tank must be removed on completion of the construction phase of the project;
- All such tanks to be designed and constructed in accordance with a recognised code (international standard);
- The rated capacity of tanks must provide sufficient capacity to permit expansion of the product contained therein by the rise in temperature during storage;
- Tanks must be situated in a bunded area, the volume of which must be at least 110% of the proposed volume of the tank;
- The floor of the bunded area must be smooth and impermeable, constructed of concrete or plastic sheeting with impermeable joints with a layer of sand over to prevent perishing. The floor of the bunded area will be sloped towards an oil trap or sump to enable any spilled fuel and/or fuel – soaked water to be removed;
- Any water that collects in the bund must not be allowed to stand and must be removed and the hydrocarbon digestion agent within must be replenished;
- Only empty and externally clean tanks may be stored on the bare ground. All empty and externally dirty tanks must be sealed and stored on an area where the ground has been protected;
- Any electrical or petrol driven pump must be equipped and positioned so as not to cause any danger of ignition of the product;
- If fuel is dispensed from 200 litre drums, the proper dispensing equipment must be used
- The drum must not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage tank must be stored in a waterproof container when not in use;
- All waste fuel and chemical impregnated rags must be stored in leak proof containers and disposed of at an approved hazardous waste site;
- The amounts of fuel and chemicals stored on site will be minimised; and
- Storage sites will be provided with bunds to contain any spilled liquids and materials.

Maintenance:

- Regular inspections will be carried out to detect leaks and spillages. All storage facilities will be maintained as regularly as is necessary to ensure they meet the original specification. Inspections will be carried out on a weekly and/or monthly basis by the ECO;
- All equipment that leak oil or fuel must be repaired immediately or removed from the construction site.

Corrective Actions:

Absorbent material must be available at tanks to absorb any spills.

Appendix H:

MANAGEMENT PROCEDURES

1. Functions and Responsibilities for the Construction Phase

Formal responsibilities are necessary to ensure that key procedures are executed. Specific responsibilities of the MD: Department of Transport, Roads and Public Works (DTRPW), Project Manager and Environmental Control Officer for the construction phase of this project are as detailed below (Martin, 2007).

The MD: Department of Transport, Roads and Public Works (DTRPW) will:

- Ensure that the Contractor(s) is aware of all specifications, legal constraints and standards and procedures pertaining to the project specifically with regards to the environment;
- Ensure that all stipulations within the EMP are communicated and adhered to by Department of Transport, Roads and Public Works (DTRPW) and its Contractor(s);
- Monitor the implementation of the EMP throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes; and
- Be fully conversant with all relevant environmental legislation. (Martin, 2007)

The Project Manager will:

- Be fully conversant with the Environmental Management Plan;
- Be fully conversant with all relevant environmental legislation and ensure compliance with these;
- Have overall responsibility for the implementation of the EMP;
- Conduct audits to ensure compliance to the EMP;
- Liaise with the MD: Department of Transport, Roads and Public Works (DTRPW) or his delegate, the Environmental Control Officer and relevant discipline Engineers on matters concerning the environment;
- Prevent actions that will harm or may cause harm to the environment, and take steps to prevent pollution on the site; and
- Confine activities to the demarcated construction site. (Martin, 2007)

The Environmental Control Officer (ECO) will:

- Be fully conversant with the Environmental Management Plan;
- Be fully conversant with all relevant environmental legislation and ensure compliance with them;
- Convey the contents of this document to the Contractor site staff and discuss the contents in detail with the Project Manager and Contractor. Training will be required to ensure all staff understands the process;

- Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMP and Environmental Authorisation (or Record of Decision);
- Take appropriate action if the specifications contained in the EMP are not followed;
- Monitor and verify that environmental impacts are kept to a minimum, as far as possible;
- Review and approve construction methods (where it could result in environmental impacts), with input from the Project Manager, where necessary;
- Ensure that activities on site comply with all relevant environmental legislation;
- Order the removal from the construction site of any person(s) and/or equipment in contravention of the specifications of the EMP;
- Compile progress reports on a regular basis, with input from the Project Manager, for submission to the MD: Department of Transport, Roads and Public Works (DTRPW), including a final post-mining/construction audit;
- Liaise with the Project Manager regarding the monitoring of the site; and
- Report any non-compliance or remedial measures that need to be applied to the appropriate authorities. (Martin, 2007)

