



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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(For official use only)

NEM:WA Waste Management Licence
Application - 12/9/11/L1077/8

NEMA Environmental Authorisation Application –
NC/BA/10/SIY/KHA/UP11/2013
(NCP/EIA/0000213/2013)

Application Number:

Date Received:

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

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12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

Introduction:

The village of Louisvale Road is located approximately 6 km south-southwest of the greater Upington. The village consists of some 1 980 residential stands which are all reticulated for both water and sewage. The wastewater drains to a pump station located at the lowest point in the village and is then pumped to an existing oxidation pond system approximately 4 km west of the village.

The current oxidation pond system has a design capacity of 800m³/day. During the last 3 to 4 years, significant development has taken place in terms of residential development and flows in excess of the design capacity are now being measured regularly. In addition, the oxidation pond system effluent is no longer meeting the required quality compliance standards.

Accordingly, the //Khara Hais Municipality, who are the Water Service Provider for this village, have taken a decision to upgrade the oxidation pond system to increase its design capacity and also to ensure effluent compliance.

The oxidation ponds are located on the municipal commonage and located approximately 1.7km from the nearest residential development. The disposal of effluent from the oxidation ponds has always been to an informal irrigation plot located north of the pond system. This is not currently in use and will be reinstated to dispose of the treated effluent by infiltration and evaporation.

The Louisvale Road Oxidation Ponds are currently unlined and it is proposed that the newly constructed ponds which receive the raw sewage will now be lined with an HDPE membrane. All ponds will also be cleaned during construction and sludge will be disposed of by burial in trenches.

Further developments proposed for this contract include:

- Repairs and extension to the existing fencing.
- Repairs and renovations to the existing municipal worker restroom and ablution facility.
- Sinking of two number monitoring boreholes (one upstream and one downstream)
- Rerouting of the dry water course located on site around the existing and proposed ponds

The existing Louisvale Road Oxidation Pond wastewater treatment system currently have a permit in terms of Article 21(4) of the Water Act, 1956 (Act 54 of 1956). Please refer to Appendix J2.

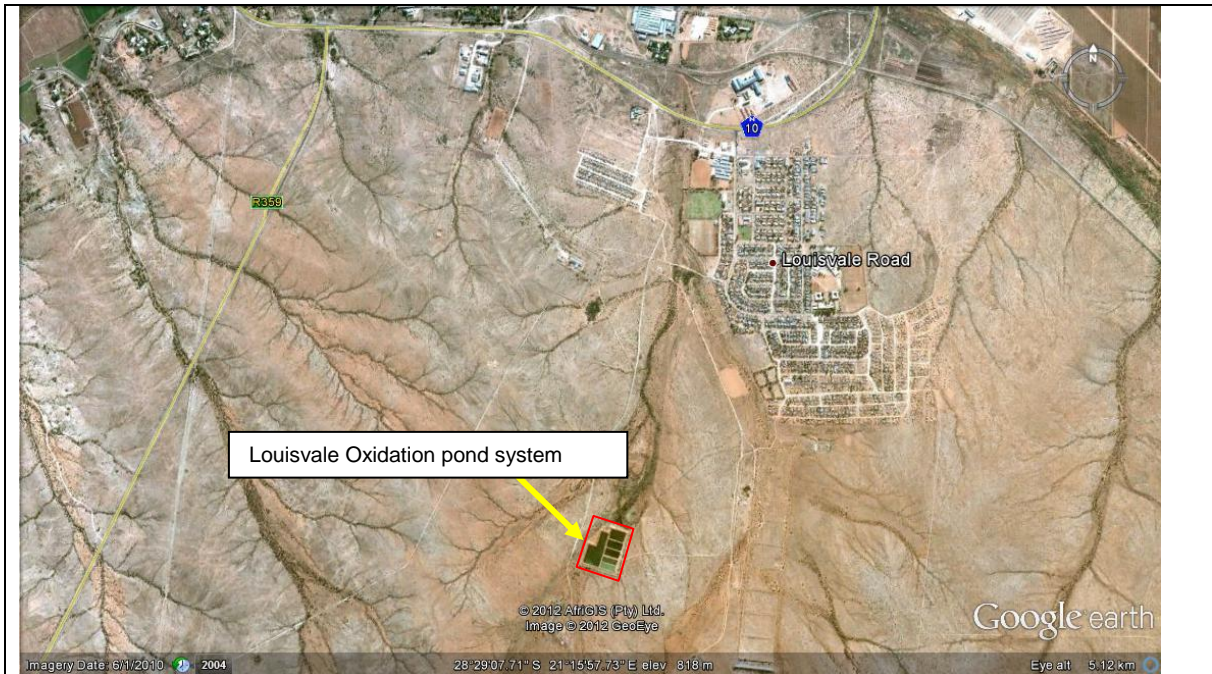


Figure 1: Aerial image of the site and surrounds.

Existing works:

According to the Engineering Design Report (**Appendix D1**), the current, existing oxidation or stabilization ponds generally consist of a series of ponds which may have several possible configurations. The Louisvale Road pond system is typical of those found throughout South Africa having the following configuration:

Anaerobic → Facultative (aerobic/anaerobic) → aerobic → final storage (please refer to Figure 2 below).

Anaerobic ponds are generally deep (> 3m) and contain a bacteriological population that function without the presence of dissolved oxygen. This type of pond is especially effective in breaking down the carbon or organic fraction contained in the incoming wastewater. With a retention period of 5 days, as much as 60% of the organic fraction could be assimilated.

Facultative ponds are typically 1.2m in depth and have both aerobic and anaerobic zones. These ponds rely on photosynthesis during algal growth as well as aeration due to wind and wave action to introduce dissolved oxygen to the upper layers of the water. The bottom of the facultative pond is usually anaerobic and serves to assimilate any settled particles carried over from the aerobic ponds.

The remaining aerobic ponds rely fully on wind and wave action to introduce dissolved oxygen into the water and serve to break down the nitrogenous fractions such as ammonia, nitrites and nitrates. In addition, they are generally shallow and also allow sunlight penetration where ultraviolet rays are efficient in destroying pathogens.

