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## PROPOSED CONSTRUCTION OF WASTE WATER TREATMENT WORKS, UMZIMKHULU

### ENVIRONMENTAL ASSESSMENT BACKGROUND INFORMATION DOCUMENT ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

*INFORMATION SHEET NO.1*

*August 2008*

#### **PURPOSE**

The purpose of this document is to:

- Inform interested and affected parties (I&APs) about the proposed project and to invite them to participate;
- Provide a brief background to the proposed project; and,
- Explain the aim, objectives and key activities of the Environmental Assessment.

#### **PROJECT INFORMATION**

APPLICANT: The Sisonke District Municipality

PROJECT LOCATION (Plan attached):

The project will be instituted in the built up urban and peri-urban areas of Clysdale and the Umzimkhulu town.

GEOGRAPHICAL CO-ORDINATES( centre of site):

LATITUDE: 30°16' 29.27

LONGITUDE: 29°56'43.63

CATCHMENT LOCATION:

Umzimkhulu River Catchment

EnAq Consulting cc

#### DISTRICT AND LOCAL MUNICIPALITIES

The Sisonke District Municipality, The Umzimkhulu Local Municipality

#### **DESCRIPTION OF PROPOSED**

#### **ACTIVITY(REFER TO SITE PICS-END OF**

#### **DOC**

The proposed project is an upgrade of an existing facility as well as the development of new infrastructure to meet statutory effluent standards, and to meet the projected increased demand for waste water treatment capacity in the area. This project will include the construction of bulk outfall sewage pipelines and pump stations, and involves the upgrading of the Umzimkhulu Sewage Treatment Facilities to a 2MI Biological Nutrient Removal Plant. The treatment capacity will be increased to 2.0 MI/day to accommodate envisaged increased inflows. The ponds will also be extended to treat 1.8 MI/day in order to meet projected flows over a 20yr design and outlook period.

The Works will use an activated sludge system, which has the advantage of providing removal of phosphorous and nitrogen without the use of chemicals, has a smaller area than that required for ponds, is easily modifiable, disinfections can be provided by post chlorination, and treatment processes can be easily controlled by

*BID: Proposed Umzimkhulu Waste Water  
Treatment Works*

controlling recycle rates and aeration.

**Technical aspects:**

-The existing infrastructure reticulating sewage is considered as adequate for the project.

-The new housing developments of Clydesdale and surrounding areas are not linked to sewage treatment facilities.

-Approximately 12 480 people in the project area is served by the Umzimkhulu Oxidation ponds, which have a full design capacity of 0.8Ml/day. However, the existing ponds are not functioning properly with likelihood that one of the ponds leaks, possibly resulting in contamination of the environment via untreated sewage.

-This project will therefore provide bulk conveyance infrastructure to enable conveyance of sewage from households to treatment facilities.

-Provide adequate off-site sewage treatment facilities to treat sewage resulting in compliant effluent and sludge disposal.

**Infrastructure requirements:**

-The construction of 9 manholes and a control house are required as well as a driveway to allow for access to the municipal vehicles for transportation purposes.

- A 2,200 m<sup>3</sup> Biological Reactor will be constructed

- A secondary settling tank or clarifier will be required for the separation process

- 2 sludge drying bed rows have been proposed as well

- A Control room will also be part of the construction plans

- A 4.1 km bulk sewer pipe

- construction of Clydesdale sewage pumpstation

- An overflow box will also be constructed should there be an unexpected increase in volume.

- The construction of 160mm NB X 2 400mm long uPVC gravity/rising outfall sewer main from Clydesdale -200mm diameter X 1200 m long uPVC gravity sewer pipeline

- 160mm NB X 200m long uPVC gravity sewer pipeline

-300 NB X 500m long uPVC trunk sewer main

-1000m X 300 m deep 'V' drain

- A 350 mm diameter raw sewage inlet pipe

- 100 mm diameter pipe that will transport the activated sludge

- 200 mm UPVC pipe will be needed to return the activated sludge

- 350 mm diameter clarified effluent pipe will be put in place and will connect to the maturation ponds.

-Sewage pumpstation will also require the supply and installation of electro-mechanical equipment

**BIOPHYSICAL ATTRIBUTES FOR PROJECT**

**SITE / AREA**

Acocks Veld Type Bioresource group	Moist Grassveld	Tall Grassveld
Percentage of area still as natural vegetation, and current land use of development footprint	20%	Landuse  Waste water treatment works
Does the proposed area and its surrounds support any fauna of conservation significance? Fauna will not be impacted upon by the project.		Other (List)  N/A
	Oribi	x
	Otter spotted	x
	Striped weasel	x
	Serval	x
	Aardvark	x
	Stanley's Bustard	x
	Wattled crane	x
	Blue crane	x
	Grey crowned crane	x
	Striped flufftail	x
	Whitewinged Flufftail	x
	Grass Owl	likely
	Long toed frog	x
	Dwarf chameleon	x
Are any holes/animal burrows situated within the proposed development area?		NO
Does the proposed development footprint display any	YES	

hydromorphic soil characteristics i.e. any signs of seasonal, permanent or temporary wetness?		
Proximity of a proposed site to a river/stream. (m)		
Dominant alien plant species  Comment on the extent of the alien plant infestation. (High, Low, Moderate)  Extent of infestation-MODERATE	1. Bugweed 2. Black Wattle	
Soil erosion on, or near close proximity to proposed site. If Yes, indicate the type, severity and extent.	■	NO