Contractors and Service Providers:

All Contractors (including subcontractors and staff) and service providers are ultimately responsible for:

- Complying with the environmental management specifications;
- Submitting an obligatory Methods Statement for approval by the ECO before any work is undertaken (Annexure A);
- Adhering to any instructions issued by the Project Manager on advice of the ECO;
- Submitting a report at each site meeting which will document all incidents that have occurred during the period before the site meeting;
- Keeping on file the list of transgressions issued by the ECO in the site office;
- Maintaining a public complaints register; and
- Arrange for all employees and those of subcontractors to receive training before the commencement of construction in order that they are aware of the conditions of the EMP. (Martin, 2007)

2. Monitoring

A monitoring programme will be put in place not only to ensure conformance with the EMP through the contract/work instruction specifications, but also to monitor any environmental issues and impacts which have not been accounted for in the EMP that are, or could result in significant environmental impacts for which corrective action is required (Martin, 2007).

As part of the contract or work instruction, the MD: Department of Transport, Roads and Public Works (DTRPW) will ensure that monitoring is done on a weekly basis. The Project Manager will ensure that the monitoring is carried out.

An Environmental Control Officer must be appointed to ensure compliance with the EMP, and to carry out monitoring activities. The Environmental Control Officer must have the appropriate experience and qualifications to undertake the necessary tasks. The Environmental Control Officer will report to the Project Manager should any non-compliance be evident or corrective action necessary. (Martin, 2007)

All instruments and devices used for the measurement or monitoring of any aspect of this EMP must be calibrated, appropriately operated and maintained, and records well kept. (Martin, 2007)

3. Non-Conformance and Corrective Action

The monitoring of the mining and construction or operation of the road may identify non-conformances to the EMP. Non-conformances may also be identified through incidents, emergencies or complaints. In order to correct these non-conformances, the source must be determined and appropriate corrective actions must be identified.

3.1 Compliance with the Environmental Management Plan

- The EMP will be available on-site at all times;
- All persons employed by the Contractor or his sub-contractors will abide by the requirements of the EMP;
- Any members of the construction workforce found to be in breach of any of the specifications contained within the EMP may be ordered by the Project Manager to leave the site. The order may be given orally or in writing. Confirmation of an oral order will be provided as soon as practically possible, but the absence of a written order will not be cause for an offender to remain on site. No extension of time will be granted for any delay or disadvantage to the Contractor brought about by an offender ordered to leave the site;
- The Contractor will not direct a person to undertake any activity which would place them in contravention of the specifications contained within the EMP;
- Should the Contractor be in breach of any of the specifications contained in the EMP, the Project Manager will, in writing, instruct the Contractor responsible for the incident of non-compliance regarding corrective and/or remedial action required, specify a timeframe for implementation of these actions, implement a penalty and/or indicate that work will be suspended should non-compliance continue;
- Should non-compliance continue, further written notification will be forwarded to the Contractor responsible for the incident of non-compliance outlining the required corrective and/or remedial action, the timeframe for implementation, penalties and/or work will be suspended as specified previously;

- The Contractor will be responsible and will bear the cost of any delays, corrective or remedial actions required as a result of non-compliance with the specifications and clauses of the EMP;
- An appropriate reporting schedule for frequent reporting (of compliance with the EMP) to the MD: Department of Transport, Roads and Public Works (DTRPW) will be developed; and
- Departmental officials will be given access to the property for the purpose of assessing and/or monitoring compliance with the conditions contained in the EMP, at all reasonable times. (Martin, 2007)

Appendix I:

Public Participation Process:

Photograph 3: On Site Notice

Letters to Municipalities

VAN ZYL
ENVIRONMENTAL
CONSULTANTS

Cellular: 072 222 6194
Fax: 054 338 0722
Telephone: 054 338 0722
Enquiries: Irmé van Zyl
E mail: ibvanzyl@telkomsa.net

P.O. Box 567
Upington
8800
12 May 2008

Ref: 13-15/2008 EMP Mothibistad DME
Your Ref:

For Att.: Municipal Managers
Technical Managers
Community Liaison Officers
Councillors
Chiefs
Community Members

Ga-Segonyana Municipality and
Moshaweng Municipality

Dear Sir or Madam

NOTICE OF PUBLIC MEETING THAT IS TAKING PLACE WITH REGARDS TO THE:

UPGRADING OF EPWP NC 131 MOTHIBISTAD ACCESS ROAD (D 300) UNDER THE SCALING UP OF EPWP IN KGALAGADI DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

1. Van Zyl Environmental Consultants was appointed by the applicant, the Department of Transport, Roads and Public Works (DTRPW), Northern Cape Province, to execute the registration process for mining permits for the borrow pits and complete the Environmental Management Plan (including the Public Participation Process) as stipulated in Regulation 52 of the Schedule published in the Government Notice R 527 GG No 26275 dated 23 April 2004 as well as Section 10 and 39 of the Minerals and Petroleum Resources Development Act, Act 28 of 2002.

2. The DTRPW is of the intention to upgrade this road from gravel to a tar road and will entail the following:

   a. Utilisation of up to 3 existing and new 100 m x 100 m borrow pits for the project;

   b. Upgrading of the existing gravel road to a surface road.

3. The borrow pits that are being applied for in the Ga-Segonyana Municipal area of responsibility are:

   a. Borrow Pit 1: Farm 0/690, Remaining Extent of Kuruman Reserve;

   b. Borrow Pit 2: Farm3/153, Portion 3 of the Farm Fairfield.

4. The borrow pit that is being applied for in the Moshaweng Municipal area of responsibility is:

a. Borrow Pit 3: Farm 0/154, Remaining extent of Farm Motontonyane.

5. A public meeting with regards to this proposed development and the registration of the borrow pits will be held on **Wednesday 14 May 2008 at 10h00 at the Logaganeng Primary School.**

6. Please contact the consultant for any queries.

Yours truly,

IRMé VAN ZYL
INDEPENDENT ENVIRONMENTAL CONSULTANT

VAN ZYL
ENVIRONMENTAL
CONSULTANTS

Cellular: 072 222 6194
Fax: 054 338 0722
Telephone: 054 338 0722
Enquiries: Irmé van Zyl
E mail: ibvanzyl@telkomsa.net

P.O. Box 567
Upington
8800
26 March 2008

Ref: 13-14/2008 EMP Mothibistad DME
Your Ref:

For Att.: Councillor

Ga-Segonyana Municipality
Private Bag X 1522
Kuruman
8460

Dear Sir

UPGRADING OF EPWP NC 131 MOTHIBISTAD ACCESS ROAD (D 300) UNDER THE SCALING UP OF EPWP IN KGALAGADI DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

1. Van Zyl Environmental Consultants was appointed by the applicant, the Department of Transport, Roads and Public Works (DTRPW), Northern Cape Province, to execute the registration process for mining permits for the borrow pits and complete the Environmental Management Plan (including the Public Participation Process) as stipulated in Regulation 52 of the Schedule published in the Government Notice R 527 GG No 26275 dated 23 April 2004 as well as Section 10 and 39 of the Minerals and Petroleum Resources Development Act, Act 28 of 2002.

2. The DTRPW is of the intention to upgrade this road from gravel to a tar road and will entail the following:

   a. Utilisation of up to 3 existing and new 100 m x 100 m borrow pits for the project of which two falls within your area of responsibility;

   b. Upgrading of the existing gravel road to a surface road.

3. The borrow pits that are being applied for in the Ga-Segonyana Municipal boundary are:

   a. Borrow Pit 1: Farm 0/690, Remaining Extent of Kuruman Reserve;

   b. Borrow Pit 2: Farm3/153, Portion 3 of the Farm Fairfield.

4. Should any member of the communities residing in this area have any comments or objections with regards to this development, it must be:

a. In Writing;

b. Set out clearly and concisely the facts upon which it are based;

c. Addressed to the Regional Manager
Department of Minerals and Energy
Northern Cape Region
Private Bag X 6093
Kimberley
8300

d. Submitted to the Regional Manager (mentioned in paragraph 2. c.) on or before 16 April 2008.

