
ENVIRONMENTAL IMPACT ASSESSMENT (EIA): DRAFT SCOPING REPORT

PROPOSED EVAPORATION POND, KATHU

Applicant: Gamagara Municipality
MDA Ref No: 40647
Date: December 2013



Town & Regional Planners,
Environmental & Development
Consultants

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1. INTRODUCTION

1.1. BACKGROUND TO THE STUDY

The proposed development includes the construction of an evaporation pond to treat grey water from the septic tanks currently in use at Khai Appel Resort, which is located on Portion 16 of the Farm Sims 462, Kathu. The study area is situated approximately 4 km north west of Kathu in the Northern Cape Province, just off Road R380 (refer to Annexure A and C).

The site area is dominated by three dams / ponds and an adjoining small wetland area. A camping site / caravan park with an adjoining ablution facility are situated to the north east of the dams. A few single story structures and other minor infrastructural units are situated throughout the study area. Some minor outcrop of hardpan calcrete formations were observed in the general area. No other salient geological features were noted during the field investigation. The area is very flat with an average fall around 1:130 in a north-westerly direction across the study area.

The site area is almost devoid of vegetation part from isolated small trees and very short field grasses. None of the existing structure revealed any signs of major structural distress.

According to the 1:250 000 scale geological map, 2722 Kuruman, the site area is underlain by 'surface limestone' of Tertiary age.

The process of evaporation by ponds has been used for some time in wastewater treatment. The idea consists of depositing wastewater in a large open artificial ponds allowing water to evaporation through solar radiation and wind, leaving concentrated residual waste behind. The proposed evaporation pond would handle 14.6 tonnes of grey water (minimum solids as solids are removed by septic tank) per day.

1.2 TERMS OF REFERENCE

The objective of this study is to conduct a scoping exercise. The broad terms of reference for a scoping exercise are to:

- Scope for issues that would be associated with this planned project;

- Conduct an initial investigation into biophysical and socio-economic aspects, focusing on key issues;
- Identify potential impacts
- Advise the proponent about the potential impacts (positive and negative impacts) of their planned development, as well as the implications for the design, construction and operational phases of the project;
- Facilitate public input on environmental and social matters.

1.3 APPLICABLE LEGISLATION AND GUIDELINES

This process has been conducted in terms of the relevant legislative requirements, namely in terms of:

- National Environmental Management: Waste Act (Act 59 of 2008)
- National Environmental Management Act (Act No 107 of 1999)
- National Biodiversity Act (Act No 10 of 2004)
- National Heritage Resources Act (Act No 25 of 1999)
- National Water Act (Act No 36 of 1998)

The proposed evaporation pond triggers the following activities in terms of the National Environmental Management: Waste Act (Act 59 of 2008):

Government Notice No. 718 of July 2009

➤ Category B, Activity 1:

“The storage including the temporary storage of hazardous waste in lagoons.”

➤ Category B Activity 5:

“The treatment of hazardous waste using any form of treatment regardless of the size or capacity of such a facility to treat such waste.”

➤ Category B Activity 6:

“The treatment of hazardous waste in lagoons.”

According to the National Environmental Management: Waste Act (Act 59 of 2008), anyone who wishes to commence, undertake or conduct an activity listed in Category B, must conduct an environmental impact assessment

process, as stipulated in the environmental impact assessment regulations made under section 24(5) of the National Environmental Management Act (Act 107 of 1998) as part of a waste management licence application.

Application for Scoping and EIA has therefore been made to the Northern Cape Department of Environment and Nature Conservation (DENC).

2. ENVIRONMENTAL ASSESSMENT PRACTITIONERS**2.1 DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONERS (EAPS) WHO PREPARED THE REPORT**

A multi-disciplinary team of specialists contributed to the information presented in this document:

Co-ordination, supervision, management

Mr. Neil Devenish - MDA Consultants

Public Participation and Report Writing

Ms. Marike du Plessis - MDA Consultants

2.2 EXPERTISE OF THE EAPS TO CARRY OUT THE SCOPING PROCEDURES**a) Mr. Neil Devenish****Key qualifications:**

- Key competencies and experience include development control applications (applications and appeals pertaining to rezoning, consolidations, subdivisions etc.) township establishment applications, environmental management and control applications.

Education:

- B.A. (Sociology, Geography) University of the Free State, SA, 1994
- Master of Town and Regional Planning, University of the Free State, SA, 1996
- Managing the Environmental Impact Assessment Process, Environmental Management Unit, PU for CHE, 2000
- Environmental Management Consulting, South African Institute of Ecologists & Environmental Scientists, 2001
- Water Law of South Africa, The South African Institution of Civil Engineers (SAICE), 2006

b) **Ms. Marike du Plessis****Key qualifications:**

- Key competencies and experience include environmental management and research in geology.

Education:

- B.Sc. (Geology), University of the Free State, 2005
- B.Sc. Honours (Geology), University of the Free State, 2006

3. PROJECT INFORMATION**3.1 PARTICULARS OF APPLICANT****GAMAGARA LOCAL MUNICIPALITY**

P.O. Box 1001

KATHU

8446

Contact person: Municipal Manager, Mr. Clement Itumeleng
Technical Manager, Mr. Kagiso Ositang
Tel: 053 723 2261
Fax: 053 723 2021

3.2 DESCRIPTION OF CURRENT TREATMENT OF WASTE WATER

The current waste operations on site include a total of five septic tanks. The facility includes sewer pipes to the existing septic tanks. The resort is situated outside of Kathu and requires high maintenance to keep the septic tanks clean which is important as a failure to do so would implicate major environmental impacts. The Gamagara Local Municipality is responsible for cleaning the septic tanks every fortnight.

The Gamagara Municipality is in need of a functional sewerage system that will service the Khai Appel Resort as means of minimizing the need of bi-weekly maintenance (pumping of septic tanks). The proposed project (i.e. construction of an evaporation pond) will lessen the required maintenance by the Gamagara Local Municipality.

3.3 DESCRIPTION OF THE PROPOSED PROJECT

The preferred location for the construction of the evaporation pond is south of the Khai Appel Resort. The septic tanks overflowing by a pipeline (with a thickness of 160 mm) into the proposed evaporation pond (grey water dam) will also be constructed as part of the project. The new facility will have a design capacity of 14.6m³/day with a maximum depth of 1 m (400 mm below NGL and 600 mm above NGL). The evaporation pond will have a DPI PVC lining of 250 micron thickness. Additional infrastructure will include fencing.

During construction phase the site will be fenced, warning signs posted and have access control. During operational phase the site will remain fenced to discourage entry and warning signs posted to prevent children and others from using it for other than its intended purpose.

Refer to **Annexure B** for the preliminary site development plan for the proposed works.

3.4 DESCRIPTION OF FEASIBLE AND REASONABLE ALTERNATIVES

One of the objectives of an EIA is to investigate alternatives to the proposed project. There are two types of alternatives namely Fundamental Alternatives and Incremental Alternatives and then the no-go option for the development / activity.

The main determining factors for selecting the proposed location were:

- The location of the existing septic tanks;
- Flow direction in order to gravity feed sewage from the tanks to the evaporation pond, thereby minimising the need for pump stations.

Site alternatives were not investigated as the proposed activity includes the construction of an evaporation pond that will link the existing septic tanks for the treatment of grey water from Khai Appel Resort. The alternative locations are dictated by the necessity to gravity feed waste water down towards the evaporation pond, thereby avoiding pump stations as far as possible. Alternative locations will, therefore not be assessed.

Alternative options for the treatment of grey water are presented below. These alternatives are to be considered in the EIA process and are as follows:

- Preferred Alternative 1: Construction of an evaporation pond and pipeline
- Alternative 2: Construction of pump line
- Alternative 3: Construction of a package plant

3.4.1 Preferred alternative 1: Evaporation Pond

Evaporation ponds remove the water from the hazardous waste, which greatly reduces its weight and volume and allows the waste to be more easily transported, treated and stored. It is effective for removing hazardous materials from solutions.

Evaporation ponds (also called lagoons) are low in operational and maintenance cost. Financial, technical and maintenance capacity required during the operational phase of evaporation ponds is low. The proposed lagoon has the ability to handle shock loads and is well suited to small communities like the Khai Appel Resort. The natural and energy-efficient processes providing low-cost wastewater treatment is thus the preferred alternative.

3.4.2 Alternative 2: Construction of pump line

An alternative that was considered was to construct a pump line to the neighbouring Seseng Township. The waste water works at the Seseng Township is approximately 2 km away and would be implicating high costs and extensive work for the volume of waste to be treated daily. Thus this alternative would not be considered a viable option.

3.4.3 Alternative 3: Package plant

A package plant was also considered as an alternative as it can be used to serve small populations and use less space than the large treatment structures. A package plant consists of prefabricated steel tanks, motor and blower unit. The blower unit and motor aerates the system with pure oxygen. Air is introduced into the aeration tank

through pipes and an air check valve is usually present to prevent backflow of air.

As can be derived above, a large amount of mechanical and non-mechanical workings is needed for this alternative, which would implicate high cost and maintenance. Thus this alternative would not be considered a viable option.

3.4.3 No-Go Development

The no-go option means keeping the status quo, i.e. not constructing the evaporation pond. The existing septic tanks require consistent and high maintenance for the Khai Appel Resort that is situated approximately 4 km outside of the town of Kathu. This option is thus not recommended. The no-go option means the potential threat of an environmental disaster in the surrounding area.

Since the resort already have functioning septic tanks and the construction of an evaporation pond will receive grey water from this system, any fundamental alternative of a development other than to construct the evaporation pond is therefore not desirable in this case and will not be considered further in the EIA.