### POTENTIAL IMPACTS

ACTIVITY	OUTPUTS
PLANNING	<ul style="list-style-type: none"> <li>▪ Aesthetics</li> <li>▪ Access</li> <li>▪ Socio-economic</li> </ul>
CONSTRUCTION PHASE	<ul style="list-style-type: none"> <li>▪ Geotechnical considerations</li> <li>▪ Soil contamination</li> <li>▪ Surface/groundwater pollution</li> <li>▪ Historical, cultural, archaeological aspects</li> <li>▪ Fauna/flora</li> <li>▪ Waste production</li> <li>▪ Safety and security</li> <li>▪ Access/haulage routes</li> <li>▪ Visual</li> <li>▪ Erosion</li> <li>▪ Dust, noise</li> <li>▪ Aesthetics</li> </ul>
POST CONSTRUCTION	<ul style="list-style-type: none"> <li>▪ Landscaping</li> <li>▪ Site restoration</li> </ul>

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### NEED AND DESIRABILITY

As Aforementioned the new housing developments of Clysdale and surrounding areas are not linked to a sewage treatment facility. This is of major concern because at present the sewage that is being generated from this area is undergoing biological treatment with no chemical processing being implemented. The sewage is brought into the treatment works via an existing sewage pipeline, it then undergoes a screening process to remove extraneous matter, which is done manually. The effluent is then transported to oxidation ponds which has a present treatment capacity of only 0.8Ml/day and does not undergo any further treatment. The lack of proper functioning of these ponds has impacted on the performance of the works and has potentially caused irreversible damage on the groundwater.

The current way in which the sewage is disposed off is not amenable to the requirements for discharge into the Umzimkhulu River. The present treatment works does not implement nutrient and phosphate removal. Excessive release to the receiving environment will inevitably lead to eutrophication which will in turn encourage the overgrowth of weeds, algae and cyanobacteria. The rapid increase in algal populations will lead to algal blooms which are unsustainable leading to their eventual death. Decomposing of these algal bodies leads to an increased use of oxygen which adversely impacts on fauna leading to their death. In addition to causing deoxygenation some algae produce toxins that contaminate drinking water supplies. The effects of polluted or untreated water entering the receiving environment can be disastrous in terms of the aquatic ecosystems as well as various sectors of the economy. With deteriorating water quality the treatment costs of potable and industrial process water increases. Agricultural yields are also adversely impacted upon due to increased salinity of irrigation water.

The current wastewater treatment works cannot accommodate the increasing volume of sewage that has been generated by the new housing development and numerous blockages and overflows have been encountered.

It is imperative that the proposed waste water treatment works implement biochemical procedures before the water is discharged to the receiving environment because studies have shown that antibiotic-resistant bacteria breed in municipal wastewater and if not treated adequately this could pose a severe public health risk as well as detrimental to the surrounding environment.

## **APPROACH TO THE ENVIRONMENTAL ASSESSMENT STUDY**

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In order to comply with South Africa's environmental legislation Ziyanda Consulting requested that EnAq Consulting cc carry out an Environmental assessment for the proposed project. The main aim of this Study would be to identify any limitations that the environment may impose on the proposed development.

In terms of the EIA regulations, R387, the activity is subject to an EIA due to the following triggered activity:

- *"the treatment of effluent, wastewater or sewage with an annual throughput capacity of 150 000 cubic meters or more."*

The proposed project should ultimately be acceptable and sustainable from a financial, biophysical and social point of view. Furthermore, this study should provide the Department of Agriculture and Environmental Affairs (DAEA) with enough information to a make decision regarding the need for any further environmental studies.

## **ENVIRONMENTAL PROCESS**

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The following process will be followed:

➤ *IDENTIFICATION OF IMPACTS & ALTERNATIVES*

Environmental issues, concerns, development constraints and possible development alternatives will be identified using professional judgement, project information, experience of similar projects, a review of available literature, site visits and consultation with authorities and the public.

➤ *EVALUATION OF IMPACTS*

The significance of environmental issues will be evaluated and mitigation and management measures will be identified and recorded.

➤ *AUTHORITY DECISION*

The Environmental Assessment is to be used as a basis of the decision by DAEA on whether the project should be approved or not. DAEA can refuse permission, grant unconditional permission, or grant permission with conditions.