5. If not any correspondence has been received by then, it will be accepted that not any member of the communities of Mapoteng or Ditshoswaneng have any comments or objections to this development.

Yours truly,

IRMé VAN ZYL
INDEPENDENT ENVIRONMENTAL CONSULTANT

VAN ZYL ENVIRONMENTAL CONSULTANTS

Cellular: 072 222 6194
Fax: 086 624 0306
Fax/Tel: 054 338 0722
Enquiries: Irmé van Zyl
E mail: ibvanzyl@telkomsa.net

P.O. Box 567
Upington
8800
20 May 2008

Ref: 13-15/2008 EMP Mothibistad DME
Your Ref:

MINUTES: PUBLIC MEETING 14 MAY 2008 10H00 LOGAGANENG PRIMARY SCHOOL

UPGRADING OF EPWP NC 131 MOTHIBISTAD ACCESS ROAD (D 300) UNDER THE SCALING UP OF EPWP IN KGALAGADI DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

1. Welcome and Introduction:

Mr Ernest Leshope, Infrastructure Councillor – Moshaweng Local Municipality, will chair the meeting. He welcomes everybody to the meeting and requested attendees present to indicate which villages are represented. The following villages are represented:

- Ellendale
- Mathanthanyaneng
- Logaganeng 1 & 2
- Ditshoswaneng
- Mapoteng

Chief BaSeboko is welcomed and thanked for attending the meeting. Chief Baseboko speaks and requests a song and a prayer is conducted by one of the delegates at the meeting.

The Project Team and members representing the Local Municipalities are asked to introduce themselves:

- Irmé van Zyl represents Van Zyl Environmental Consultants which has been appointed by the Department of Transport, Roads and Public Works (DTRPW) to execute the registration process for mining permits for the borrow pits and complete the Environmental Management Plan (including the Public Participation Process) to the Department of Minerals and Energy for this proposed development.

- David Leukes represents Bvi Consulting Engineers which has been appointed by DTRPW to plan the road layout and building, identify the borrow pits and do soil testing, manage the tender process and draw up contractual agreements, and also act as consulting engineers to manage the construction process until completion of project and rehabilitation has been completed.
- Ernest Leshope is the Infrastructure Councillor at Moshaweng Municipality and is involved in all the developments in this Municipality's area of responsibility.
- Mothosi Malola is a Technical Officer at the Technical Department from Moshaweng Municipality.
- Ms Lucia Rabothata is an Environmental Officer at the Community Liaison Office of Moshaweng Municipality.

The meeting will be conducted in siTswanna and English and translation will take place continuously. Attendees can ask questions in the language of their choice.

The attendance register is circulated and attendees are asked to ensure that they sign it.
Find it attached to this minutes.

2. Purpose of Meeting is to:

- provide information regarding the proposed scaling up construction of the D 300 road, and
- provide an opportunity for members of the public to raise any comments or queries, at this stage, regarding the proposed project to the project team.

3. The agenda was introduced by Mr. Leshope and was accepted by those in attendance.

4. Public Participation Process:

Ms Irmé van Zyl, Van Zyl Environmental Consultants, provided an overview of the Public Participation Process and noted the following:

- The Public Participation Process is a communication tool to inform potential Interested and Affected Parties (I&APs) of the proposed project;
- The Public Participation Process is a communication tool to receive and integrate the comments of I&APs into the proposed project;
- The Public Participation Process is not a marketing exercise;
- It is not a means to satisfy grievances, but rather a way to record comments; and
- Each individual cannot be consulted.

A summary of the Public Participation Process for this proposed project is as follows:

- On Site Notices has been posted at Mothibistad, Technical Department, Ga-Segonyana Municipality;
- Identification and contact with owner of properties where Borrow Pits will be located;
- Communication with property owners & other stakeholders identified;
- Public Meetings are conducted with identified stakeholder groups, **or** as requested by stakeholder groups;
- All comments that are raised during the Public Participation Process are captured in the Comments & Response Report which forms part of the Environmental Management Plan that will be submitted to the Department of Minerals and Energy.

5. Overview of the Project

Mr. David Leukes, Engineer from Bvi Consulting Engineers, presented an overview of the project. DTRPW is of the intention to upgrade this road from gravel to a tar road and will entail the following:

- Utilisation of up to 3 existing and new 100 m x 100 m borrow pits for the project;
- Upgrading of the existing gravel road to a surface road.