The condition of the existing ponds is currently quite poor. The khaki colour of the water is a clear indication that the ponds are overloaded.

In addition, there are broken connector pipes between ponds and also evidence of plant growth taking place within some of the ponds. The inlet to both anaerobic ponds used to have bends on the end to allow the introduction of sewage below the surface of the water. These bends are missing

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allowing the incoming sewage to cascade onto the pond water surface. This causes entrainment of oxygen into an anaerobic pond which is not ideal.

The existing inlet and outlet structures are adequate for the existing pond sizes, but the structures will need to be widened to provide for the higher incoming flows and the larger pond sizes in the proposed works.

No monitoring boreholes exist at the existing ponds and provision must be made for two (2) boreholes, upstream and downstream of the proposed works. The purpose of the boreholes is to allow sampling of the groundwater in order to monitor for possible contamination due to infiltration from the pond system. There is a possibility that groundwater contamination can occur due to the existing ponds being unlined.



Figure 2: Current layout of the existing oxidation pond system at Louisvale Rd

Primary anaerobic ponds - The anaerobic ponds were designed for a five (5) day storage capacity of the average annual peak daily flow rate. There are two (2) primary ponds with a volume of 1822 m³ each, adding up to 5882 m³ in total. The ponds are 1.5 m deep with about one third of the surface at 3.0 m depth.

Faculative pond - The existing pond has a storage volume of 7,760 m³ with a surface area of 7 760 m² which allows for five (5) days of retention at a depth of 1.0 m.

Secondary aerobic ponds - The two (2) secondary ponds were designed for a storage capacity of 5 days each and the volume for each dam is 1890 m³, thus providing for a total storage capacity of 3780 m³.

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Final storage dam - The final storage pond was designed for a 7 day storage capacity of the average annual peak daily flow rate. The volume of the pond is 2 688 m³ with a depth of 1.0 m.

Pump station - The pump station in the North western corner of the development is capable of pumping 18 L/s at a pressure head of 40 m. The sump is suitable for the installation of 3 submersible pump sets. There are currently only two pumps installed and utilized as a duty and standby. The pumps, if both are operational, are suitable for the proposed upgrading of the existing oxidation ponds and are not addressed in this report.

Current effluent quality

According to the Engineering Design Report (**Appendix D1**), Analysis of the pond system effluent indicates that the pond effluent is currently not compliant to the General Limit values for the following parameters:

Chemical Oxygen Demand:

Required limit: <75mg/l

Best achieved: **121mg/l**

Ammonia Nitrogen:

Required limit: < 6mg/l

Best achieved: **30.6mg/l**

Total Suspended Solids:

Required limit: < 25mg/l

Best achieved: **43mg/l**

This is a clear indication that the plant is overloaded and requires urgent extension to cope with the incoming flow and organic load.

The organic load was typically domestic in nature with COD values varying between 500 and 700mg/l.

Sewerage run-off of existing system

Flow readings for the past 18 months were obtained from the pump station operator at Louisvale Road.

The highest average monthly flow was recorded in November 2011 with a flow of **937.97m³/day**. The highest daily flow was recorded in December 2011 with a flow of **1 966m³** for a single day.

Given that the current design capacity of the Louisvale Road Oxidation Pond system is only **800m³/day**, it is understandable that the plant is no longer coping with the inflow from the village. Only a single day with high flows of this nature is required to destabilize the entire process. Such large flows have the tendency to wash out active bacteria which results in overloading of the plant as the remaining bacteria cannot cope with the incoming organic load.

Proposed works:

According to the Engineering Design Report (**Appendix D1**), The design standards as described in Chapter 9 of the Guidelines for the Provision of Engineering Services and Amenities in Residential Township Development, was used for sewerage flow determination. The design of the oxidation ponds was based on the methods of Duncan Mara using a first order kinetic removal equation as well as the Manual on the Design of Small Sewage Works.

The oxidation pond system must adhere to the following requirements:

- a) The design of the final effluent storage pond must make provision for the storage of minimum fourteen (14) days of wet weather flow during periods when irrigation cannot take place.
- b) The oxidation pond system must be operated and maintained in such a manner to ensure

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that:

- (i) No unpleasant odours due to anaerobic conditions or activity may cause discomfort, or to prevent that mosquito, flies or any other related consequences may cause hazards or health risks to the general public.
- (ii) Grid waste, floating material and plant growth is removed from the inside of ponds and pond structures on a periodic basis to ensure that no overloading, health risks or secondary contamination can occur.
- (iii) The minimum freeboard of 0.5 m inside all ponds is to be kept in good condition to prevent erosion of the side slopes near the full water level of the ponds, caused by wave action due to wind.
- (iv) The pond system remains functional at all times by removing all floating material from the surfaces and by emptying the ponds periodically and removing the accumulated sludge layers at the bottom of the ponds.

Primary anaerobic ponds - The existing two (2) anaerobic ponds are currently too small to ensure adequate retention and the capacity of each pond must be enlarged from 1822 m³ to 4557 m³ in volume. This can be achieved by excavating the full length of the existing primary ponds to a depth of 3.5 m, as well as extending the length of the ponds with an extra 12.5 m also to a depth of 3.5 m to obtain the required total five (5) day storage capacity of 9114 m³ in volume. The depth of 3.5 m is essential in the establishment and maintaining of anaerobic conditions.

The surface area of the existing primary ponds will increase from 2,944 m² to 6,463 m² as can be seen in figure 3 below.

Faculative pond - The required size of the facultative pond for a 200 mg/L inflow COD after 60% reduction of the COD count by the anaerobic ponds, a required outflow COD of 40 mg/L and a temperature of 20 .C, is determined as 13,300 m² of surface area with a pond depth of 1,2 m.

The surface area of the existing pond must be enlarged from 7,760 m² to 13,300 m² by the addition of 5,540 m².

Secondary aerobic ponds - The two (2) existing aerobic ponds with surface area of 3780 m² was originally designed for a surface area of 11,890 m². The current surface area required for a 21 day retention period in the pond is 34,245 m².