3.5 WASTE HIERARCHY IMPLEMENTATION PLAN

The objectives of the Waste Act are structured around the steps in the waste management hierarchy. Find plan in Annexure E.

3.6 EMERGENCY PREPAREDNESS PLAN

Emergency preparedness and spill response planning are important in avoiding accidents with chemicals / substances which may be hazardous to the environment or humans, and to minimise the environmental impacts in the unfortunate event that an accident occurs. Find plan in Annexure F.

4. ENVIRONMENTAL ASPECTS

4.1 LITERATURE REVIEW

Literature pertinent to this area and its immediate environs has been reviewed. The literature included published and unpublished reports: Branch,

1998, Bredenkamp, *et al.* 1996, Brooke 1984, Bulpin 1980, Golding, 2002, Harrison *et al.* 1997, Henderson 2001, Hilton-Taylor 1996, Low & Rebelo 1996, Mucina & Rutherford 2006 and Smithers 1986.

4.2 INFORMATION ON THE METHODOLOGY OF SCOPING

This report addresses the biophysical as well as the socio-economic environments. The information was / will be captured in the following manner:

- A site visit was conducted on 14 November 2013 to determine the setting, visual character and land-uses in the area;
- The project plans were superimposed onto the gathered baseline environmental information to identify possible impacts;
- Discussions were held with the client to identify specific aspects of the development which could affect the environment;
- Interested and Affected Parties (I & APs) was informed and consulted by phone, letters, notice boards and advertisements to capture issues that could affect the environment;
- Identification of positive as well as negative issues;
- Making recommendations and presenting guidelines for the mitigation of impacts identified during this exercise.

4.3 DESCRIPTION OF THE ENVIRONMENT

4.3.1 Biophysical Environment

The area is very flat with an average fall around 1:130 in a north-westerly direction across the area. The site is almost devoid of vegetation apart from isolated small trees and very short field grasses.

4.3.1.1 Climate

Wind:

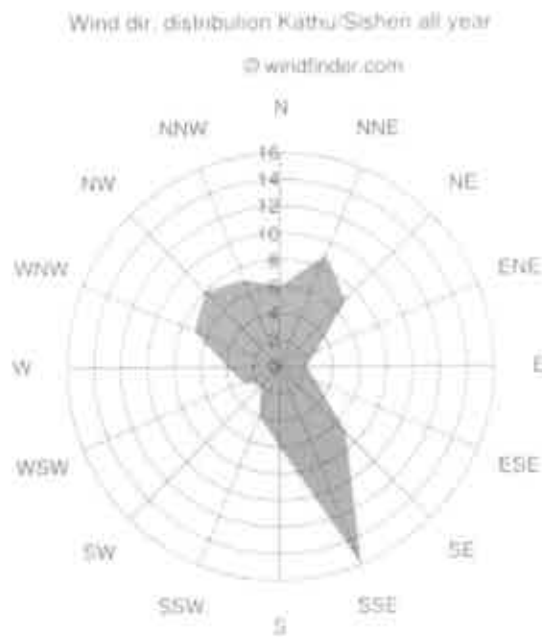


Fig. 1. Year average wind rose for Kathu (windfinder.com)

Rain:

The area normally receives about 240 mm of rain per year, with most rainfall occurring mainly during summer. Generally, it receives the lowest rainfall (0mm) in June and the highest (55 mm) in February.

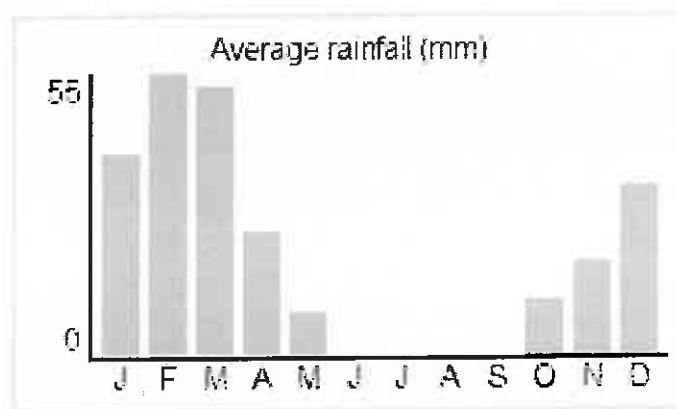


Fig. 2. Average rainfall (mm) per month for Kathu, Northern Cape.

Temperatures:

The average day temperatures for Kathu range from 18°C in June to 33°C in January.

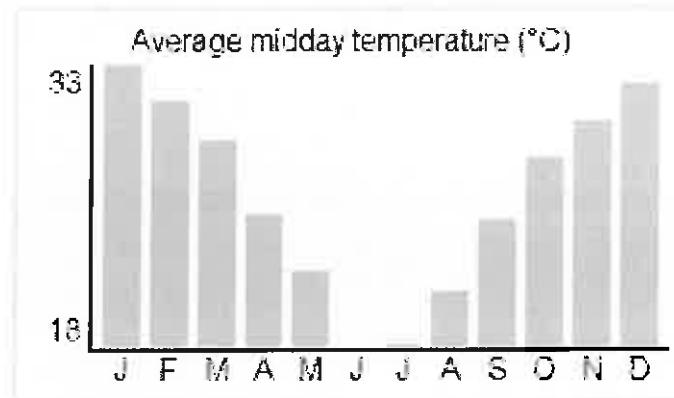


Fig. 3. Average midday temperatures (°C) per month for Kathu, Northern Cape

4.3.1.2 Geology of area

Some minor outcrop of hardpan calcrete formations were observed in the general area. No other salient geological features were noted during the field investigation. The area is very flat with an average fall around 1:130 in a north-westerly direction across the study area.

The site area is almost devoid of vegetation part from isolated small trees and very short field grasses. None of the existing structure revealed any signs of major structural distress.

According to the 1:250 000 scale geological map, 2722 Kuruman, the site area is underlain by 'surface limestone' of Tertiary age.

A Geohydrological investigation has been undertaken and will be included in the EIA Report.

4.3.1.3 Terrain forms & habitats

Table 1: Terrain form and habitats area to be developed

Terrain form		Habitat types	
Hill top		Grassland	
Hill side		Karoo	
Flat	X	Natural forest	
Valley		Plantations	
River bank		Ploughed or fallow fields	
Wetland		Riparian	
Foot slope		Savanna	
		Shrub	
		Wetland	
		Other * see description below	X

* Shrub type in area but it is not pristine. It is highly disturbed area due to mining activities in close proximity.

4.3.1.4 Soils of area

The site is not underlain by any near-surface; highly expansive soils to a depth of at least 2.5 m below current ground level. All the in-situ soils are relatively to very coarse-grained and hence will form a highly permeable material, even if compacted in thin layers.

4.3.1.5 Vegetation of area

As mentioned previously in the report, the site area is almost devoid of vegetation apart from isolated small trees and very short field grasses. A floristic and ecological assessment of the site will be undertaken and included in the EIA Report.

4.3.1.6 Animals (moths, butterflies, reptiles, fish, birds & mammals) of the area

A floristic and ecological assessment of the site will be undertaken and included in the EIA Report.

4.3.1.7 Aquatic systems

The Khai Appel Resort freshwater dam is approximately 100 m from the proposed site of the evaporation pond.

4.3.2 Socio-economic Environment

The nearby town of Kathu came into being because of Iscor's iron ore mining activity in the Kalahari. Municipal status was allocated to the town during July 1979. One of the main attractions for visitors is the Sishen Mine, which is one of the largest open ore mines in the world.

Kathu is situated in the Kathu-bush, which mainly consists of camel thorn trees. The gathering of camel thorn pods used as livestock fodder makes a useful income for many who are jobless. Kathu has a population of 11 510 and covers a total area of 15.56 km².

4.3.2.1 Surrounding land uses

The proposed site area falls in the Khai-Appel Recreation Resort. The resort is situated approximately 5 km north west from the town of Kathu. Adjacent land use to the south west is the mining activities of Sishen Iron Ore.

4.3.2.2 Historical, archaeological or cultural sites

An archaeological and heritage specialist will be appointed to assess the site and determine whether any significant material or graves are present at or near the site. The assessment will be included in the EIA Report.

4.4 DESCRIPTION OF POSSIBLE ENVIRONMENTAL IMPACTS, ISSUES AND CUMULATIVE IMPACTS

Developments such as these do have, like many other types of developments, various direct but also indirect impacts on the environment. These impacts have to be managed in order to have the minimum environmental impact and the maximum benefit to man. Issues identified during the Scoping process are listed below.

4.4.1 Potential impacts during construction:

4.4.1.1 Vegetation clearing

Vegetation would have to be completely removed for the evaporation pond.

4.4.1.2 Noise

A relatively low noise level is expected during the construction phase.

4.4.1.3 Building and storage facilities

The mixing, storage and usage of cement / concrete will be investigated in the EIA Report.

4.4.1.4 Dust

The clearing of vegetation and building might induce dust.

4.4.2 Potential impacts during operation

4.4.2.1 Storm water

As the capacity of the dam may be influenced by flood rain, general holding capacity will be investigated and assessed in the EIA.

4.4.2.2 Odours

Evaporation ponds, if properly designed, operated and maintained, normally have no undesirable odour, whilst providing effective treatment with minimal threat to the environment.

4.4.2.3 Visual Impact

The visual impact of the proposed development in the landscape is the function of several factors of which the viewing distance; visual absorption capacity and landform are measurable. Other factors are difficult to categorize because they are subjective viewpoints.

