



the denc

Department:
Environment & Nature Conservation
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA

Private Bag X6102, Kimberley, 8300, Metlife Towers, T-Floor, Tel: 053 807 7300, Fax: 053 807 7328

| | | | |
|-----------------------------|--|-------|--------------|
| Project applicant: | Dawid Kruiper Local Municipality | | |
| Business reg. no. /ID. no.: | | | |
| Contact person: | Municipal Manager - Elias Ntoba | | |
| Postal address: | Private Bag X6003, Upington, 8800 | | |
| Telephone: | 054 338 7001 | Cell: | |
| E-mail: | manager@dkm.gov.za | Fax: | 054 338 7351 |

Prepared by:

| | | | |
|---|--|-------|--------------|
| Environmental Assessment Practitioner/Firm: | EnviroAfrica CC | | |
| Business reg. no. /ID. no.: | CK 97 46008/23 | | |
| Contact person: | Clinton Geyser/Bernard de Witt | | |
| Postal address: | P.O. Box. 5367, Helderberg, 7135 | | |
| Telephone: | 021 851 1616 | Cell: | |
| E-mail: | Clinton@enviroafrica.co.za | Fax: | 086 512 0154 |

| | |
|-------------------------------|-------------------------|
| | (For official use only) |
| File Reference Number: | |
| Application Number: | |
| Date Received: | |

Basic Assessment Report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

- This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 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.
- This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
- 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.
- Where applicable **tick** the boxes that are applicable in the report.
- An incomplete report may be returned to the applicant for revision.
- 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.
- This report must be handed in at offices of the relevant competent authority as determined by each authority.
- No faxed or e-mailed reports will be accepted.
- The signature of the EAP on the report must be an original signature.
- The report must be compiled by an independent environmental assessment practitioner.
- 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.
- A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
- 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.

PROPOSED LOUBOS OXIDATION PONDS, REMAINDER OF FARM MIER NO. 585, LOUBOS, DAWID KRUIPER LOCAL MUNICIPALITY, NORTHERN CAPE

SECTION A: ACTIVITY INFORMATION

| | | |
|--|-----|----|
| 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 the specialist appointed and attach in Appendix I. | | |

• **ACTIVITY DESCRIPTION**

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

The site is located on Remainder of Farm Mier No. 585, near the town of Loubos. Six different potential site locations have been identified on the property (please refer to the Google Earth below) which will be assessed, of which only one will be developed (the preferred site location is Site 1).

It is proposed that new oxidation ponds be constructed near the town. The oxidation ponds will consist of the following: 2 x Anaerobic Ponds (525 m³), 1 x Facultative Pond (1350 m³), 3 x Aerobic Ponds (2700 m³) and 1 x Final Storage Pond (700 m³). The total surface area of the oxidation ponds will be 0.4ha. The total area of the development site (fenced off area), will be 1.68ha.

Sewerage will be collected from the existing conservancy tanks in Loubos and be transported and disposed of in the proposed oxidation ponds for treatment.

The town of Loubos does not have any formal sanitation system. The existing system comprise dry sanitation (VIP/UDS), night-soil and some conservancy tanks to a lesser extent.

With the completion of the Kalahari-East to Mier Pipeline project, sustainable water provision to Loubos was addressed. In order to provide full-waterborne sanitation services, a wastewater treatment works must be constructed to treat the effluent that will be generated.