This required secondary storage capacity can be obtained by the following:

- (i) By combining the existing two (2) secondary and final storage pond to convert them into the 1st aerobic pond with an surface area of 10,328 m² to a full water depth of 1.0 m.
- (ii) Construction of an additional 2nd aerobic pond with a surface area of 10,328 m² to a full water depth of 1.0 m.

The total surface area of the two (2) new proposed secondary aerobic ponds of 20,656 m² shall provide for a retention period of 12 days, which does not comply with the required 21 day retention period. However, this is much better than the 2,5 day retention period as is currently the case with the existing two (2) secondary ponds of surface area 3,780 m².

To obtain the required 21 day retention period, the outstanding 13,589 m² of secondary pond surface area must be constructed within the next five years.

Final storage dam - The 2,688 m² of surface area for the existing final storage pond is not enough with regard to capacity to obtain a seven (7) day retention period in storage capacity. At full water depth of 2.5 m the existing final storage volume of 6,720 m³ provides for a 3.8 day retention period as

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is currently the situation.

The required 7 day retention period of $12,608 \text{ m}^3$ in volume storage capacity must allow for a proposed surface area of $5,043 \text{ m}^2$ when excavated to a full water depth of 2.5 m for the final storage pond.

This required final storage capacity can be obtained by the following:

- (i) By construction of a new final storage pond with surface area of $11,325 \text{ m}^2$ to a full water depth of 1.2 m to obtain a seven (7) day storage capacity of $13,590 \text{ m}^3$ in volume.

The advantage of this proposed new final storage pond is that it can serve as the 3rd secondary aerobic pond. The required outstanding $13,589 \text{ m}^3$ to obtain a 21 day secondary pond storage capacity, as mentioned before can thus be easily obtained by near future conversion of the proposed final storage pond with no additional cost.

Pump station - For this phase of the project the pump station will not be looked at and the pumps and pump line are assumed to be adequate to convey sewerage flow to the proposed oxidation ponds if both pumps are operational. The expected future flow of $1\,795 \text{ m}^3/\text{day}$ translates to some 20.77 litres per second. Given that the existing pumps have a flow rating of 18 litres per second, it is imperative that both pumps be operational to deal with occasional peaks.



Figure 3: Proposed layout of the oxidation pond system

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c) Provide a detailed description of the listed activities associated with the project as applied for

NEMA Activities:

Listed activity as described in GN R.544, 545 and 546	Description of project activity
GN R.544 Item 11 : <i>The construction of a infrastructure or structures covering 50 square meters or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</i>	Infrastructure (additional oxidation ponds) is to be constructed. This are within 32 meters of the dry watercourse located adjacent to the existing works
GN R.544 Item 18 : The infilling or depositing of any material of more the 5 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving (i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (ii) occurs behind the development setback line.	A small dry watercourse, located adjacent to the existing ponds, will need to be rerouted to allow for the construction of the new ponds
GN R.544 Item 23 : The transformation of undeveloped, vacant or derelict land to – Residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; -	The site where the expansion of the existing pond system will take place is vacant and undeveloped, and the area will be bigger than 1 hectare, but less than 20 hectares, and is outside an urban area.

NEM:WA Waste Licence Activities:

INDICATE THE NO. & DATE OF THE RELEVANT NOTICE:	ACTIVITY NUMBERS (AS LISTED IN THE WASTE MANAGEMENT ACTIVITY LIST) :	DESCRIBE EACH LISTED ACTIVITY:
Gazette No. 32368, Government Notice 718 (03 July 2009).	Category A – Activity Number 19	The expansion of facilities of or changes to existing facilities for any process or activity, which requires an amendment of an existing permit or license or a new permit or license in terms of legislation governing the release of pollution, effluent or waste.

2. FEASIBLE AND REASONABLE ALTERNATIVES

“**alternatives**”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

No site alternatives were considered as this is the expansion of the existing Louisvale Oxidation Pond System

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

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In the case of linear activities: **N/A**

Alternative:	Latitude (S):	Longitude (E):
Alternative S1 (preferred)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Alternative 1 (preferred alternative)
<p>Other technologies were explored, however these were deemed not viable.</p> <p>The Northern Cape has a hot dry climate with short intense winters. This and the fact that there is abundant land space available, makes the area suitable for utilization of natural treatment systems such as oxidation ponds and constructed wetlands.</p> <p>Possible technologies available for the treatment of domestic wastewater vary from highly technologically advanced biological nutrient removal treatment plants such as activated sludge processes, biofiltration and rotating biological contactors to very basic options such as septic tanks and oxidation ponds. The higher level of technologies are however both capital and energy intensive. Given the financial difficulties, and lack of high level technical capacity to operate and maintain technologically advanced treatment options, it is prudent to consider lower level technologies which have a larger footprint, but are more sustainable in the long term. Given that</p>

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Louisvale Road was already equipped with oxidation ponds, it makes perfect sense to just extend the existing system, thereby increasing its treatment capacity, than to construct something new from scratch. In addition, the extension of the current ponds is by far the most favourable economic solution.

Alternative 2

Alternative 3

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)

Operational alternatives

No other operational alternatives have been considered as viable alternatives. Oxidation Ponds generally require very little human intervention due to it being a naturally occurring process. Subsequently, no alternative operations were considered. Once the current plant has been upgraded and the process established, it will provide a nuisance free treatment option at an economic operational cost.

Design alternatives

The flow through the existing oxidation ponds is by means of gravity. Subsequently, the direction of the natural slope of the land must be followed to utilize gravity. Therefore, the natural occurring terrain dictates the direction in which the new extensions must take place. Any other options or layouts would require pumping to transfer wastewater from one pond to the next. There is no electrical supply available at Louisvale Road so pumping is not an option that could have been considered. Hence the layout as proposed.

Alternative 2

Alternative 3

e) No-go alternative

This alternative is the “*no-development alternative*” or “*in-situ*” approach. The no-go option will result in the status quo of the current oxidation pond system being maintained.

The existing oxidation ponds serving the village of Louisvale Road has become both hydraulically and organically overloaded due to sharp growth in both the population and increased level of service in the village.