The visual impact for the proposed development is largely due to:

- The extent of the evaporation pond;
- Distance from roads;
- The low visual absorption capacity of the surrounding landscape.

The critical viewpoints for this development would be road R380, with which to access Khai Appel Resort.

4.4.2.4 Seepage

Seepage of grey water through the pond wall will have a detrimental effect on the environment (including but not limited to, ground water, surface water, soil and vegetation).

A geohydrological assessment will be undertaken and the findings thereof will be discussed in the EIA Report. Should it be found that the possibility of groundwater contamination is high; the upgrade will be designed and implemented so as not to pollute the geohydrological environment.

4.5 SPECIALIST STUDIES AND SPECIALIZED PROCESSES

The necessary specialised studies and specialised processes will be performed according to Section 24 of the NEMA Regulations No. R. 385 published in the Government Notice No. 28753 of 21 April 2006 of NEMA. Specialised studies relevant to the project include:

4.5.1 Ecological Assessment

An ecological study to assess the area for protected and endangered plant and animal species.

Mr. D van Rensburg

EKO Environmental

Private Bag X01

Brandhof

9324

Tel: 051 444 4700

Fax: 086 697 6132

Area of expertise: Environmental Consultant, Botany and Ecology Specialist

4.5.2 Geohydrological Assessment

A Geohydrological study investigates the geological characteristics and the ground water conditions of the proposed site.

Mr. C Vermaak

Tucana Solutions

P.O. Box 17516

Bainsvlei

9338

Tel: 051 451 1214

Fax: 051 451 1114

Area of expertise: Geohydrology

4.5.3 Archaeological Assessment

An Archaeological Study to investigate the archaeological, historical and cultural significance of the site. The study will be undertaken by:

Mr. L Rossouw

National Museum

P.O. Box 266

Bloemfontein

9300

Tel: 057 447 9609

Fax: 051 447 6273

Cell: 084 250 5992

Area of expertise: Archaeology, Heritage & Palaeontological Specialist

5. PUBLIC PARTICIPATION

5.1 INTRODUCTION AND OBJECTIVES

As an important component of the EIA process, the public participation process, involves public inputs from Interested and Affected Parties (I & APs) according to Section 28(A) and 56 of the NEMA Regulations. I & APs may comment during the EIA of the proposed project.

The key objectives of the public participation process are to:

- Identify a broad range of I & APs, and inform them about the proposed project.
- Understand and clearly document all issues, underlying concerns and suggestions raised by the I & APs, and
- Identify areas that require further specialist investigation

5.2 METHODOLOGY

The following actions have already been undertaken as part of this process:

- Advertisements in the local newspapers
- On-site notices
- Written notices to Municipalities, relevant Ward councillor and surrounding landowners.

5.2.1 Identification of key I & AP's

Key I & AP's, are the following types of organizations:

- Surrounding landowners
- Environmental organizations
- Authorities
- GOs
- NGOs
- Business and civic organizations

See **Annexure D1** for a list of I & AP's.

5.2.2 Notification of potential I & AP's of EIA:

i) Newspaper advertisements: (Annexure D2)

<i>Die Volksblad</i>	22 November 2013
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ii) **On site notices:** Two site notices were placed at easily noticeable places on site on 15 November 2013. The notice allows 40 days for public response (**Annexure D3**).

iii) **Written notices:** Written notices were sent to the following relevant parties:

- Ward Councillor (Ms. PT Selonyane),
- John Taolo Gaetsewe District Municipality and,
- The adjacent land owner (Sishen Iron Ore Company).

The notices allow 40 days for response (**Annexure D4**).

5.2.3 Public comments

No comments have to date been received from the general public. The draft Scoping Report is currently being circulated for comment to interested and affected parties, a list of which is included in **Annexure D5**.

5.3 SUMMARY OF KEY ISSUES RAISED BY THE I & AP's (ANNEXURE D5)

None to date.

6. PLAN OF STUDY (Proposed approach to EIA)

6.1 DESCRIPTION OF TASKS AS PART OF EIA

6.1.1 Proceeding with public participation

After the acceptance of the Scoping Report by the Northern Cape Department of Environment & Nature Conservation, the public participation process for EIA can proceed according to Section 56 of the Regulations. See Section 6.5 for the steps to be taken as part of this process.

6.1.2 Steps in accordance with the Plan of Study for EIA

All activities and processes will be undertaken in accordance with the submitted Plan of Study for EIA for the relevant project. This process is subject to acceptance of the Scoping Report by the DEA.

6.1.3 Register Interested & Affected Parties (I & APs)

6.1.3.1 List of I & APs

All departments and organisations having jurisdiction in respect of any aspect of the proposed development will be included in the list of I & APs. Also all persons giving written comments (positive or negative) or persons directly influenced by the proposed development will also be registered.

The initial list of I & APs is as follows:

- i. DENC
- ii. Department of Water Affairs
- iii. Ms. PT Selonyane, Ward Councillor of Gamagara Local Municipality
- iv. Public registered (none at present)

6.1.3.2 Issues raised by I & APs

A summary of all issues raised by the I & APs, as well as the responses from the Environmental Assessment Practitioner (EAP) or relevant specialists will be included in the EIA report.

6.1.4 Development alternatives

All possible activity alternatives as listed in the Scoping Report will be described and discussed in the EIA Report. The no-go alternative will also be assessed. Also to be listed in this section will be the advantages and disadvantages of the proposed activity and the alternatives, for the environment and the community.

6.1.5 Assessment of identified potentially significant impacts:

6.1.5.1 Potential Impacts

The identified potential impacts listed in the Scoping Report will be discussed in terms of its:

- Cumulative impact

- Nature of the impact
- Extent and duration of the impact
- The probability of the impact occurring
- Degree to which the impact can be mitigated
- Degree to which the impact can cause irreplaceable loss of recourses

6.1.5.2 Summary of findings

A summary of all the significant findings in the previous section will be drawn up. Overall, this will include the following:

- Summary of the key findings of the EIA;
- An indication of the extent to which the issues could be addressed by the adoption of listed mitigation measures;
- Recommendations from the environmental practitioner and specialists;
- Any specialist reports or reports on specialized processes;
- Description of any assumptions, uncertainties and gapes in knowledge;
- Option to whether the activity should be authorized and any conditions that should be made in respect of the authorization.

6.2 SPECIALIST REPORTS AND SPECIALIZED PROCESSES

The required process regarding specialist reports and specialized processes for the relevant development is as follows:

- i. Specialists will be appointed either by the EAP or the developer;
- ii. The reports and processes will be performed and obtained from the relevant specialists as mentioned in section 4.5 of the Scoping Report;
- iii. Obtained reports and processes will be incorporated in the EIA Report;
- iv. Project plans will be reviewed according to recommendations of specialists to ensure minimum environmental impact;
- v. The relevant specialist input include the following:
 - Archaeological Assessment

- Ecological Assessment
- Geohydrological Assessment

6.3 STAGES OF AUTHORITY CONSULTATION

The Northern Cape Department of Environment & Nature Conservation will be consulted at stages when guidance is required in terms of clarification of listed activities, as well as correct processes to follow in the case of unusual projects or requests.

6.4 METHODOLOGY OF ASSESSING ENVIRONMENTAL ISSUES AND ALTERNATIVES

The EIA report will address the biophysical, as well as the socio-economic environments for all alternative site locations and activities. The information will be captured in the following manner:

- i. Site visits to determine the setting, visual character and land-uses in the area;
- ii. Site surveys to address the identified impacts of the development on any plant and animal populations;
- iii. The project plans will be superimposed onto the gathered baseline environmental information of identified impacts;
- iv. The project plans will be revised according to the identified environmental sensitive areas to ensure the least environmental impact possible;
- v. Detailed discussions will be held with the client to address specific aspects of the development which could affect environment;
- vi. I&APs will be consulted by phone, letters and meetings to capture additional issues of importance at this stage;
- vii. Making recommendations and presenting guidelines for the mitigation of impacts addressed during this exercise;
- viii. The option of not proceeding with the development will be considered and evaluated.

6.5 PARTICULARS OF PUBLIC PARTICIPATION PROCESS AS PART OF EIA

The public participation process will be continued as part of the EIA and the necessary steps will be included, which can be the following:

- i. Registering I & APs, according to Section 57 of the Regulations;
- ii. Respond to any concerns or complaints from I & APs;

- iii. Public meetings if deemed necessary;
- iv. A draft EIA report will be compiled and will be made available for review by the I & APs for a period of 40 days;
- v. Notify I & APs of the outcome of the application in writing within a period determined by the Northern Cape Department of Environment & Nature Conservation.
- vi. Advertise the Environmental Authorisation / Refusal in a local newspaper or official Gazette and in a provincial newspaper if required by the relevant authority.

6.6 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

Additional relevant information will be provided on request of the competent Authority.

6.7 CONSIDERATION OF SCOPING REPORTS

Steps to be taken by the competent authority after submission of the Scoping for EIA:

- i. Consider the Scoping Report within 30 days of receipt;
- ii. Accept the Scoping Report and the Plan of Study for EIA;
- iii. Advise EAP to proceed with tasks contemplated in the Plan of Study for EIA;
- iv. Request EAP to amend the Scoping Report or Plan of Study for EIA;
- v. Reject the Scoping Report or EIA if it:
 - does not contain material / information required;
 - has not taken into account the relevant guidelines.

7. CONCLUSION

The proposed development includes the extension of the Khai Appel Resort septic tank system to include an evaporation pond and associated pipeline to treat the grey water (after solids have been removed by the septic tanks).