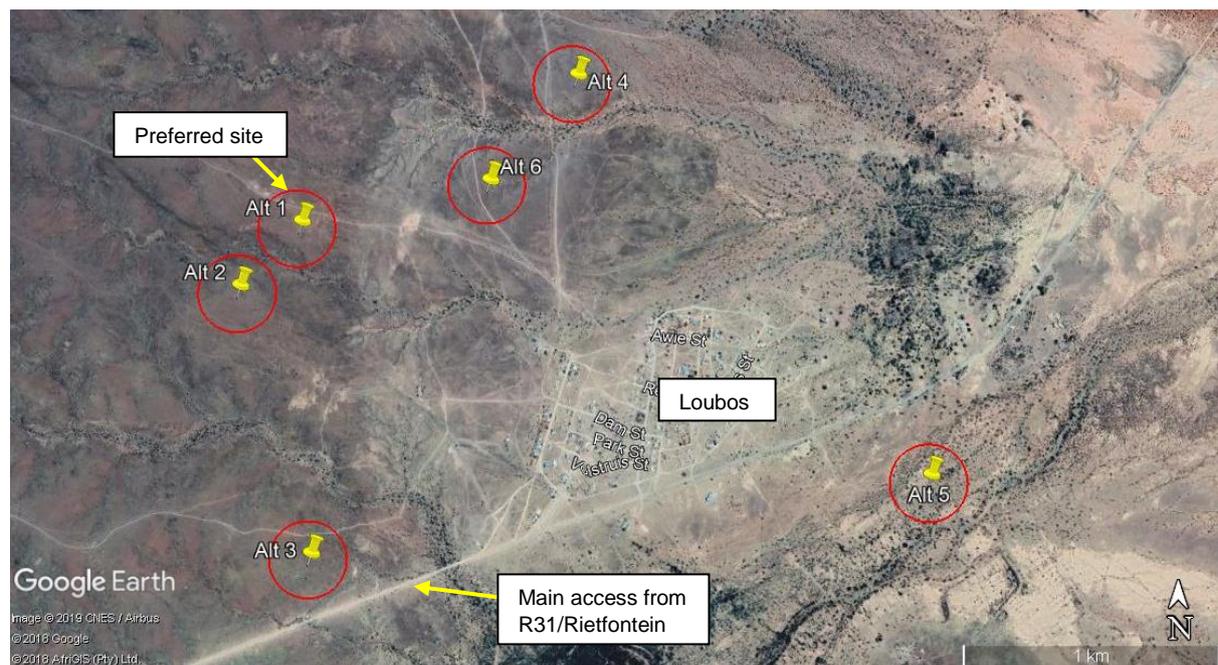


Figure 1: Google Earth Locality Plan.

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

| Listed activity as described in GN 324, 325 and 327 | Description of project activity |
|---|--|
| <p><u>GN 327 (Item 12):</u> The development of; (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs; (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p><u>GN 327 (Item 19):</u> The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a <u>watercourse</u>; (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; or (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies.</p> <p><u>GN 327 (Item 27):</u> The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for; (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p><u>GN 325 (Item 12):</u> The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> | <p>Infrastructure may be placed within a watercourse, or within 32m of a watercourse.</p> <p>The construction of the oxidation ponds may include the infilling and/or depositing of material within the watercourse/s on site.</p> <p>More than 1ha of vegetation will be cleared for the development.</p> <p>More than 300 square meters of vegetation will be cleared for the development. The site is located outside an urban area and within a CBA.</p> |

| | |
|--|--|
| <p><u>GN 325 (Item 14):</u> The development of;</p> <ul style="list-style-type: none"> (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 10 square metres; (ii) infrastructure or structures with a physical footprint of 10 square metres or more; <p>where such development occurs;</p> <ul style="list-style-type: none"> (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; <p>Excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</p> | <p>Infrastructure exceeding 10 square meters may be placed within a watercourse, or within 32m of a watercourse. The site is located outside an urban area and within a CBA.</p> |
|--|--|

• **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 Appendix 1 (3)(h), Regulation 2014. 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.

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, 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

Site alternatives have been identified (please see Figure 1 above).