Local government is currently under pressure to upgrade the existing oxidation pond system which was last upgraded in 1997. The oxidation pond system is currently organically as well as hydraulically overloaded. This leads to a very poor quality effluent which does not comply with the General Limit values as required by the Department of Water Affairs.

This is a clear indication that the plant is overloaded and requires urgent extension to cope with the incoming flow and organic load.

The “no-go” alternative is therefore not considered the ‘best practical environmental option’.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

- Alternative A1¹ (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

Size of the activity:

51744m ²
m ²
m ²

or, for linear activities:

Alternative:

- Alternative A1 (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

Length of the activity:

m
m
m

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

- Alternative A1 (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

Size of the site/servitude:

m ²
m ²
m ²

4. SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	
N/A	

Describe the type of access road planned:

N/A

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES		Please explain
The activity is the expansion of the existing oxidation pond system, and is located on municipal commonage			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES		Please explain
The proposed activity is the expansion and upgrade of the existing oxidation pond system at Louisvale road, and is considered to be in line with the provincial SDF.			
(b) Urban edge / Edge of Built environment for the area		NO	Please explain
The site is located outside the urban edge.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	NO	Please explain
The proposed activity is the expansion and upgrade of the existing oxidation pond system at Louisvale road, which is forms part of phase 1 of the investment into the development of bulk service infrastructure on the southern side of the Orange (Gariep) River, as per the //Khara Hais Spatial Development Framework (2009). The approval of this application will therefore not compromise the integrity of the municipal IDP and SDF.			
(d) Approved Structure Plan of the Municipality	YES		Please explain
The proposed activity is the expansion and upgrade of the oxidation ponds system at Louisvale road. The local municipality is the applicant.			

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<p>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</p>	YES	NO	Please explain
<p>According to the Siyanda Environmental management Framework, the number of the households receiving sanitary services increased dramatically in recent years.</p> <p>Due to a sharp growth in both the population and increased level of service in the village, the current facility is currently operating at flows in excess of the design capacity. The effluent is therefore no longer meeting the required quality compliance standards. The conditions of the existing ponds are also considered poor.</p> <p>The oxidation pond system is currently organically as well as hydraulically overloaded. This leads to a very poor quality effluent which does not comply with the General Limit values as required by the Department of Water Affairs (please refer to the engineering design report, Appendix D1).</p> <p>Therefore, there is a high risk of surface water contamination, including the nearby Orange River, and potentially groundwater contamination. The approval of this application will therefore not compromise the integrity of the Siyanda EMF.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>	YES	NO	Please explain
<p>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</p>	YES		Please explain
<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	YES		Please explain
<p>Due to the increasing population growth of Louisvale Road, the current oxidation pond system requires upgrading. It is already operating at excessive loads and the existing pond system is in poor condition. This is therefore seen as a priority, which will benefit the community of Louisvale Road.</p>			
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>		NO	Please explain
<p>The existing pond system does not have the capacity to adequately service the community, and is in need to be upgraded and expanded. Please refer to the to the engineering design report, Appendix D1.</p>			

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6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES		Please explain
The applicant is the municipality			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO	Please explain
This application is for the upgrade and expansion of the existing Louisvale Road oxidation ponds			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES		Please explain
The activity is the expansion of the existing treatment works system, and the location factors therefore favour the activity (expansion and upgrading of existing pond system). The existing system is also operating at inadequate levels to service the growing population of Louisvale Road, and is therefore seen as a priority.			
9. Is the development the best practicable environmental option for this land/site?	YES		Please explain
Yes, as the upgrade and expansion of the existing oxidation ponds will prevent any future environmental contamination from effluent spillage or from effluent that does not meet the General Limit values.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES		Please explain
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO	Please explain
N/A. The upgrading of other existing waste water treatment works is being planned for by the municipality.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		NO	Please explain
The proposed activity will be for the benefit of the community, and it is therefore not considered to negatively affect any person's rights.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO	Please explain
The site is located outside the urban edge.			

BASIC ASSESSMENT REPORT

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		NO	Please explain
15. What will the benefits be to society in general and to the local communities?	Please explain		
<p>The activity will not only improve the effluent treatment and capacity of the existing works for the Louisvale Road residents, but additional temporary employment opportunities could be created during the construction phase.</p>			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
N/A			
17. How does the project fit into the National Development Plan for 2030?	Please explain		
<p>According to the National Development Plan for 2030, before 2030, all South Africans will have affordable access to sufficient safe water and hygienic sanitation to live healthy and dignified lives. The proposed activity will help ensure this for the community of Louisvale Road.</p>			
<p>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</p>			
<p>The general objectives of Integrated Environmental Management have been taken into account through the following:</p> <ul style="list-style-type: none"> - The actual and potential impacts of the activity on the environment, socio-economic conditions and cultural heritage have been identified, predicted and evaluated, as well as the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impact, maximizing benefits and promoting compliance with the principles of environmental management. - The effects of the activity on the environment have been considered before actions taken in connection with them. - Adequate and appropriate opportunity for public participation was ensured through the public participation process. - The environmental attributes have been considered in the management and decision-making of the activity 			

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

The principles of environmental management as set out in section 2 of NEMA have been taken into account. The principles pertinent to this activity include:

- People and their needs have been placed at the forefront while serving their physical, psychological, developmental, cultural and social interests.
- Development must be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation's cultural heritage cannot be avoided, are minimised and remedied. Although the activity has little to no impact on these, they have been considered, and mitigation measures have been put in place. This is dealt with in the EMP (**Appendix G**)
- Where waste cannot be avoided, it is minimised and remedied through the implementation and adherence of EMP.
- The use of non-renewable natural resources is responsible and equitable.
- The negative impacts on the environment and on people's environmental rights have been anticipated and prevented, and where they cannot be prevented, are minimised and remedied.
- The interests, needs and values of all interested and affected parties have been taken into account in any decisions through the Public Participation Process.
- The social, economic and environmental impacts of the activity have been considered, assessed and evaluated, including the disadvantages and benefits.
- The effects of decisions on all aspects of the environment and all people in the environment have been taken into account, by pursuing what is considered the best practicable environmental option.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

If YES, what estimated quantity will be produced per month?