The borrow pits that are being applied for in the Ga-Segonyana Municipal area of responsibility are:

- Borrow Pit 1: Farm 0/690, Remaining Extent of Kuruman Reserve;
- Borrow Pit 2: Farm3/153, Portion 3 of the Farm Fairfield.

The borrow pit that is being applied for in the Moshaweng Municipal area of responsibility is:

- Borrow Pit 3: Farm 0/154, Remaining extent of Farm Mathanthanyaneng.

The benefits of the proposed upgrading are to provide:

- An all-weather driving surface;
- A road with low maintenance interval;
- A road that will deal with the storm-water problems affecting the area.

6. Technical Presentation

Mr. David Leukes presented the technical presentation and the following was addressed:

- Scope of Works for the road;
- Geotechnical Conditions of the road and borrow pits;
- Sources for road building materials (Borrow Pits);

7. Environmental Management Plan (EMP) Process:

Ms Irmé van Zyl stated that the EMP details management and mitigation measures for both the construction and the operational phase:

- The need for excavations are identified;
- Communication with relevant authorities takes place;
- Geotechnical study is undertaken;
- The property name, number/s and owner/s are identified;
- Communication with owner/s takes place;
- Communication with other I&AP's and Stakeholders is undertaken where need has been identified;
- The biophysical aspects that are to be assessed include:
  - Topography
  - Climate
  - Geology
  - Soil and Land Use
  - Flora and Fauna
  - Avifauna
- The social and socio-economic impacts associated with the proposed project are as follows:
  - Heritage impacts
  - Visual impacts
  - Tourism impacts
  - Social and Socio-economic impacts
- Report Writing
- Submission to DME

8. The Way Forward

Ms Irmé van Zyl informed the delegates the way forward regarding the proposed project:

- Complete Report Writing;
- Submit to DME;
- DME accept if Report is complete otherwise
- Provide Financial Provision;
- DME distribute to other departments to comment – 2 months;
- Not any other aspects raised – authorization.
- Construction Phase;
- Operational Phase.

9. Discussion Session

- Only one person to speak at one time – to give each other a chance to be heard;
- When person speaks he or she must first identify him or herself by stating his or her name and title or position in the community.

9.1 *Ms Mpeneng* from Logaganeng enquired if the contractor would grant employment opportunities to the youth?

Mr. David Leukes stated that since it is an EPWP project, it will be community workforce driven.

9.2 *Mvula Ntetwa* stated that there was confusion about what type of development it was that would take place and spoke about pavements.

Ms David Leukes responded during the Overview of the Project and Technical section of the presentation and explained in detail what the project will entail and what will be done.

9.3 *Chief BaSeboko* appealed to Moshaweng Municipality to create job opportunities. He also requested that the Department of Agriculture and Road Safety Department need to ensure the road safety of the people and animals. He also requested that the fencing along the roads be maintained well at all times to ensure the safety of the animals. The most important issue is to create progress. The issues of where the road must start and end are irrelevant and needs to stop.

Mr. Leshope appealed to people to be involved in the project to ensure its success.

9.4 *Justice Maitsiba* said that concerns exist about the environment surrounding the borrow pits and how will it be ensured that the contractors and its workers do not destroy the grazing and collect firewood? Who will be responsible?

Ms Irmé van Zyl said that preventative -, management -, control - and rehabilitation measures are being included in the Environmental Management Plans that has been submitted to the Department of Tourism, Environment and Conservation as well as to DME.
The DTRPW as project applicant is overall responsible to ensure that not any transgressions of aspects and activities stated in the EMP's takes place and if/when incidents takes place, the DTRPW as project applicant needs to ensure that it is stopped, rectified and rehabilitated where necessary. These powers are delegated to the Project Leader who will have a full time representative as well as Community Liaison Officer on site at all times. This person will have execution powers with regards to the environmental management and compliance of the project. The requirements set out in the EMP's will be