| Alternative 1 (preferred alternative) | | |
|---|---------------|----------------|
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| <p>This option is the preferred alternative since it has taken the prevailing wind direction in consideration, and is far enough from town as to now cause a nuisance (odour) to the town of Loubos.</p> <p>It is also ideal from an engineering perspective, and also has existing access roads.</p> <p>There are also no significant freshwater, botanical or heritage resources on the site, with the impacts on these ranging from Low to Very Low.</p> | 26°42'12.47"S | 20°05' 57.87"E |
| Alternative 2 | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| <p>Alternative 2 was also considered due to distance from the town and would not be a nuisance to the town. However, it is not as accessible.</p> <p>It also had a higher heritage impact significance compared to the Preferred Alternative.</p> | 26°42'20.98"S | 20°05'49.69"E |
| Alternative 3 | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| <p>Alternative 3 was also considered a viable option, since it has taken the prevailing winds in to consideration. It also has very good access. However, the soil conditions are not ideal, as it is very rocky and may require blasting during construction.</p> | 26°42'54.32"S | 20°05' 59.79"E |
| Alternative 4 | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| <p>Alternative 4 was also considered a viable option, since it has taken the prevailing winds in to consideration, however, it is too close to an NFEPA to be considered.</p> | 26°41'53.36"S | 20°06' 37.19"E |
| Alternative 5 | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| <p>Alternative 5 was not considered viable, as due to it's location and the prevailing wind direction, may become a nuisance (odour) to the residents of Loubos.</p> <p>It also had a higher botanical impact significance compared to the Preferred Alternative, as it is located within a CBA2. It is also to close to a NFEPA</p> | 26°42'45.17"S | 20°07' 27.47"E |
| Alternative 6 | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| <p>Although Alternative 6 is a viable site, it was not preferred as it was considered to close to the town.</p> <p>It also had a higher heritage impact significance compared to the Preferred Alternative.</p> | 26°42'06.93"S | 20°06' 24.57"E |

In the case of linear activities:

| 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 | | |

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 of this form.

b) Lay-out alternatives

There are no feasible layout alternatives that were considered

| Alternative 1 (preferred alternative) | | |
|---|--------------|---------------|
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| There are no feasible alternative layouts considered that would mitigate any potential environmental impact, as the entire site will be developed | | |
| Alternative 2 | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| | | |
| Alternative 3 | | |
| Description | Lat (DDMMSS) | Long (DDMMSS) |
| | | |

c) Technology alternatives

No technology alternatives were considered.

| Alternative 1 (preferred alternative) |
|--|
| |
| Alternative 2 |
| |
| Alternative 3 |
| |

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

| | | |
|--|--|--|
| Alternative 1 (preferred alternative) | | |
| | | |
| Alternative 2 | | |
| No other alternatives were considered. | | |
| Alternative 3 | | |
| | | |

e) **No-go alternative**

This would mean that no-development would take place and the proposed site will remain as is. No new oxidation ponds will be constructed, and the town of Loubos will remain without a formal sanitation system.

Although this option would result in no potential negative environmental impacts, the socio-economic benefits from implementing the activity would not be achieved.

The no-go option would only have been recommended if it were found that the construction of the proposed development on this site or in this area might potentially cause substantial detrimental harm to the environment.

According to the Botanical Assessment (**Appendix D2**), the oxidation ponds would not be built and there would be no change to the *status quo*. The natural veld would persist around Loubos and there would be continued grazing by livestock, mainly goats. The 'no development' alternative or 'No Go' alternative would thus have a minimal further (negligible) impact on the natural vegetation with no significant further loss in the short- to long-term.

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

• **PHYSICAL SIZE OF THE ACTIVITY**

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

| Alternative: | Size of the activity: |
|---|------------------------------|
| Alternative A1 (preferred activity alternative) | Approximately 1.68ha |
| Alternative A2 (if any) | ha |
| Alternative A3 (if any) | m ² |

or, for linear activities:

| Alternative: | Length of the activity: |
|---|--------------------------------|
| Alternative A1 (preferred activity alternative) | m |
| Alternative A2 (if any) | m |
| Alternative A3 (if any) | m |

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

| Alternative: | Size of the site/servitude: |
|---|-----------------------------|
| Alternative A1 (preferred activity alternative) | m ² |
| Alternative A2 (if any) | m ² |
| Alternative A3 (if any) | m ² |

• **SITE ACCESS**

| | | |
|--|-----|----|
| Does ready access to the site exist? | YES | NO |
| If NO, what is the distance over which a new access road will be built | N/A | |

Describe the type of access road planned:

No new access roads will be required. Existing tracks will be utilised.

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.

• **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 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).

- **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.

- **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 DWS);
- 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.

- **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.

- **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.