YES	
Unknown at this stage	

BASIC ASSESSMENT REPORT

How will the construction solid waste be disposed of (describe)?

Minimal amounts of construction waste are expected. Excavated soil will be used as fill. Any excess construction waste will be disposed of at the nearest licenced waste disposal site in Uppington

Where will the construction solid waste be disposed of (describe)?

At the nearest licenced waste disposal site

Will the activity produce solid waste during its operational phase?

NO

If YES, what estimated quantity will be produced per month?

m³

How will the solid waste be disposed of (describe)?

N/A

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

N/A

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

YES NO

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?

NO

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

N/A. This application is for the extension of an existing effluent treatment facility

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES NO

If YES, what estimated quantity will be produced per month?

m³

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES NO

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

BASIC ASSESSMENT REPORT

Will the activity produce effluent that will be treated and/or disposed of at another facility?

	NO
--	----

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:	Cell:		
E-mail:	Fax:		

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The proposed activity is the upgrade and extension of the existing wastewater treatment facility, which will ensure more optimal treatment of waste water.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

	NO
--	----

If YES, is it controlled by any legislation of any sphere of government?

YES	NO
-----	----

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

N/A

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

YES	
-----	--

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

This application is for a waste licence in terms of the National Environmental Management: Waste Act (No. 59 of 2008) and an Environmental Authorisation in terms of the National Environmental Management Act. Please refer to Appendix J1 for the proof of both applications.

e) Generation of noise

Will the activity generate noise?

	NO
YES	NO

If YES, is it controlled by any legislation of any sphere of government?

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the noise in terms of type and level:

N/A

BASIC ASSESSMENT REPORT

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

litres	
YES	NO

The need for authorisation to reroute the dry drainage line adjacent to the site will need to be confirmed by the Department of Environmental Affairs

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The design of the oxidation pond means that the flow waste water through the existing oxidation ponds is by means of gravity. No pumps are required at the site.

The current pump station will not need to be upgraded, so the proposed expansion will not require additional energy.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

- Paragraphs 1 - 6 below must be completed for each alternative.

- Has a specialist been consulted to assist with the completion of this section? YES NO
 If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Northern Cape
District Municipality	Siyanda District Municipality
Local Municipality	//Khara Hais Local Municipality
Ward Number(s)	
Farm name and number	Erf 1036 Louisvale (Olyvenhoutsdrift Settlement)
Portion number	
SG Code	C0360013000010360000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

The site is located on Municipal commonage.

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required? NO YES

BASIC ASSESSMENT REPORT

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S2 (if any): N/A

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any): N/A

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input checked="" type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:	Alternative S2 (if any):	Alternative S2 (if any):	Alternative S3 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	NO	YES	NO	YES	NO
Any other unstable soil or geological feature	NO	YES	NO	YES	NO
An area sensitive to erosion	NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

BASIC ASSESSMENT REPORT

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld in good condition^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation^E	Veld dominated by alien species^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

The site is the existing oxidation pond system. The land surrounding the site appears to be used for grazing purposes by the local inhabitants. With the establishment of the original WWTW the disposal of effluent from the oxidation ponds has always been to an informal irrigation plot located north of the pond system. This is not currently in use and will be reinstated to dispose of the treated effluent by infiltration and evaporation.

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River		NO	UNSURE
Non-Perennial River (drainage line)	YES		UNSURE
Permanent Wetland		NO	UNSURE
Seasonal Wetland		NO	UNSURE
Artificial Wetland		NO	UNSURE
Estuarine / Lagoonal wetland		NO	UNSURE

BASIC ASSESSMENT REPORT

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

There is a small drainage line running next to the existing treatment works which eventually links up with a tributary to the Orange river approximately 3km from the site. The Orange River itself is approximately 4.4km from the site.

According to the Biodiversity Assessment (**Appendix D2**), natural vegetation forms a uniform shrub layer cover over most of the area with a few alien invasive tree species observed next to the drainage lines.

According to the Biodiversity Assessment (**Appendix D2**), this water course has already been impacted and slightly altered even channelled in some areas in order to establish the original WWTW. This drainage line is already disturbed and channelled to some degree.

The drainage line will need to be rerouted and channelled around the proposed oxidation ponds. According to the Biodiversity Assessment (**Appendix D2**), the possible positive spinoffs should outweigh the small impact on this seasonal water course, even if it has to be channelled away or around the oxidation pond system.



Figure 4: Aerial image of the site and the nearby water course. The site is indicated by the red polygon.



Figure 5: View of the drainage line just north west of the site. Note the disturbance (alterations/channeling) of the drainage line.



Figure 6: Panoramic view of the drainage line (indicated by the blue dashed line) taken from the treatment works looking west. The current oxidation ponds can be seen to the left of the image.

BASIC ASSESSMENT REPORT

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity?

N/A

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)		NO
Core area of a protected area?		NO
Buffer area of a protected area?		NO
Planned expansion area of an existing protected area?		NO
Existing offset area associated with a previous Environmental Authorisation?		NO
Buffer area of the SKA?		NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

YES	
Uncertain	

According to the Heritage Assessment (**Appendix D3**), in terms of the built environment, the area has no significance, as there are no old buildings, structures, or features, old equipment, public memorial or monuments in the proposed footprint area.

The study has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to proposed development activities. The study has captured most of the information on the archaeological heritage.

The results indicate that the proposed upgrading and expansion of the Louisvale oxidation pond system will not have an impact of great significance on these and potentially other archaeological remains.

The following recommendations are made:

1. No further archaeological mitigation is required.
2. Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during construction activities, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (SAHRA) (Att Ms Katie Smuts 021 462 4502). Burials, etc. must not be removed or disturbed until inspected by the archaeologist.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

N/A

Will any building or structure older than 60 years be affected in any way?
 Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

	NO
YES	

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

According to the //Khara Hais Spatial Development Framework 2009, it is recognized that poverty remains the core obstacle to a stable and prosperous future in South Africa. This applies to //Khara Hais as well. Despite commendable efforts of government, and state-supported efforts, poverty continues to be a chronic problem for much of South Africa's population. These problems are also evident in //Khara Hais.