included in the tender documents and the Contractor accepts it when he signs the contract and shall ensure compliance by all workers and subcontractors. Van Zyl Environmental Consultants has been appointed as Environmental Control Officer (ECO) and also have execution powers with regards to this project. There will be worked with the representative of Bvi that will be full time on site. The ECO will execute monthly visits. A complaints register shall be kept on site and will be available for inspection by the relevant officials of the Departments as well as the ECO at all times. When complaints are received, it shall be noted in this register and within 24 hours conveyed to the Bvi representative and ECO. When any transgressions are identified a non-conformance will be issued to the contractor who will have a time period to either stop or rectify the activity or incident. If it is not complied with a non-compliance certificate will be issued which will also be submitted to the relevant regulatory departments after which the project might be stopped until rectification takes place or an activity is stopped. This might lead to financial losses to the contractor and/or sub-contractors. Therefore it is important that the contractor, sub-contractors and workers buy into the environmental management principles and ensure that it is implemented and maintained throughout the project.

9.5 *Ms Bethani Hugo* stated that she appreciate and accept the road that will be upgraded. She states that Ellendale has water available should water availability be a problem.

Chief BaSeboko says that all the people want the road.

Mr. David Leukes states that the contractor will do a survey for water for road compaction and will consult with the community at that stage.

Chief BaSeboko states that the water is enough and that there is water available at Ellendale and Logaganeng. It is ground water and is pumped via diesel systems. Potable and Construction water will be needed and communication needs to take place between Moshaweng and Ga-Segonyana Municipalities. The community need to work together to ensure that the road is built.

Nelly Mntuyedwa is a Ward Committee member from Ditshoswaneng (Ga-Segonyana Municipality) and states that a meeting was held with regards to this development and that an agreement was reached with regards to the use of water and soil. She will ensure that the letter and minutes reach Mr. Leshope who will in turn supply it to Ms van Zyl.

9.6 *Ms O.M. Kgobobithate* states that the Borrow Pit at Ditshoswaneng is on the way to where water is obtained by them. The road will be good.

Ms van Zyl states that the road to the borrow pit need to be maintained well and that community members whom obtain water there need to be accommodated and easy access need to be maintained or improved and that the road to the well shall be left in good state after completion of project and after rehabilitation took place.

9.7 *Mr. P. Phuthego* from Ellendale enquires about the quality of the soil that will be used for the construction of the road and mentions another road that has been upgraded recently and is full of potholes due to the fact that not good soil has been used.

Mr. David Leukes respond by stating that soil on the road has been tested as well as borrow pits has been selected on soil samples taken and that soil will be tested continuously throughout the project to ensure that soil quality for the different layers of the road is sufficient.

9.8 *Ms Elva Saku* appreciates that the road will be built.

9.9 *George Pule* from Mathanthanyaneng wants to know who will construct the access roads to the villages.

Ms Leshope states that it will be the responsibility of the Local Municipalities.

9.10 *Tsekisho Kok* from Mathanthanyaneng states that water is not a problem as there is a windmill and a borehole. Rehabilitation need to be done as grazing important to them as farmers.

Ms van Zyl states that rehabilitation shall take place of disturbed areas after completion of the project. A financial guarantee is to be paid to DME to ensure that rehabilitation is completed should the contractor fail to rehabilitate the disturbed places of construction activities.

9.11 *Aron Baxane* from Logaganeng 2 enquires if people from this village will be given work as problems have been experienced previously.

Mr. Leshope and *Mr. David Leukes* ensure that this aspect will be addressed when people are being employed.

9.12 *Ms Metslopo* asks if uniforms and safety equipment will be issued.

Mr. David Leukes confirms that uniforms will be issued as this is an EPWP Project.

9.13 *Mr. Monnapula* asks how long the project will take.

Mr. David Leukes informs the delegates that the time period for the project is 12 months.

9.14 *Ms Orenbotse* appreciates that the road will be constructed. However the Councilors proclaim that development is wanted but the agricultural community is concerned about the soil and environmental issues. This issue needs to be resolved.

Mr. Leshope states that internal follow up meetings will be held.

Refer to section 9.4 where environmental issues, EMPs and the role of the Environmental Control Officer are discussed.

Mr. Leshope request from all attendees to confirm that the authorization will be granted from the community for the location of the borrow pits and that water will be granted. Confirmation from all delegates from all villages presented is given.