• **ACTIVITY MOTIVATION**

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

| | | | |
|---|------------|-----------|-----------------------|
| <p>• Is the activity permitted in terms of the property's existing land use rights?</p> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| <p>The site is located on Communal Land owned by the municipality</p> | | | |
| <p>• Will the activity be in line with the following?</p> | | | |
| <p>(a) Provincial Spatial Development Framework (PSDF)</p> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| <p>The town of Loubos does not have any formal sanitation system. In order to provide full-waterborne sanitation services, a wastewater treatment works must be constructed to treat the effluent that will be generated.</p> | | | |
| <p>(b) Urban edge / Edge of Built environment for the area</p> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| <p>The site is located outside the urban area of Loubos</p> | | | |
| <p>(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?).</p> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| <p>According to the Dawid Kruiper Local Municipality Integrated Development Plan 2017 – 2022, the towns of the Mier area do not have sufficient and effective sewerage systems. Sanitation in towns consists mainly of bucket systems, VIP systems and normal pit latrines, while other sites are serviced with flush systems. The development under this area will include</p> <ul style="list-style-type: none"> • Development of sanitation policy (free basic sanitation) • Construction of Oxidation Ponds (Askham / Welkom / Klein & Groot Mier / Loubos / Philandersbron) • Construction of sewerage lines • Upgrading of VIP toilettes | | | |
| <p>(d) Approved Structure Plan of the Municipality</p> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| <p>Unknown. The town of Loubos does not have any formal sanitation system. In order to provide full-waterborne sanitation services, a wastewater treatment works must be constructed to treat the effluent that will be generated.</p> | | | |

| | | | |
|--|------------|-----------|-----------------------|
| <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> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| <p>It is not expected that the proposed activity would compromise the Siyanda EMF 2008</p> | | | |
| <p>(f) Any other Plans (e.g. Guide Plan)</p> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| | | | |
| <p>• 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> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| | | | |
| <p>• 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> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| <p>The town of Loubos does not have any formal sanitation system. In order to provide full-waterborne sanitation services, a wastewater treatment works must be constructed to treat the effluent that will be generated.</p> | | | |
| <p>• 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> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| <p>The proposed project is to provide sanitation services to the town of Loubos.</p> | | | |
| <p>• 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.)</p> | <p>YES</p> | <p>NO</p> | <p>Please explain</p> |
| <p>The Applicant is the municipality</p> | | | |

| | | | |
|---|-----|----|----------------|
| <ul style="list-style-type: none"> • Is this project part of a national programme to address an issue of national concern or importance? | YES | NO | Please explain |
| Sufficient and functioning basic services, including adequate sanitation, is a national concern | | | |
| <ul style="list-style-type: none"> • 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 | NO | Please explain |
| The proposed location has been identified by the engineers as suitable for the proposed development. There are no significant negative environmental impacts that have been identified by the freshwater, botanical or heritage specialists. | | | |
| <ul style="list-style-type: none"> • Is the development the best practicable environmental option for this land/site? | YES | NO | Please explain |
| <p>The proposed development may not be the best environmental option, however, it's significant positive social advantages outweigh any negative impacts. No significant negative impacts are expected.</p> <p>According to the Freshwater Assessment (Appendix D1), the proposed development would generally have a Low to Very Low negative impact (with proper and adequate mitigation measures in place) on freshwater resources.</p> <p>According to the Botanical Impact Assessment (Appendix D2), the proposed development would have a Very Low negative impact on botanical resources.</p> <p>The proposed development will not negatively impact on any significant archaeological resources and according to the Heritage Impact Assessment (Appendix D3), the lithic traces on the landscape of proposed site are of Low Significance and the impact of the development on these resources are inconsequential. According to the HIA the area has a low palaeontological significance.</p> | | | |
| <ul style="list-style-type: none"> • Will the benefits of the proposed land use/development outweigh the negative impacts of it? | YES | NO | Please explain |
| No significant negative environmental impacts are expected by the proposed development and the benefits of proper sanitation services will outweigh any negative impacts. | | | |
| <ul style="list-style-type: none"> • Will the proposed land use/development set a precedent for similar activities in the area (local municipality)? | YES | NO | Please explain |
| N/A. Although better sanitation services are required in other towns in the area. | | | |
| <ul style="list-style-type: none"> • Will any person's rights be negatively affected by the proposed activity/ies? | YES | NO | Please explain |
| No person's rights are expected to be negatively affected by the proposed development. The activity is far enough from the town as to not create a nuisance (smell). The activity is expected to have a general positive impact on the surrounding area. | | | |
| <ul style="list-style-type: none"> • Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality? | YES | NO | Please explain |
| Unknown. The development is located outside the built up/urban area of Loubos | | | |