The existing septic tanks service the resort, where waste is generated from two ablution blocks and 13 x 1 bedroom chalets (grey water only). Implementing the proposed evaporation pond would minimise the high maintenance need of cleaning the five septic tanks every two weeks. Overflow of the tanks would not create

environmental impacts but instead flow to the evaporation pond where the water will evaporate and leave minimal waste behind.

Alternatives include:

- Preferred Alternative 1: Construction of an evaporation pond and associated pipeline
- Alternative 2: Construction of pump line
- Alternative 3: Package plant

The following potential issues will be addressed and mitigated by means of specialist assessment, which will be included in the EIA Report:

- Vegetation clearing
- Noise
- Building and storage facilities
- Storm water
- Odours
- Visual impact
- Seepage

If the specialist studies identify any other potential impact, it will be discussed (with mitigation measures) in the EIA Report.

Specialist studies to be undertaken include:

- Archaeological Assessment
- Ecological Assessment
- Geohydrological Assessment

The Plan of Study for EIA clearly stipulates the steps to be taken and the information to be included in the EIA Report, which will be submitted after approval of the Scoping Report.

8. LITERATURE

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ANNEXURE F: EMERGENCY PREPAREDNESS PLAN

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ANNEXURE A

Locality Map



Legend:
 Proposed construction area

TYPE OF PLAN:

SITE PLAN

Town & Regional Planners,
 Environmental &
 Development Consultants



PROJECT:
 Proposed construction of evaporation pond on portion 16 of the Farm Sims 462, Kathu

PROJECT BY:
 Marrike du Plessis

Garnagara Local Municipality

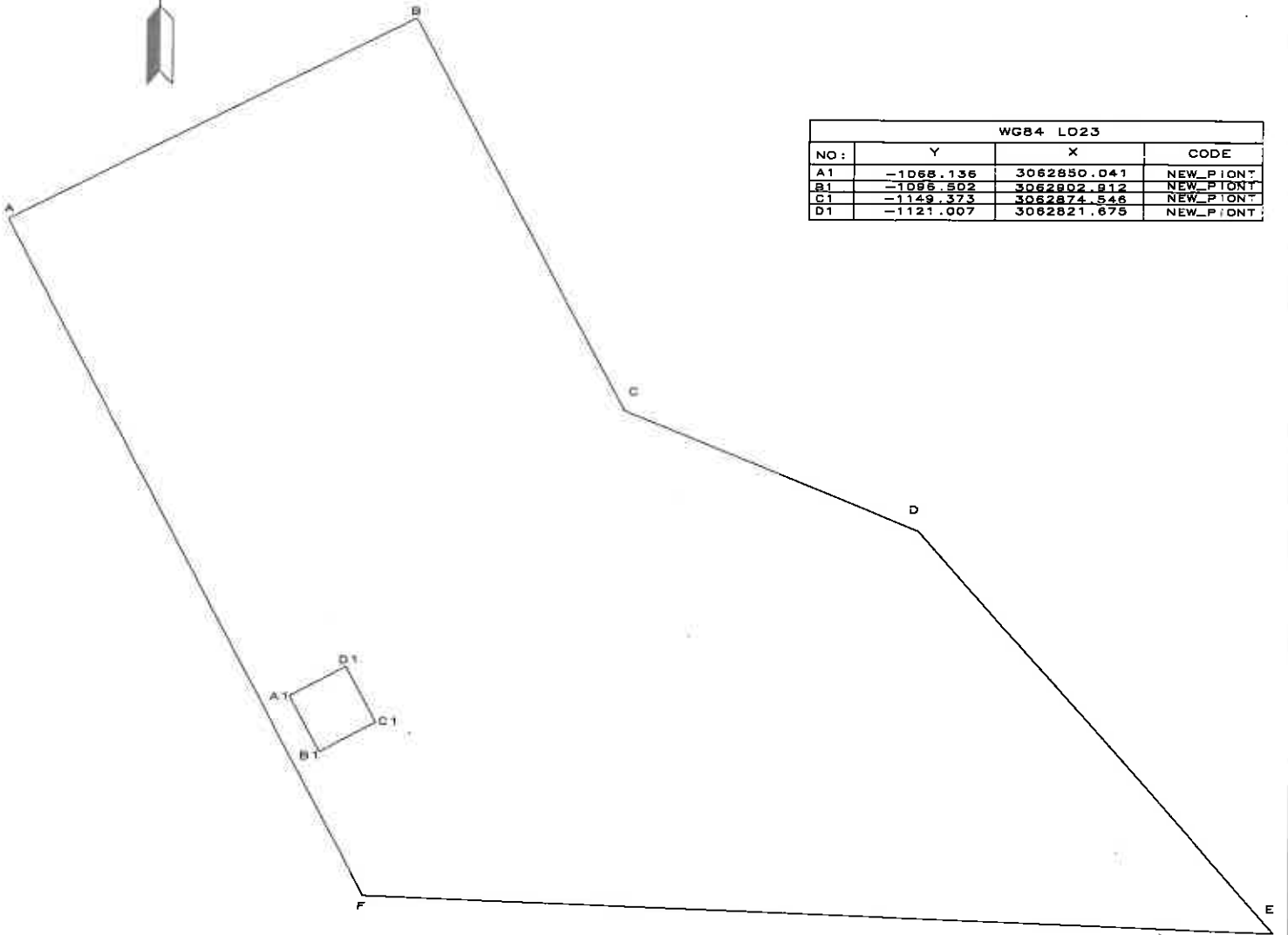
SCALE:
 220 m

REF. NO:
 40647

Locality Plan

ANNEXURE B

Site Development Plan



WGS84 LO23			
NO:	Y	X	CODE
A1	-1068.136	3062850.041	NEW_POINT
B1	-1098.802	3062802.812	NEW_POINT
C1	-1149.373	3062874.548	NEW_POINT
D1	-1121.007	3062821.675	NEW_POINT

DRAWN BY
Trail Surveys NC
Leon Nortje

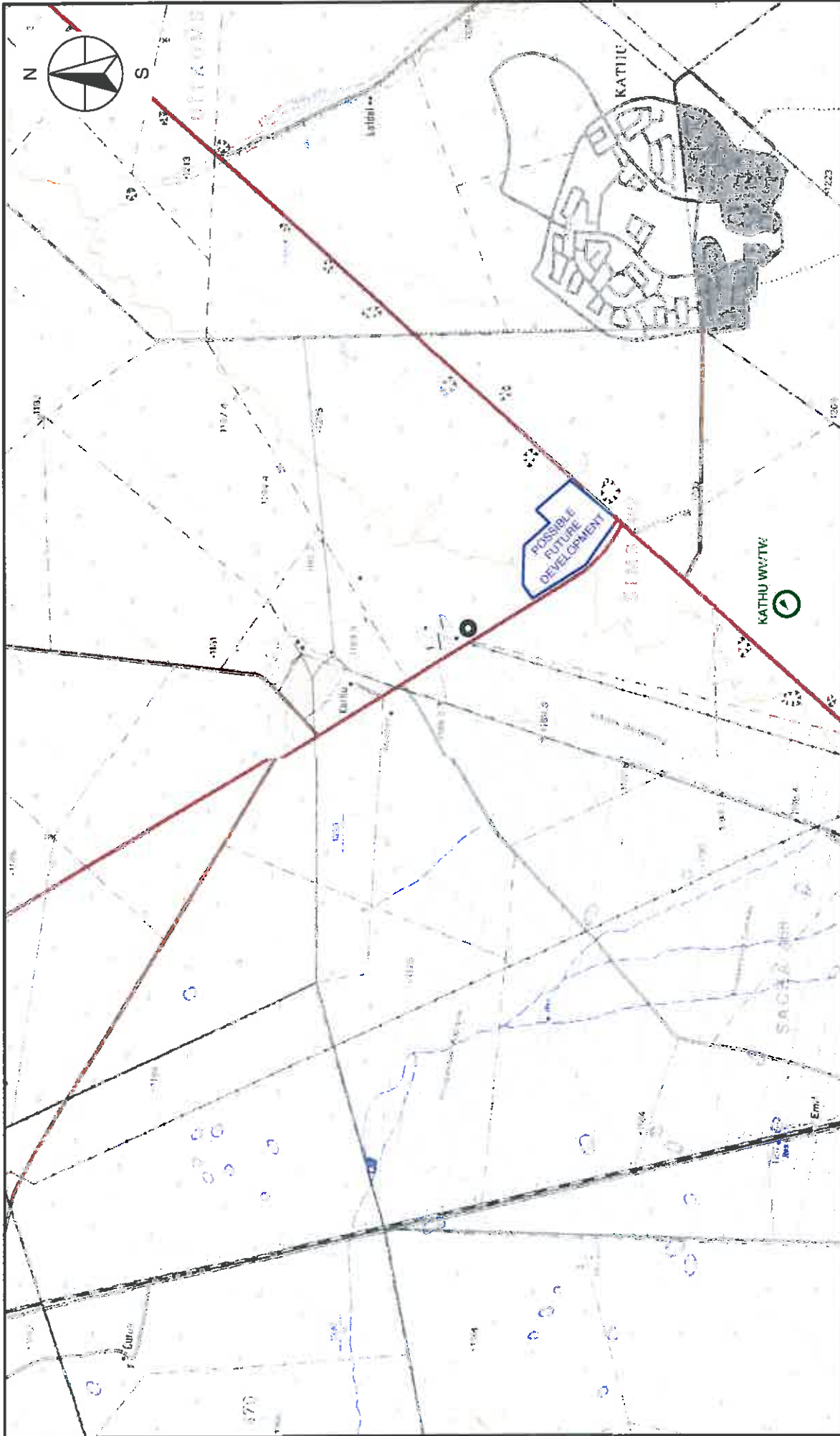
FOR
AURECON

PROJECT
Kai Appel
SCALE 1/6000
DATE : 13/9/2013

NOTES
DATUM: WGS84
LO23

ANNEXURE C

1:50 000 Topo-Cadastral Map



TYPE OF PLAN:

1: 50 000 TOPOGRAPHIC MAP

APPLICATION AREA

<p>mda Town & Regional Planners, Environmental & Development Consultants 9 Baines Street Waldens Johannesburg E-mail: admin@mda.co.za</p>	<p>PROJECT: PROPOSED CONSTRUCTION OF EVAPORATION POND ON PORTION 16 OF THE FARM SIMS No. 462, KATHU, NORTHERN CAPE</p>	<p>SCALE: 1 : 72</p>	<p>DATE: 03/12/2013</p>
<p>PO Box 20298 Waldens 7530 Tel: +27 (0) 11 46 9839 Fax: +27 (0) 11 46 9839</p>	<p>PROJECT BY: GAMAGARA LOCAL MUNICIPALITY</p>	<p>DRAWN BY: C.J.</p>	<p>DRG No.: 40647 MD50</p>

ANNEXURE D

Public Participation

ANNEXURE D1

List of Interested and Affected Parties (I&AP's)

List of Interested and Affected Parties identified:

1. Northern Cape Department of Environment and Nature Conservation
Private Bag X6102
KIMBERLEY
8300

Tel: 053 807 7430
Fax: 053 807 7367

2. Department of Water Affairs
P.O. Box 6101
KIMBERLEY
8300

Tel: 053 830 8800
Fax: 053 831 4534

3. Ward Councillor, Ms PT Selonyane
Gamagara Local Municipality
P.O. Box 1001
KATHU
8446

Tel: 053 723 2261
Fax: 053 723 2021

4. John Taolo Gaetsewe District Municipality
P.O. Box 1480
KURUMAN
8460

Tel:
Fax: 053 712 2502

5. Adjacent land owner, Sishen Iron Ore Company
P.O. Box 9679
CENTURION
0046

Tel: 012 683 7000
Fax: 086 295 0746

6. The South African Heritage Resources Agency
P.O. Box 4637
CAPE TOWN
8000

Tel: 021 462 4502
Fax: 021 462 4509

7. Ngwao Boswa Kapa BOkoni (Heritage Northern Cape)
1 Roper Street
KIMBERLEY
8300

Tel: 053 831 2537
Email: ratha.timothy@gmail.com

To date, no registrations as Interested and Affected Party was received.

ANNEXURE D2

Newspaper Advertisement

4 Geklassifiseerd

ONS
OMGEWINGSIMPAKSTUDIE

120

**ENVIRONMENTAL IMPACT
ASSESSMENT SCOPING
PUBLIC PARTICIPATION
PROCESS**

Notice is given in terms of Regulations 54(2)(c) of the Environmental Impact Assessment Regulations of 2010 No. R. 543 published in the Government Notice No 33206 of 19 June 2010 of the National Environmental Management Act (Act No. 107 of 1998) that an application for environmental authorisation has been submitted to the Free State Department of Economic Development, Tourism and Environmental Affairs for the following:

Project: Proposed construction of an evaporation pond on portion 15 of the Farm Sims 462, Kathu.

Locality: The property is situated approximately 4 km north-west of Kathu in the Northern Cape Province, next to Road R350 (just to the south of Khai Appel Resort).

Project by: Gamagara Local Municipality

If you have any information or comments regarding the environmental impact of the proposed development or need additional information regarding the proposed development, please submit your name, contact information and interest to the following consultants before 20 January 2014

MDA, PO Box 20298, Wilkoms, Bloemfontein 9520 Tel: 051 447 1583 Fax: 051 448 9539
E-mail

marke@midagroup.co.za
Contact person: Marika du Plessis

ANNEXURE D3

On-site Notices

ENVIRONMENTAL IMPACT ASSESSMENT SCOPING PUBLIC PARTICIPATION PROCESS

14 November 2013

Notice is given in terms of Regulation 54(2)(a) of the Environmental Impact Assessment Regulations of 2010 No. R. 543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environmental Management Act (Act No. 107 of 1998) that an application for environmental authorization has been submitted to the Free State Department of Economic Development, Tourism and Environmental Affairs for the following:

Project: Proposed construction of evaporation pond on portion 16 of the Farm Sims 462, Kathu.

Locality: The property is situated approximately 4 km north west of Kathu in the Northern Cape Province, just off Road R380 on the Khai Appel Resort grounds.

Project by: Gamagara Local Municipality

If you have any information or comments regarding the environmental impact of the proposed development or need additional information regarding the proposed development, please submit your name, contact information and interest to the following consultants **within 40 days** of this notice.



PO Box 20298,
Willows, Bloemfontein
9320

Tel: 051 447 1583 Fax: 051 448 9839
e-mail: marike@mdagroup.co.za
Contact person: Marike du Plessis

Photos of site notices placed in two different positions on site in visible areas on 14 November 2013.





**ENVIRONMENTAL IMPACT ASSESSMENT
SCOPING
PUBLIC PARTICIPATION PROCESS**

14 November 2013

Notice is given in terms of Regulation 54(2)(d) of the Environmental Impact Assessment Regulations of 2010 (No. R. 543) published in the Government Gazette No. 33206 of 13 July 2010 of the National Environmental Management Act (Act No. 107 of 2002) that an application for environmental authorisation has been submitted to the Free State Department of Economic Development, Tourism and Environmental Affairs for the following:

- Project:** Proposed construction of access/egress point on portion 16 of the Farms 5164, 512, 512, 512.
- Location:** This property is situated approximately 4 km north west of KATHU in the Xhoseni Game Province, just off Route R300 on the Peka Appeal Rabbit grounds.
- Applicant:** Gamaqena Local Municipality

If you have any information or comments regarding the environmental impact of the proposed development or have additional information regarding the proposed development, please submit your name, contact information and interest to the following email address within 10 days of this notice:

 **imda**
 P.O. Box 82224
 KATHU, 5300
 Tel: 053 447 1722 Fax: 053 444 5439
 Email: publicparticipation@imda.org
 Contact person: Masha de Pinahe

ANNEXURE D4

Written notices

ENVIRONMENTAL IMPACT ASSESSMENT SCOPING PUBLIC PARTICIPATION PROCESS

Notice is given in terms of Regulation 54(2)(b) of the Environmental Impact Assessment Regulations of 2010 No. R. 543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environmental Management Act (Act No. 107 of 1998) that an application for environmental authorization has been submitted to the Free State Department of Economic Development, Tourism and Environmental Affairs for the following:

Project: Proposed construction of evaporation pond on portion 16 of the Farm Sims 462, Kathu.

Locality: The property is situated approximately 4 km north west of Kathu in the Northern Cape Province, next to Road R380 (just to the south of Khai Appel Resort).

Project by: Gamagara Local Municipality

If you have any information or comments regarding the environmental impact of the proposed development or need additional information regarding the proposed development, please submit your name, contact information and interest to the following consultants **before 25 January 2014**.



PO Box 20298,
Willows, Bloemfontein
9320

Tel: 051 447 1583 Fax: 051 448 9839
e-mail: marike@mdagroup.co.za
Contact person: Marike du Plessis

Fax Number :
Name :

Name/Number : 0862950746
Page : 3
Start Time : 28-NOV-2013 12:23 THU
Elapsed Time : 02' 58"
Mode : STD G3
Results : [O.K]



Town & Regional Planners,
Environmental &
Development Consultants

P O Box 20298
Willows 9320
Tel: +27 (51) 447 1583
Fax: +27 (51) 448 9839
e-mail: admin@mdaogwp.co.za
9 Barnes Street, Westdene
BLOEMFONTEIN

Makecha Development Associates trading as MDA, CC 1995/030752/23, Member: SAPI, SACTRP

Our ref: 40647
Your ref:
Contact person: Marike du Plessis
28 November 2013

SISHEN IRON ORE COMPANY
P.O. BOX 9679
CENTURION
0046

Fax: 012 683 7000 / 086 2950 746

ATTENTION: THE GENERAL MANAGER

PROPOSED CONSTRUCTION OF EVAPORATION POND ON PORTION 16 OF THE FARM SIMS 462, KATHU

The Remainder of the Farm Sims 462 has been identified as an adjacent landowner within 100 m of the proposed development site. As Sishen Iron Ore Company is the owner of this land, please find the following:

1. Please find attached a notice of intent to submit an application for environmental authorization. If you have any comments regarding mentioned project register as an interested and affected party at MDA before 27 January 2014.
2. Also find attached locality map of area of proposed development.

If you require any additional information, please do not hesitate to contact us.