The Labour Market²⁷ constitutes 63% of the total population of //Khara Hais (47 843). Only 24% of the Labour Market is employed, with the unemployment rate at 13%. The *not economically active*²⁸ people constitute 26% of the Labour Market. The unemployment rate of 13% could therefore be somewhat misleading due to the fact that people not seeking work, which can be classified as unemployed people, are not included.

Economic profile of local municipality:

According to the //Khara Hais Spatial Development Framework 2009, according to the 2001 Census data the Tertiary Sector provides more than 50% of the job opportunities in //Khara Hais. The Community, Social and Personal Services employs most people in the Municipality (i.e. 23%) followed closely by the Wholesale and Retail Trade sector, which employs 18% of the employed people.

Agriculture and mining account for 14% and the secondary sector (construction, manufacturing etc.) account for 13% of employment opportunities in the municipality

Level of education:

According to the //Khara Hais Spatial Development Framework 2009, it is imperative that the illiteracy and functional level of communities be addressed. Functional illiteracy is indicative of an inability to understand abstract information and usually occurs when a person has completed less than seven years of formal education and at least passed grade seven. 16% of the population of the Municipality is functionally illiterate while 7% are completely illiterate. This is directly connected to low income levels and will push the HDI further down if this is not attended to. A total of 19.31% of the population has some secondary education, while only 11.65% have completed Grade 12.

A third of the population in //Khara Hais is under the age of 15 years. This section of the population will become economically active within the next 5 to 10 years and education will be a key requirement to ensure a good quality of life. The 2008 Socio-Economic Survey indicates that approximately 25% of the population has an educational level of between Grades 8–10, while 24% has between Grades 11-12 and only about 4% has any form of tertiary education. These percentages, especially those that have completed Grade 12 have increased significantly since 2005, indicating a growth in the average educational level.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R10 400 000
What is the expected yearly income that will be generated by or as a result of the activity?	N/A
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Approximately 30 temporary jobs
What is the expected value of the employment opportunities during the development and construction phase?	R576 000-00
What percentage of this will accrue to previously disadvantaged individuals?	98%
How many permanent new employment opportunities will be created during the operational phase of the activity?	None
What is the expected current value of the employment opportunities during the first 10 years?	R240 000 per annum
What percentage of this will accrue to previously disadvantaged individuals?	100%

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	No fine-scale mapping is as yet available for this area and as a result no critical biodiversity areas or biodiversity support areas has been promulgated for this area.

BASIC ASSESSMENT REPORT

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	50%	According to the Biodiversity Assessment (Appendix D2) the vegetation along the drainage lines normally showed a much denser grassy component, but also featured many of the other species found in the surrounding veld, such as <i>Lycium</i> and <i>Salsola</i> species. It is also important to note that these small drainage lines were much degraded and have been altered in many places over the years (even channelled in some areas along the WWTW).
Degraded (includes areas heavily invaded by alien plants)	50%	The area to the north of the proposed site has been degraded, and contains some alien plant cover in the area. According to the Biodiversity Assessment (Appendix D2) the disturbance is most probably the result of more intense grazing and possibly even mechanical disturbance (ploughing or levelling) of this area. In this area, overflow from the WWTW has resulted in artificial wetland conditions with subsequent replacement of natural veld by grasses and sedges. <i>Prosopis</i> trees (alien vegetation) are much more prominent and dense stands were encountered downstream of the works. However, it is important to note that these conditions are only created and sustained by the overflow water from the existing ponds.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	%	

BASIC ASSESSMENT REPORT

c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems			
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline	
	Endangered				
	Vulnerable				
	Least Threatened	YES		NO	

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

According to the Biodiversity Assessment (**Appendix D2**), in accordance with the 2006 Vegetation map of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2006) one broad vegetation type is expected in the vicinity and its immediate surroundings, namely Bushmanland Arid Grassland. According to the National list of ecosystems that are threatened and in need of protection (GN 1002, December 2011) Bushmanland Arid Grassland is classified as "Least Threatened".

According to the Biodiversity Assessment (**Appendix D2**), the vegetation encountered conformed to a dry form of this vegetation type, with the grassy layer sometimes much reduced. However, it is expected that after rains the grassy layer would be much more prominent. At present a dry shrubland dominated in places.

The vegetation surrounding the site could be described in three categories namely:

1. Bushmanland Arid Grassland encountered on most of the surrounding area to the east, south and west of the works. The vegetation was dominated by sparse hardy shrubs reaching approximately 1-1.5 m in height with a prominent grassy layer sometimes present, but mostly much reduced. Scattered next to streams and sometimes in the landscape as well higher shrubs and small trees like *Parkinsonia africana* and the alien invasive species *Prosopis grandulosa* was also occasionally encountered (*Prosopis* becoming much more prominent in the wetter areas). Species encountered includes: *Acacia mellifera* (abundant), *Parkinsonia africana* (occasional), *Lycium cinereum* (abundant), *Boscia foetida* (mostly forming clumps of small trees near the streams), *Salsola tuberculata* (abundant), *Kleinia longiflora* (relative common), *Aloe claviflora* (in patches to the east and south and northwest of the site), *Euphorbia* cf. *dregeana*, *Euphorbia decepta* (single individuals), *Moquinella rubra* (mostly on *Acacia mellifera*), *Aptosimum albomarginatum* (common), *Aptosimum spinescens* (occasional), *Cadaba aphylla* (occasional), *Zygophyllum* cf. *lichtensteinianum*, *Mesembryanthemum* cf. *guerichianum*, *Argemone ochroleuca* and a mixture of grasses of *Stipagrostis*, *Eragrostis* species.
2. Riparian vegetation along the small streams and drainage lines (refer to section B5, and figures 4, 5 and 6 above). The vegetation along the small seasonal streams or drainage lines normally showed a much denser grassy component, but also featured many of the other species found in the surrounding veld, such as *Lycium* and *Salsola* species. It is also important to note that these small streams were much degraded and have been altered in many places over the years (even channelled in some areas along the WWTW).
3. Extensive degraded areas to the north of the WWTW was encountered, which is most probably the result of more intense grazing and possibly even mechanical disturbance (ploughing or levelling) of this area. In this area, overflow from the WWTW had resulted in an artificial wetland conditions with subsequent replacement of natural veld by grasses and sedges. *Prosopis* trees are much more prominent and dense stands were encountered downstream of the works. However, it is important to note that these conditions are only created and sustained by the overflow water from the existing ponds. Please refer to figure 7 – 9 below.