| | | | |
|--|----------------|----|----------------|
| <ul style="list-style-type: none"> • Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)? | YES | NO | Please explain |
| <p>The proposed oxidation ponds at Loubos is considered to contribute to SIPS 18:</p> <p>SIP 18: Water and sanitation infrastructure</p> <p>A 10-year plan to address the estimated backlog of adequate water to supply 1.4m households and 2.1m households to basic sanitation.</p> <p>The project will provide for new infrastructure.</p> | | | |
| <ul style="list-style-type: none"> • What will the benefits be to society in general and to the local communities? | Please explain | | |
| <p>The project will provide job opportunities during the construction and the operational phase.</p> <p>This development has the potential to provide an economic injection in the local community, by means of creating employment opportunities.</p> <p>Most importantly, it will provide sanitation services for the town of Loubos.</p> | | | |
| <ul style="list-style-type: none"> • Any other need and desirability considerations related to the proposed activity? | Please explain | | |
| <p>The proposed development will also provide job opportunities during the construction and operational phase.</p> | | | |
| <ul style="list-style-type: none"> • How does the project fit into the National Development Plan for 2030? | Please explain | | |
| <p>N/A</p> | | | |
| <ul style="list-style-type: none"> • Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account. | | | |
| <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 – <i>please refer to Section D below.</i> - The effects of the activity on the environment have been considered before actions taken in connection with them – <i>alternatives have been considered and investigated (please refer to Section A below).</i> - Adequate and appropriate opportunity for public participation was ensured through the public participation process – <i>please refer to Section C for the public participation information, including the list of identified Interested and Affected parties, as well as the methods for identifying and informing I&APs of the application and proposed activity.</i> - The environmental attributes have been considered in the management and decision-making of the activity – <i>an EMP has been included (Appendix G) with the proposed activity and must adhere to the requirements of all applicable state Authorities.</i> | | | |
| <ul style="list-style-type: none"> • Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account. | | | |
| <p>The principles of environmental management as set out in section 2 of NEMA have been taken into</p> | | | |

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 – *the proposed activity will have a beneficial impact on people, as it will provide much needed additional housing opportunities.*
- 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.
- 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 – *no exploitation of non-renewable natural resources occurs with the proposed activity.*
- 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 - *refer to Section F below.*
- The interests, needs and values of all interested and affected parties have been taken into account in any decisions through the Public Participation Process – *please refer to Section C for the public participation information.*
- The social, economic and environmental impacts of the activity have been considered, assessed and evaluated, including the disadvantages and benefits – *refer to Section B below.*
- 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 – *the proposed activity is expected to have minimal/negligible environmental impacts, especially after mitigation measures as described under Section D and E and in the EMP are implemented.*

• **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 |
|---|------------------------------|------------------------------------|---------|
| National Water Act | Water Use Licence | Department of Water and Sanitation | Not yet |
| | | | |

• **WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT**

a) **Solid waste management**

| | | |
|--|----------------|---------------|
| Will the activity produce solid construction waste during the construction/initiation phase? | YES | NO |
| If YES, what estimated quantity will be produced per month? Unknown | m ³ | |

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

The general solid waste generated during construction will be consolidated on site during construction, and disposed of at the nearest approved municipal landfill site.