Kind regards
MDA

NEIL DEVENISH Pr. Pln A/1133/1999
Manager: Town Planning/Environmental

Managing Members:
H.F. Prinsloo, Pr. Pln (A/765/1994), B.Sc., M.TRP. (UFS)
N. Devenish, Pr. Pln (A/1133/1999), B.A., M.TRP. (UFS)

Assisted by:
A.C. Rohrbach, Pr. Pln (A/153/2000), B.Soc.Sc., M.TRP (UFS)
M.H. du Plessis, B.Sc. Geology, B.Sc. Hons. Geology (UFS)
H. Groenewald, B.Sc. Zoology, B.Sc. Hons. Zoology, M.Sc. Zoology (UFS)



Town & Regional Planners,
Environmental &
Development Consultants

P O Box 20298
Willows 9320
Tel: +27 (51) 447 1583
Fax: +27 (51) 448 9839
e-mail: admin@mdagroup.co.za
9 Barnes Street, Westdene
BLOEMFONTEIN

Makecha Development Associates trading as MDA, CC 1995/030752/23, Member: SAPI, SACTRP

Our ref: 40647
Your ref:
Contact person: Marike du Plessis
28 November 2013

**SISHEN IRON ORE COMPANY
P.O. BOX 9679
CENTURION
0046**

Fax: 012 683 7000 / 086 2950 746

ATTENTION: THE GENERAL MANAGER

**PROPOSED CONSTRUCTION OF EVAPORATION POND ON PORTION 16 OF THE FARM SIMS
462, KATHU**

The Remainder of the Farm Sims 462 has been identified as an adjacent landowner within 100 m of the proposed development site. As Sishen Iron Ore Company is the owner of this land, please find the following:

1. Please find attached a notice of intent to submit an application for environmental authorization. If you have any comments regarding mentioned project register as an interested and affected party at MDA before 27 January 2014.
2. Also find attached locality map of area of proposed development.

If you require any additional information, please do not hesitate to contact us.

Kind regards
MDA


NEIL DEVENISH Pr. Pln A/1133/1999
Manager: Town Planning/Environmental

Managing Members:

H.F. Prinsloo, Pr. Pln (A/765/1994), B.Sc., M.TR.P. (UFS)
N. Devenish, Pr. Pln (A/1133/1999), B.A., M.TR.P. (UFS)

Assisted by:

A.C. Rohrbeck, Pr. Pln (A/153/2009), B.Soc.Sc., M.TR.P (UFS)
M.H. du Plessis, B.Sc. Geology, B.Sc. Hons. Geology (UFS)
H. Groenewald, B.Sc. Zoology, B.Sc. Hons. Zoology, M.Sc. Zoology (UFS)

Fax Send Report

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Managing Members: H.F. Pheko, Pr. Pm (A/765/1994), B.Sc., M.TRP (URS) M. Dzevanli, Pr. Pm (A/1133/1999), B.A., M.TRP (URS)
Assisted by: A.C. Rohrbach, Pr. Pm (A/153/2009), B.Sc. Sc., M.TRP (URS) M.M. du Plessis, B.Sc. Geology, B.Sc. Honors, Geology (URS) H. Grotheveld, B.Sc. Zoology, B.Sc. Honors, Zoology, M.Sc. Zoology (URS)

NEIL DEVENISH Pr. Pm A/1133/1999
Manager: Town Planning/Environmental

MDA
Kind regards

If you require any additional information, please do not hesitate to contact us.

1. Please find attached a notice of intent to submit an application for environmental authorization. If you have any comments regarding mentioned project register as an interested and affected party at MDA before 25 January 2014.
2. Also find attached locality map of area of proposed development.

With reference to the above, the following:

PROPOSED CONSTRUCTION OF EVAPORATION POND ON PORTION 16 OF THE FARM SIMS 462, KATHU

ATTENTION: MUNICIPAL MANAGER

Fax: 053 712 2502

8460

KURUMAN
P.O. BOX 1480

JOHN TAALO GAETSEWE DISTRICT MUNICIPALITY

Our ref: 40647
Your ref:
Contact person: Mantke du Plessis
25 November 2013

mda
Town & Regional Planners,
Environmental &
Development Consultants
P O Box 20298
Willows 9320
Tel: +27 (51) 447 1503
Fax: +27 (51) 448 9839
e-mail: admin@mdadev.co.za
9 Bains Street, Westdene
RIEMONDSTADT
Moketsh Development Associates Trading as MDA, CC 1999/030752/23, Member: SAPL, SACPRP



Town & Regional Planners,
Environmental &
Development Consultants

P O Box 20298
Willows 9320
Tel: +27 (51) 447 1583
Fax: +27 (51) 448 9839
e-mail: admin@mdagroup.co.za
9 Barnes Street, Westdene
BLOEMFONTEIN

Makecha Development Associates trading as MDA, CC 1995/030752/23, Member: SAPI, SACTRP

Our ref: 40647
Your ref:
Contact person: Marike du Plessis
25 November 2013

**JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY
P.O. BOX 1480
KURUMAN
8460**

Fax: 053 712 2502

ATTENTION: MUNICIPAL MANAGER

**PROPOSED CONSTRUCTION OF EVAPORATION POND ON PORTION 16 OF THE FARM SIMS
462, KATHU**

With reference to the above, the following:

1. Please find attached a notice of intent to submit an application for environmental authorization. If you have any comments regarding mentioned project register as an interested and affected party at MDA before 25 January 2014.
2. Also find attached locality map of area of proposed development.

If you require any additional information, please do not hesitate to contact us.

Kind regards
MDA

NEIL DEVENISH Pr. Pln A/1133/1999
Manager: Town Planning/Environmental

Managing Members:

H.F. Prinsloo, Pr. Pln (A/765/1994), B.Sc., M.TR.P. (UFS)
N. Devenish, Pr. Pln (A/1133/1999), B.A., M.TR.P. (UFS)

Assisted by:

A.C. Rohrbeck, Pr. Pln (A/153/2009), B.Soc.Sc., M.TR.P (UFS)
M.H. du Plessis, B.Sc. Geology, B.Sc. Hons. Geology (UFS)
H. Groenewald, B.Sc. Zoology, B.Sc. Hons. Zoology, M.Sc. Zoology (UFS)

Fax Send Report

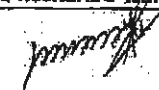
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Managing Members: M. Devenish, Pr. Pin (A/1133/1999), B.Sc., M.TRP, (URS)
A.C. Rohrbach, Pr. Pin (A/1133/2009), B.Sc., M.TRP (URS)
Assisted by: M. Grenewald, B.Sc. Zoology, B.Sc. Honors Zoology, M.Sc. Zoology (URS)
M.L. du Plessis, B.Sc. Geology, B.Sc. Honors Geology (URS)

NEIL DEVENISH Pr. Pin A/1133/1999
Manager: Town Planning/Environmental



MDA
Kind regards

If you require any additional information, please do not hesitate to contact us.

2. Also find attached locality map of area of proposed development.
1. Please find attached a notice of intent to submit an application for environmental authorization. If you have any comments regarding mentioned project register as an interested and affected party at MDA before 25 January 2014.

With reference to the above, the following:

PROPOSED CONSTRUCTION OF EVAPORATION POND ON PORTION 16 OF THE FARM SIMS 462, KATHU

ATTENTION: WARD COUNCILLOR, MS. PT SELONYANE

Fax: 053 723 2021

8446

KATHU

P.O. BOX 1001

JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY

Our ref: 40647
Your ref:
Contact person: Manke du Plessis
25 November 2013

Town & Regional Planners,
Environmental &
Development Consultants


Madeks Development Associates trading as MDA, CC 1995/030752/23, Member: SAPF, SACTRP
P O Box 20298
WILLOWS 9320
Tel: +27 (01) 447 1593
Fax: +27 (01) 448 9839
e-mail: admin@mda.co.za
9 Bains Street
BLOEMFONTEIN



Town & Regional Planners,
Environmental &
Development Consultants

P O Box 20298
Willows 9320
Tel: +27 (51) 447 1583
Fax: +27 (51) 448 9839
e-mail: admin@mdagroup.co.za
9 Barnes Street, Westdene
BLOEMFONTEIN

Makecha Development Associates trading as MDA, CC 1995/030752/23, Member: SAPI, SACTRP

Our ref: 40647
Your ref:
Contact person: Marike du Plessis
25 November 2013

JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY
P.O. BOX 1001
KATHU
8446

Fax: 053 723 2021

ATTENTION: WARD COUNCILLOR, MS. PT SELONYANE

PROPOSED CONSTRUCTION OF EVAPORATION POND ON PORTION 16 OF THE FARM SIMS 462, KATHU

With reference to the above, the following:

1. Please find attached a notice of intent to submit an application for environmental authorization. If you have any comments regarding mentioned project register as an interested and affected party at MDA before 25 January 2014.
2. Also find attached locality map of area of proposed development.

If you require any additional information, please do not hesitate to contact us.

Kind regards
MDA


NEIL DEVENISH Pr. Pln A/1133/1999
Manager: Town Planning/Environmental

Managing Members:

H.F. Prinsloo, Pr. Pln (A/765/1994), B.Sc., M.TR.P. (UFS)
N. Devenish, Pr. Pln (A/1133/1999), B.A., M.TR.P. (UFS)

Assisted by:

A.C. Rohrbeck, Pr. Pln (A/153/2009), B.Soc.Sc., M.TR.P (UFS)
M.H. du Plessis, B.Sc. Geology, B.Sc. Hons. Geology (UFS)
H. Groenewald, B.Sc. Zoology, B.Sc. Hons. Zoology, M.Sc. Zoology (UFS)

ANNEXURE D5

Comments received

To date, no comments have been received.