Figure 7: Aerial image of the existing ponds system and the site (depicted by red polygon). Degraded area is depicted by the yellow circle.



Figure 8: View of the degraded area to the north of the existing pond system, taken from the ponds looking north. Pooling from the overflow from the existing ponds is evident in this image.



Figure 9: View of the degraded area to the north of the existing pond system, taken from the north looking south towards the existing ponds.

The following mitigation measures have been proposed

- All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must be developed by a suitably experienced Environmental Assessment Practitioner.
- A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and the Biodiversity study recommendations as well as any other conditions which might be required by the Department of Environmental Affairs.
- An integrated waste management system must be implemented during the construction phase.
- All rubble and rubbish (if applicable) must be collected and removed from the site to a suitable registered waste disposal site.
- All alien vegetation should be removed from the larger property.
- The proposed extension should be placed towards the north, utilising the existing disturbed areas as much as possible. It will have the added advantage of impacting on the minimum protected species, but it will mean impacting on a small portion of the water course running next to current WWTW. In doing this the impact on natural veld and protected species is minimised, and even though the river will be impacted it might lead to a lower pollution potential for downstream receptors.
- As a pre-cautionary measure all viable herb-, bulbs- and succulent plant species encountered within the footprint should be removed and replanted through a dedicated search and rescue operation.
- Permits must be obtained for the removal of any protected species which cannot be avoided.
- Only existing access roads should be used for access to the terrain. Access roads must be clearly demarcated and access must be tightly controlled (deviations may not be allowed).
- Indiscriminate clearing of areas must be avoided (all remaining areas to remain as natural as possible).
- All topsoil (in areas with natural veld) must be removed and stored separately for re-use for rehabilitation purposes. The topsoil and vegetation should be replaced over the disturbed soil to provide a source of seed and a seed bed to encourage re-growth of the species removed during construction.
- Once the construction is completed all further movement must be confined to the access tracks to allow the vegetation to re-establish over the excavated areas.
- Adequate measures must be implemented to ensure against erosion.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Die Volksblad – 12 December 2012 Die Gemsbok – 14 December 2012	
Date published	Die Volksblad – 12 December 2012 Die Gemsbok – 14 December 2012	
Site notice position	Latitude	Longitude
	28° 29' 38.02"	21° 16' 02.51"
	28° 29' 18.08"	21° 16' 27.44"
	28° 29' 08.13"	21° 16' 25.71"
	28° 28' 42.26"	21° 16' 21.12"
28° 28' 40.84"	21° 16' 19.95"	
Date placed	05 December 2012	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Besides the site notices placed on site, and in conspicuous places in the area, and the two newspaper advertisements, a mail drop was conducted to distribute notification letters to all adjacent land-owners/occupiers in Louisvale Road village on 05 December 2012.

Key Organs of State have been identified, and will be given a copy of the Draft Basic Assessment Report for viewing and comment. Please see the list of Organs of State in section 5 below

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP

No comments were received during the initial round of public participation.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

No comments were received during the initial round of public participation.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Water Affairs – Northern Cape	Ms Mazwi (Deputy Director)	053 830 7601	053 842 3258		Private Bag X6101 Kimberley 8300
Department of Roads and Public Works	Mr K Nogwili	053 839 2241	053 839 2291		P O Box 3132 Kimberley 8300
Department of Agriculture and Land Reform	Mr W Mothibi	053 838 9102			Private Bag X5018 Kimberley 8300
Department of Environmental Affairs	Mr Herbert Kutama	012 310 3739	012 310 3753	HKutama@environment.gov.za	Private Bag X447, Pretoria, 0001
Department of Environment and Nature Conservation	Anga Yaphi	054 332 2885	054 331 1155	ayaphi@upprov.ncape.gov.za	P.O. Box 231, Upington, 8800
Department of Agriculture, Forestry and Fisheries	Ms Anneliza Collett	012 319 7508	012 329 5938	annelizaC@nda.agri.za	Private Bag x120 Pretoria 0001
SAHRA	Kathryn Smuts	021 462 4502	021 462 4509	ksmuts@sahra.org.za	PO Box 4637, Cape Town 8000
Siyanda District Municipality	Mr D Ngxanga	054 337 2800	054 337 2888		Private Bag X6039, Upington, 8800

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
	<i>Direct impacts:</i> Impact on threatened or protected ecosystems	Low	<ul style="list-style-type: none"> The proposed extension should be placed towards the north, utilising the existing disturbed areas as much as possible. It will have the added advantage of impacting on the minimum protected species, but it will mean impacting on a small portion of the water course running next to current WWTW. In doing this the impact on natural veld and protected species is minimised, and even though the river will be impacted it might lead to a lower pollution potential for downstream receptors. All efforts must be made to minimise the impact on protected species encountered on site. Permits must be obtained for the removal of any protected species which cannot be avoided.
	Impact on protected species	Low medium	<ul style="list-style-type: none"> The proposed extension should be placed towards the north, utilising the existing disturbed areas as much as possible. It will have the added advantage of impacting on the minimum protected species, but it will mean impacting on a small portion of the water course running next to current