Ms van Zyl and *Mr. David Leukes* requests that letters or minutes of meetings held with presentation lists be supplied to the offices of Van Zyl Environmental Consultants by Friday 16 May 2008 to confirm usage of borrow pits and water.

10. Closure

Mr. Ernest Leshope thanks Chief BaSeboko, community members and project team for all the effort that has been made to attend the meeting.

Chief BaSeboko speaks to community members and a song is sung and prayer said by an attendee. The meeting adjourns at 14H30.

Responding letters and meetings wrt metsi and borrow pits from communities

Ga-Segonyana
MUNISIPALITEIT • MUNICIPALITY • MASEPALA

Our Ref No:
Ons Verw. Nr.
Tshupelo ya rona:

Enquiries
Navrae:
Dipatlisiso:

Cnr Voortrekker and School Streets
Private Bag X1522, KURUMAN 8460
Tel (053) 712 1095/6/7
Fax (053) 712 3581

E-Mail: Kurmun@ga-segonyana.gov.za

DATE 13/05/08

TO Van Zyl Environmental Consultants

FAX NO 086 624 0306

ATTENTION Irmé Van Zyl

SENDER Mr IC. Kgatane

MESSAGE Please receive my Letters

NUMBER OF PAGES (INCLUDING COVER SHEET) 3

IF YOU DO NOT RECEIVE ALL THE PAGES CLEARLY, PLEASE PHONE US IMMEDIATELY.

MOSHAWENG LOCAL MUNICIPALITY

TEL NO: 053 7739300
FAX NO: 053 7739350

Private Bag X117
MOTHIBISTAD
8474

FAX COVER SHEET

Date : 16 MAY 2008 TO: Fax. no. 086 624 0306

PLEASE DELIVER THE FOLLOWING PAGE(S) TO :

Name : IRMÉ VAN ZYL

Company : VAN ZYL ENVIRONMENTAL CONSULTANTS

Name of sender : P. MADOBUSHE

Number of pages (Including cover sheet) : 7

REMARKS : FIND THE ATTACHED LETTERS & ATTENDANCE REGISTER.

SHOULD ANY OF THE PAGES BE ILLEGIBLE, PLEASE PHONE THE SENDER FOR RE-TRANSMISSION.

THANK YOU.

Appendix J

Budget for Rehabilitation

1.	Transport of Bulldozer size D4/D5 from Kimberley to Mothibistad @ R16.00/km for 210 km:	R 3 360.00
2.	Work in Borrow Pit 1 & access road - 9 hours @ R600.00/hour (all inclusive such as POL):	R 5 400.00
3.	Accomodation – 1 night @ R400/night	R 400.00
4.	Removal of structures of Construction Camp: 8 hours @ R 500/hour (all inclusive: travel costs, tools and local labour)	R 4 000.00
	Total:	**R 13 160.00**

The spoil and topsoil that will be stockpiled, can be utilised to fill and cover the area along existing contours after completion of the project with a medium sized Bulldozer.

The bulldozer will rip the road and topsoil will be put into place on top.

Borrow Pit 1, 2 and 3 are located next to each other, therefore calculations include transport of bulldozer to the site at Borrow Pit 1 and back to Kimberley in the calculations for Borrow Pit 3.

Appendix K

Figure 5: Proof of Ownership

Property Enquiry Details

Property enquiry results for "HM, 154, 0" in the Deeds Registry at "VRYBURG "

rty detail:

s registry	VRYBURG
rty type	FARM
name	MOTONTONYANE
number	154
n	0
nce	NORTH-WEST
tration division/Administrative district	HM
authority	NOT AVAILABLE
us description	KURUMAN RD,EX BP
m deed number	-
t	0.0000 UNKNOWN
de	T0HM00000000015400000

eeds detail:

nent	Registration date	Purchase date	Amount	Microfilm reference	Document copy?
979BP	19791129	-	NIL	-	Not available

s detail:

nent	Full name	Identity Number	Share	Person Enquiry?
979BP	PROVINCIAL GOVERNMENT OF THE NORTH WEST PROVINCE	-	-	Yes

sements / Encumbrances:

a found for this query!

:

a found for this query!