ANNEXURE E

Waste Hierarchy Implementation Plan

WASTE HIERARCHY IMPLEMENTATION PLAN

PROPOSED EVAPORATION POND, KATHU

Applicant: Gamagara Municipality

MDA Ref No: 40647

Date: December 2013



Town & Regional Planners,
Environmental & Development
Consultants

Physical Address: 9 Barnes Street,
Westdene, Bloemfontein, 9301
Postal Address: PO Box 20298,
Willows, 9320

Tel: 051 4471583, Fax: 051 4489839
E-mail: admin@mdagroup.co.za

1. INTRODUCTION

1.1 DEFINITION

Definition of waste as explained by the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008):

“waste” means any substance, whether or not that substance can be reduced, re-used, recycled and recovered –

- a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of;
- b) which the generator has no further use of for the purposes of production;
- c) that must be treated or disposed of; or
- d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector; but –
 - i. a by-product is not considered waste; and
 - ii. any portion of waste, once re-used, recycled and recovered, ceases to be waste.

1.2 PROBLEM STATEMENT

The National Waste Management Strategy (NWMS, November 2011) states that South Africa faces numerous challenges sets out plan, targets and measures to address them and stipulates the following main challenges:

- 1.2.1 An increase in volumes of waste generated due to the ever growing population and economy.
- 1.2.2 Increase complexity of waste stream because of urbanisation and industrialisation.
- 1.2.3 Inadequate waste services for especially urban informal areas, tribal areas and rural formal areas.
- 1.2.4 The understanding of main waste flows and national waste balance is limited.
- 1.2.5 A policy and regulatory environment that does not actively promote the waste management hierarchy.
- 1.2.6 The absence of a recycling infrastructure.
- 1.2.7 Ever increasing pressure on outdated waste management infrastructure, with declining levels of capital investment and maintenance.

- 1.2.8 The under-pricing of waste management results in the lack of appreciation by consumers and industry and waste disposal is preferred over other options.
- 1.2.9 Few waste treatment options are available to manage waste and so they are more expensive than landfill costs.
- 1.2.10 Too few adequate, unpermitted, compliant landfills and hazardous waste management facilities, which hinders safe disposal of waste streams.

2. PRINCIPLES OF THE PLAN

The Waste Hierarchy Implementation Plan is based on principles of the White Paper on Integrated Pollution and Waste Management (IP&WM) and the National Waste Management Strategy (NWMS) published by the Department of Environmental Affairs and Tourism as well as the new National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

2.1 Objectives

This plan encourages a shift towards sustainable methods of minimisation and treatment. The primary objective of the plan is to integrate, improve and optimise waste management in order to maximise efficiency by providing an adequate service and minimise environmental impacts and financial costs to improve quality of life.

Current waste practices in South Africa need to change to avoid the loss of valuable resources in the waste and the risk of long-term pollution to the physical environment. A sustainable waste management strategy will require changes to the way waste is managed and this plan strategy is based on the principles of sustainable waste management as referred above. The objectives of the Waste Hierarchy Implementation Plan are listed below:

- 2.1.1 To provide an integrated waste management strategy combining all methods of waste management with regard to the waste hierarchy.
- 2.1.2 To progressively reduce the amount of waste disposed of at landfill sites.
- 2.1.3 To increase waste minimisation and recycling.

- 2.1.4 To treat and dispose of all the relevant waste.
- 2.1.5 Minimise adverse social and environmental impacts related to waste management and thereby improve the quality of life.

The objectives of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) are structured around the steps in the waste management hierarchy (figure 1). This hierarchy consist of options for waste management during the lifecycle of waste arranged in descending order of priority; waste avoidance and reduction, re-use and recycling, recovery and treatment and disposal as the last resort.



Figure 1. Waste Management Hierarchy.

As can be seen in figure 1, the waste management hierarchy places emphasis on avoiding waste and the reduction thereof. The next stage of the hierarchy is re-using, recycling and recovering waste and the last resort is to treat and dispose of waste.

2.2 The waste hierarchy

The waste hierarchy in order of priority is as follows:

- 2.2.1 Waste avoidance: The reduction / minimising of waste at source.
- 2.2.2 Resource recovery: The recovery of recyclable materials out of the waste stream.
- 2.2.3 Re-use: The utilisation of a waste product.
- 2.2.4 Recycling: The manufacturing of a product that is made from waste materials.

2.2.5 Treatment: The process of changing the physical and / or chemical properties of a waste product.

2.2.6 Disposal: The final and least favourable step in the hierarchy involving land filling of waste in a controlled environment.

3. IMPLEMENTATION

According to the National Waste Management Strategy (NWMS, 2011), the Department of Environmental Affairs and associated provincial counterparts are responsible for the overall implementation of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008). The implementation of the NWMS however includes the whole of South Africa (including but not limited to government, NGO's, community organisations, businesses and households).

3.1 Hazardous waste hierarchy

In the case of hazardous waste (grey water as in this case), the waste hierarchy can be applied as follows:

3.1 Waste avoidance includes prevention measures that reduce the impact of hazardous waste on the environment. This can be achieved by reducing the content of harmful substances in materials and products before they become waste, as well as the reduction of the quantity of waste produced.

The production of grey water from the Khai Appel Recreational Resort cannot be prevented. The proposed evaporation pond will treat grey water accumulated from the septic tanks from the resort.

- The harmful substances in grey water can be reduced if resort users are informed to rather use environmentally friendly soaps.
- To minimize grey water production, users of the resort could be informed to minimise their water usage (with regards to bathing, showering, cleaning, cooking etc.).
- Hazardous waste should not be mixed with non-hazardous waste.

3.2 Hazardous waste that cannot be recovered, re-used and recycled should be properly treated and should not be landfilled. Grey water overflowing

from the septic tanks will be accumulated in the proposed evaporation pond and treated.

3.3 Treatment is preferred above disposal of waste. The grey water from the resort will overflow into proposed evaporation pond. By using solar and wind factors, the grey water is treated by the method of evaporation. Water evaporates and leaves the waste behind.

3.4 Disposal of waste is the last resort and should be avoided. If unavoidable, waste should be properly disposed of at a registered hazardous waste disposal sites. Registered hazardous waste disposal companies can also dispose of hazardous waste.

4. CONCLUSION

The National Waste Management Strategy (November 2011) states that it seeks a common platform for action between stakeholders to systematically improve waste management in South Africa. Our rapidly expanding country and urbanization puts pressure on the finite ability of the environment to absorb solid and liquid waste.

The elimination of waste is not feasible, but the re-use, recycling, recovery and treatment should exceed the need to use landfills and other disposal methods as preferred options for waste management.

ANNEXURE F

Emergency Preparedness Plan

EMERGENCY PREPAREDNESS PLAN

PROPOSED EVAPORATION POND, KATHU

Applicant: Gamagara Municipality

MDA Ref No: 40647

Date: December 2013



Town & Regional Planners,
Environmental & Development
Consultants

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1. INTRODUCTION

1.1 Background

This document contains the emergency preparedness plan for the proposed evaporation pond on the Farm Sims 462, Kathu. This plan plays an important part in reducing and managing the negative impact of a potential emergency before, during and / or after they occur. The incorporation of preparedness planning into the overall planning of a proposed construction is an effective measure in reducing impacts of potential emergencies.

1.2 Basic Framework

Emergency Preparedness can be represented in Figure 1 below. Part A depicts the reduction of the emergency significance due to preparedness and mitigation. Part B depicts the recovery phase after the emergency took place without proper preparedness and mitigation.

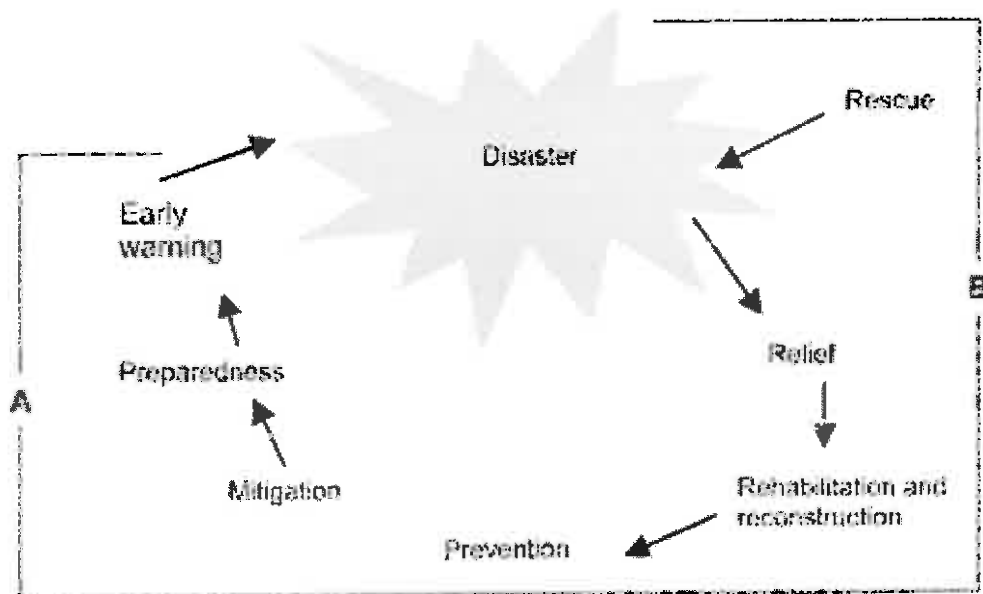


Figure 1. The Emergency Management Cycle

For an emergency preparedness plan to be effective specific emergency situations must be understood and incorporated into the plan. The initial lack of spending on preparedness planning only contributes to the cost of the emergency situations. By limiting the extent of the impact of the possible emergency situation the liability cost is minimised and the safety aspect is increased.

1.3 Responsibility

Compliance with the emergency preparedness plan (and associated procedures) is the responsibility of Gamagara Local Municipality. Regular audits of the proposed site and updating of the emergency preparedness plan will minimise the chance of emergency situations occurring.