**YOUR INVITATION TO COMMENT**

The need for public input and involvement is of critical importance and all interested persons and/or organisations are invited to comment on the proposed development and on the information presented here. You can do this by sending your comments in writing to the address shown below. All comments received will be addressed and incorporated in the Scoping Report and Environmental Assessment that will be made available for comment. Following this, the final report will be submitted to DAEA for its consideration.

Please ensure that all comments have been sent to us by the **10 SEPTEMBER 2008**

*Contact name and address for comments:*

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Title:	First name:	Surname:	Initials:
Organisation:	Designation:		
Address:			
Postal Code:			
Tel No:		Cell No:	
Fax No:		E-mail:	

**COMMENTS:**

1. The following issues must be addressed in the EIA for the proposed development

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2. Please add the following persons to your list of interested and affected parties:

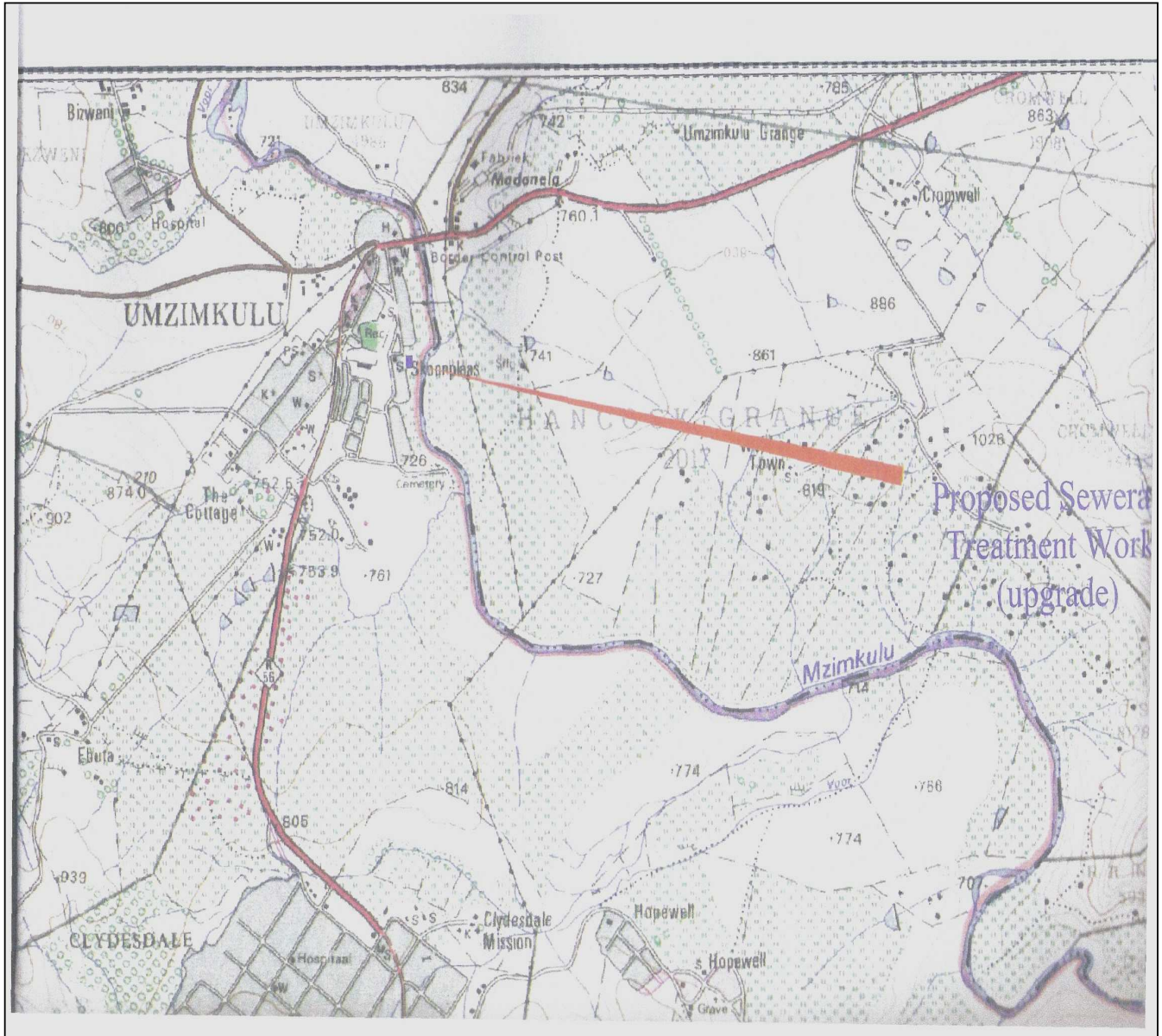
Name:	Organisation:
Telephone:	
Address:	
Name:	Organisation:
Telephone:	
Address:	

3. Any other comments/issues of concern/suggestions:

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***Thank you for your participation!***

Figure 1: Locality Map



SITE PICS (ATTACHED)