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<p>WWTW. In doing this the impact on natural veld and protected species is minimised, and even though the river will be impacted it might lead to a lower pollution potential for downstream receptors.</p> <ul style="list-style-type: none"> • As a pre-cautionary measure all viable herb-, bulbs- and succulent plant species encountered within the footprint should be removed and replanted through a dedicated search and rescue operation. • Permits must be obtained for the removal of any protected species which cannot be avoided.
	<p>Direct loss of vegetation, ecological processes, ecosystem connectivity and local biodiversity</p>	<p>Low</p>	<ul style="list-style-type: none"> • The proposed extension should be placed towards the north, utilising the existing disturbed areas as much as possible. It will have the added advantage of impacting on the minimum protected species, but it will mean impacting on a small portion of the water course running next to current WWTW. In doing this the impact on natural veld and protected species is minimised, and even though the river will be impacted it might lead to a lower pollution potential for downstream receptors. • As a pre-cautionary measure all viable herb-, bulbs- and succulent plant species encountered within the footprint should be removed and replanted through a dedicated search and rescue operation. • Permits must be obtained for the removal of any protected species which cannot be avoided. • Only existing access roads should be used for access to the terrain. Access roads must be clearly demarcated and access must be tightly controlled (deviations may not be allowed). • Indiscriminate clearing of areas must be avoided (all remaining areas to remain as natural as possible). • All topsoil (at all excavation sites) must be removed and stored separately for re-use for rehabilitation purposes. The topsoil and vegetation should be replaced over the disturbed soil to

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<p>provide a source of seed and a seed bed to encourage re-growth of the species removed during construction.</p> <ul style="list-style-type: none"> Once the construction is completed all further movement must be confined to the access tracks to allow the vegetation to re-establish over the excavated areas. Rehabilitation must include sand stabilisation methods to protect the open sandy areas against wind erosion.
	<p>Indirect impacts: Pollution as a result of poorly treated effluent, waste management,</p>	Low	<ul style="list-style-type: none"> Appoint a suitably experience ECO during the construction phase of the project.
	Cumulative impacts:		
	Direct impacts:		
	Indirect impacts:		
	Cumulative impacts:		
Alternative 2			
	Direct impacts:		
	Indirect impacts:		
	Cumulative impacts:		
	Direct impacts:		
	Indirect impacts:		
	Cumulative impacts:		
Alternative 3			
	Direct impacts:		
	Indirect impacts:		
	Cumulative impacts:		
	Direct impacts:		
	Indirect impacts:		

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Activity	Impact summary	Significance	Proposed mitigation
	Cumulative impacts:		
No-go option			
	Direct impacts: The current pond system will operate at flows in excess of the design capacity, which leads to effluent no longer meeting the requirements and overflow of poorly treated effluent into the surrounding area and drainage lines. This will lead to potential environmental pollution and possible health risks	Medium	Upgrade and extend the current oxidation ponds as per the proposed preferred alternative
	Indirect impacts:		
	Cumulative impacts:		

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

Construction phase.

Potential impact on freshwater ecosystems – **Negligible to Low - positive**

Loss of vegetation type and habitat including plant species due to construction activities - **Low – negative**

Removal on invasive alien vegetation - **Low – Positive**

Impact on fauna and avi-fauna - **Low - Negative**

Job creation – **Low - Positive**

Loss of cultural or historic aspects – **Negligible**

Noise impact - **Negligible**

Visual impact – **Negligible**

Operational Phase

Impact on freshwater ecosystems in event of malfunction and effluent/untreated wastewater overflow occurs – **Low – negative to negligible**

Impact on biological aspects – **No impacts are envisaged**

Impact on socio-economic aspects – **Medium – Positive**

Loss of cultural or historic aspects – **No heritage or cultural aspects is expected to be impacted during the operational phase.**

Noise impact – **No impacts expected**

Visual impacts – **No impacts expected**

Decommissioning

The project as proposed does not require 'decommissioning' or 'closure', as such the potential impacts thereof is considered irrelevant.

Alternative B

Alternative C

No-go alternative (compulsory)

According to the biodiversity assessment (**Appendix D2**), the "No-Go alternative" does not signify significant biodiversity gain or loss especially on a regional basis. However, it will ensure that none of the potential impacts above occur. The current status quo will remain and there will be no impact (even temporarily) on the vegetation, protected species or river corridors. However, the current oxidation pond system has a design capacity of only 800m³/day. During the last 3 to 4 years, significant development has taken place in terms of residential development and flows in excess of the design capacity are now being measured regularly. In addition, the oxidation pond system effluent is no longer meeting the required quality compliance standards resulting in pollution issues and health risks.

The No-Go option will mean that the current unacceptable effluent treatment practices will not be improved. As a result continual pollution issues (which will further increase over time) will remain, with associated health risks as well. The local municipality and governments have a socio-economic responsibility to provide basic services (such as effluent treatment).

Over the long term the proposed project is likely to have a positive environmental impact, while the No-Go option will lead to environmental pollution and health risks.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES	
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If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

N/A

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

- All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must be developed by a suitably experienced Environmental Assessment Practitioner.
- A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and the Biodiversity study recommendations as well as any other conditions which might be required by the Department of Environmental Affairs.
- An integrated waste management system must be implemented during the construction phase.
- All rubble and rubbish (if applicable) must be collected and removed from the site to a suitable registered waste disposal site.
- All alien vegetation should be removed from the larger property.
- The proposed extension should be placed towards the north, utilising the existing disturbed areas as much as possible. It will have the added advantage of impacting on the minimum protected species, but it will mean impacting on a small portion of the water course running next to current WWTW. In doing this the impact on natural veld and protected species is minimised, and even though the river will be impacted it might lead to a lower pollution potential for downstream receptors.
- As a pre-cautionary measure all viable herb-, bulbs- and succulent plant species encountered within the footprint should be removed and replanted through a dedicated search and rescue operation.
- Permits must be obtained for the removal of any protected species which cannot be avoided.
- Only existing access roads should be used for access to the terrain. Access roads must be clearly demarcated and access must be tightly controlled (deviations may not be allowed).
- Indiscriminate clearing of areas must be avoided (all remaining areas to remain as natural as possible).
- All topsoil (in areas with natural veld) must be removed and stored separately for re-use for rehabilitation purposes. The topsoil and vegetation should be replaced over the disturbed soil to provide a source of seed and a seed bed to encourage re-growth of the species removed during construction.

Is an EMPr attached?

YES	
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The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

BASIC ASSESSMENT REPORT

Any other information relevant to this application and not previously included must be attached in Appendix J.

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information