2. POTENTIAL EMERGENCY SITUATIONS

All personnel involved should be made familiar with the response plan and the procedures that must be followed in case of emergency in order to do what is practical and safely possible to control the situation. This includes the notification of relevant authorities.

2.1 Potential emergency situations identified.

The following potential emergency situations were identified.

2.1.1 During construction phase:

2.1.1.1 Fire

2.1.1.2 Spillage

2.1.2 During operational phase:

2.1.2.1 Spillage

2.1.2.2 Pond wall burst

Preventative measures and emergency procedures to be followed will be described for every potential emergency situation described above.

2.1 Fire during construction phase

2.1.1 Preventative measures

2.1.1.1 All personnel will be trained and made aware of the procedures listed in this plan.

2.1.1.2 Fire prevention measures include the availability (and accessibility) of portable fire extinguishers on site. Fire-fighting equipment should be properly maintained and serviced.

2.1.1.3 All personnel should be well knowledgeable with regards to the placement of the fire extinguishers and the use there-of.

2.1.1.4 Open fires is prohibited on site.

2.1.1.5 Smoking as well as the use of welding and grinding machines on site should be regulated.

2.1.1.6 A network of communication between the contractor and emergency services including the police, traffic police, local medical and ambulance services, fire departments, farmers associations, conservancies, farmer neighbourhood watches etc. should be established.

2.1.2 Emergency procedures

2.1.2.1 Ensure that everyone on site reaches the predetermined emergency assembly point.

2.1.2.2 Remove or minimise any hazard to human life, health, safety or the environment.

2.1.2.3 Remove ignition sources if applicable.

2.1.2.4 Fire-fighting equipment should be used in the case of a small controllable fire.

2.1.2.5 Contact emergency fire response in the case of a larger uncontrollable fire.

2.1.2.6 Notify emergency contact list and report details of emergency situation.

2.2 Spillage during construction phase

2.2.1 Preventative measures

2.2.1.1 All personnel will be trained and made aware of the procedures listed in this plan.

2.2.1.2 Trucks should regularly be inspected for any fuel, hydraulic fluid or oil leakage and repaired accordingly to negate any potential spills / leakages.

2.2.1.3 A spill response kit will be available on site. Materials should be kept in a storage unit and be available to handle hydrocarbon and sewage spills.

2.2.1.4 A network of communication between the contractor and the hazardous waste removal company, Environmental Control Officer, Health & Safety Officer, Northern Cape Department of Environment and Nature Conservation etc. should be established.

2.2.2 Emergency procedures

2.2.2.1 Remove or minimise any hazard to human life, health, safety or the environment.

2.2.1.2 Stop the spill flow.

2.2.1.3 Shut down relevant equipment, close valves and pumps, plug hoses.

2.2.1.4 Remove ignition sources if applicable.

2.2.1.5 Limit the spread of contaminant.

2.2.1.6 Contain the spill with berms and / or trenches to limit the spreading and prevent it reaching a water source.

2.2.1.7 Notify emergency contact list.

2.2.1.8 Report details of spillages to relevant contacts.

2.2.1.9 Use PPE during clean-up to ensure safety of personnel.

2.2.1.10 Collection of contaminated materials (depending on size and severity a spill kit can be used). Sorbent pads are effective tools to collect small spills (or biodegradable waste control kits).

2.2.1.11 Disposal of contaminated materials (including sorbent pads) by registered hazardous waste management company.

2.2.1.12 A spill report should be completed. Please refer to Appendix A for an example.

Additional instructions for spills in / near water:

2.2.1.13 Absorb unrecoverable contaminant using commercial absorbents.

2.2.1.14 If the spill reaches water source, absorbent pads should be placed on the water surface. Ensure pads are anchored to the shore.

2.2.1.15 Dispose of sorbent contaminated materials by using a registered hazardous waste management company.

Additional instructions for spills on **land**:

2.2.1.16 Contaminated material (including soil, vegetation etc.) will be excavated and piled on a lined containment and covered until it can be safely disposed of.

2.2.1.17 Additional steps could include soil sampling of the excavation to ensure all contaminated soil has been removed.

2.2.1.18 Dispose of sorbent contaminated materials by using a registered hazardous waste management company.

2.3 Spillage during operational phase

Spillage during operational phase is focused on sewage spills from the overflows or leakage of the evaporation pond.

2.3.1 Preventative measures

2.3.1.1 All personnel will be trained and aware of the procedures listed in this plan.

2.3.1.2 Pipeline and pond should regularly be inspected for any structural faults that may lead to leakage and repaired accordingly to negate any potential spills / leakages.

2.3.1.3 A spill response kit will be available on site. Materials should be kept in a storage unit and be available to handle hydrocarbon and sewage spills.

2.3.1.4 A network of communication between the contractor and the hazardous waste removal company, Environmental Control Officer, Health & Safety Officer, Northern Cape Department of Environment and Nature Conservation etc. should be established.

2.3.2 Emergency procedures

2.3.2.1 Remove / minimise any hazard to human life, health, safety or the environment.

2.3.2.2 Stop the spill flow.

2.3.2.3 Shut down equipment, close valves and pump, plug hoses.

2.3.2.4 Contain the spill with berms and / or trenches to prevent further contamination of water resources or soil. The goal is to limit spreading of the sewage and thus maximise safety.

2.3.2.5 Notify the key contacts immediately and report details of spill.

2.3.2.6 Report details of spillages to relevant contacts.

2.3.2.7 Use PPE during clean-up to ensure safety of personnel.

2.3.2.8 Collect contaminated materials, according to best practices.

2.3.2.9 For small spills, use sorbent pads to absorb sewage, or a shovel and bucket to collect the waste.

2.3.2.10 Clean-up of large spills may require the use of large equipment and chemicals, thus requiring the aid of a hazardous waste management company.

2.3.2.11 Discuss disposal options with regulators. If the waste is limited to sewage, it can probably be disposed of in the evaporation pond, however if it is contaminated with other waste (such as fuel) other disposal options will need to be developed. A registered hazardous waste management company should be involved in case the waste cannot be treated on site.

2.3.2.12 A spill report should be completed. Please refer to Appendix A for an example.

2.4 Pond wall burst during operational phase

2.4.1 Preventative measures

- 2.4.1.1 All personnel will be trained and made aware of the procedures listed in this plan.
- 2.4.1.2 Pond wall should regularly be inspected for any structural faults that may lead to leakage and repaired accordingly to negate any potential spills / leakages.
- 2.4.1.3 A spill response kit will be available on site. Materials should be kept in a storage unit and be available to handle hydrocarbon and sewage spills.
- 2.4.1.4 A network of communication between the contractor and the hazardous waste removal company, Environmental Control Officer, Health & Safety Officer, Northern Cape Department of Environment and Nature Conservation etc. should be established.

2.4.2 Emergency procedures

- 2.4.2.1 Remove / minimise any hazard to human life, health, safety or the environment.
- 2.4.2.2 Shut down equipment, close valves and pump, plug hoses.
- 2.4.2.3 Notify the key contacts immediately and report details of emergency.
- 2.4.2.4 Area should be cordoned off to the general public to ensure exposure to sewage is limited.
- 2.4.2.5 Use PPE during clean-up to ensure safety of personnel.
- 2.4.2.6 The collection of contaminated material and sewage should be done as soon as it is safe to do so. Larger contaminated surfaces can be cleared by the use of dozers, whilst shovels can be used for smaller and harder to reach areas. Contaminated material should be piled onto an impermeable surface until it can be disposed of.
- 2.4.2.7 Discuss disposal options with regulators. If the waste is limited to sewage, it can probably be disposed of in another waste treatment system, but if it is

contaminated with other waste (such as fuel) other disposal options will need to be developed. A registered hazardous waste management company should be involved.

3. CONCLUSION

Emergency preparedness and spill response planning are important in avoiding accidents with chemicals and / or substances which may be hazardous to the environment or humans, and to minimise the environmental impacts in the unfortunate event that an accident occurs.

All personnel should be trained and made aware of the procedures listed in this plan. Involved personnel will implement measures and safety to control the situation and notify the relevant authorities.

ANNEXURE G

List of requested information

The following MUST be included in the application as supporting documentation and the applicant must indicate specific section(s) where they are appended in the reports.

REQUIRED PIECE OF INFORMATION	SECTION IN THE REPORTS WHERE IT CAN BE FOUND	COMMENTS (if any)
1. Extremely clear Google Earth colour picture of the site (dated not more than a month from the date of the application)	<i>Annexure A of Scoping Report</i>	
2. 1:50 000 topography /topo-cadastral map of the area showing: 2.1 The site and 5km radius. 2.2 Existing residential and industrial areas. 2.3 Possible future development (indicate the type of development). 2.4 Other waste handling sites (existing or closed) in the area. 2.5 Existing and possible future residential areas. 2.6 Sites which are listed as national monuments or archaeological, paleontological and cultural historical sites or objects worthy of conservation.	<i>Annexure C of Scoping Report</i>	
3. Security and access aspects of the site	<i>Section 3.3. Paragraph 2.</i>	
4. The site plan drawn to scale showing the site's boundary showing: 4.1 Activities or development existing on all 4 directions of the site. 4.2 Waste receipt, storage and handling areas 4.3 Impermeable surfaces 4.4 Sealed drainage systems 4.5 Drainage system for the site including sumps and discharge points 4.6 Road names and access from all major roads in the area 4.7 Land Owner's consent (letter with signature)	<i>Annexure B</i>	
5. Waste hierarchy implementation plan	<i>Annexure E</i>	
6. Emergency preparedness plan	<i>Annexure F</i>	