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

The general solid waste generated during construction will be consolidated on site during construction, and disposed of at the nearest approved municipal landfill site.

| | | |
|---|----------------|----|
| Will the activity produce solid waste during its operational phase? | YES | NO |
| If YES, what estimated quantity will be produced per month? | m ³ | |
| How will the solid waste be disposed of (describe)? | | |
| No solid waste is expected to be generated during the operational phase, however, sludge will accumulate at the bottom of the ponds. | | |
| 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 | | |
| <i>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.</i> | | |

| | | |
|---|-----|----|
| 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? | YES | 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

| | | |
|---|-----|----|
| Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? N/A – the proposed development is a wastewater treatment works | YES | NO |
| If YES, what estimated quantity will be produced per month? | N/A | |
| Will the activity produce any effluent that will be treated and/or disposed of on site? | YES | NO |
| <i>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.</i> | | |
| The proposed development is a wastewater treatment works. Approximately 110m ³ /day of effluent will be treated per day. | | |

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

| |
|-----|
| N/A |
|-----|

c) Emissions into the atmosphere

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

d) Waste permit

| | | |
|---|-----|----|
| Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA? | YES | NO |
| A Waste management is not required in our opinion, as the activity will be producing effluent/ wastewater to be stored in ponds | YES | NO |

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

e) Generation of noise

| | | |
|---|-----|----|
| Will the activity generate noise? | YES | NO |
| If YES, is it controlled by any legislation of any sphere of government? | YES | NO |
| Describe the noise in terms of type and level: | | |
| The activity is not expected to produce significant noise that would be a nuisance to any nearby residents. | | |

- **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 |
|-----------|-------------|-------------|----------------------------|-------|---------------------------------|

| | | |
|---|-----|----|
| 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: | N/A | |
| Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs? | YES | NO |
| If YES, please provide proof that the application has been submitted to the Department of Water Affairs. | | |

- **ENERGY EFFICIENCY**

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

| |
|-----|
| N/A |
|-----|

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.

| | | |
|---|-----|----|
| <ul style="list-style-type: none"> 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 | ZF Mgcawu District Municipality |
| | Local Municipality | Dawid Kruiper Local Municipality |
| | Ward Number(s) | |
| | Farm name and number | Farm 585 |
| | Portion number | |
| | SG Code | C0280000000058500000 |
| 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: | Communal Land | |
| | 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? | | YES NO |

- 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 |
|------|-------------|------------------------|------------------------|-------------------------|------------------------|------------------|

Alternative S2 (if any):

| | | | | | | |
|------|-------------|-------------|-------------|--------------|-------------|------------------|
| 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 |
|------|-------------|-------------|-------------|--------------|-------------|------------------|

Alternative S3 (if any):

| | | | | | | |
|------|-------------|-------------|-------------|--------------|-------------|------------------|
| 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 |
|------|-------------|-------------|-------------|--------------|-------------|------------------|

- LOCATION IN LANDSCAPE**

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

| | | | | | |
|---------------------------------|--|-------------------|---|----------------------------------|--|
| 2.1 Ridgeline | | 2.4 Closed valley | | 2.7 Undulating plain / low hills | |
| 2.2 Plateau | | 2.5 Open valley | X | 2.8 Dune | |
| 2.3 Side slope of hill/mountain | | 2.6 Plain | | 2.9 Seafront | |
| 2.10 At sea | | | | | |

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

- GROUND COVER**

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 |

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.

- SURFACE WATER**

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

| | | | |
|------------------------------|----------------|---------------|-------------------|
| Perennial River | YES | NO | UNSURE |
| Non-Perennial River | YES | NO | UNSURE |
| Permanent Wetland | YES | NO | UNSURE |
| Seasonal Wetland | YES | NO | UNSURE |
| Artificial Wetland | YES | NO | UNSURE |
| Estuarine / Lagoonal wetland | YES | NO | UNSURE |

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

An ephemeral stream crosses through the proposed site (Alternative 1). However, the WWTW can be positioned to be outside the main drainage line channel. According to the Freshwater Assessment (**Appendix D1**), this drainage line passes the town of Loubos to the north, and are not part of the main water way above the Swartbas Dam. They all connect to the Hakskeen Pan downstream of the Swartbas Dam.

The site, including all alternative sites, are subject to moving water during high rainfall events. Any runoff from the sites essentially will flow into Hakskeen Pan through Sub-Catchment 2.



Figure 2: Google Earth image of the site, showing the nearest watercourse (blue line) in relation to the site.

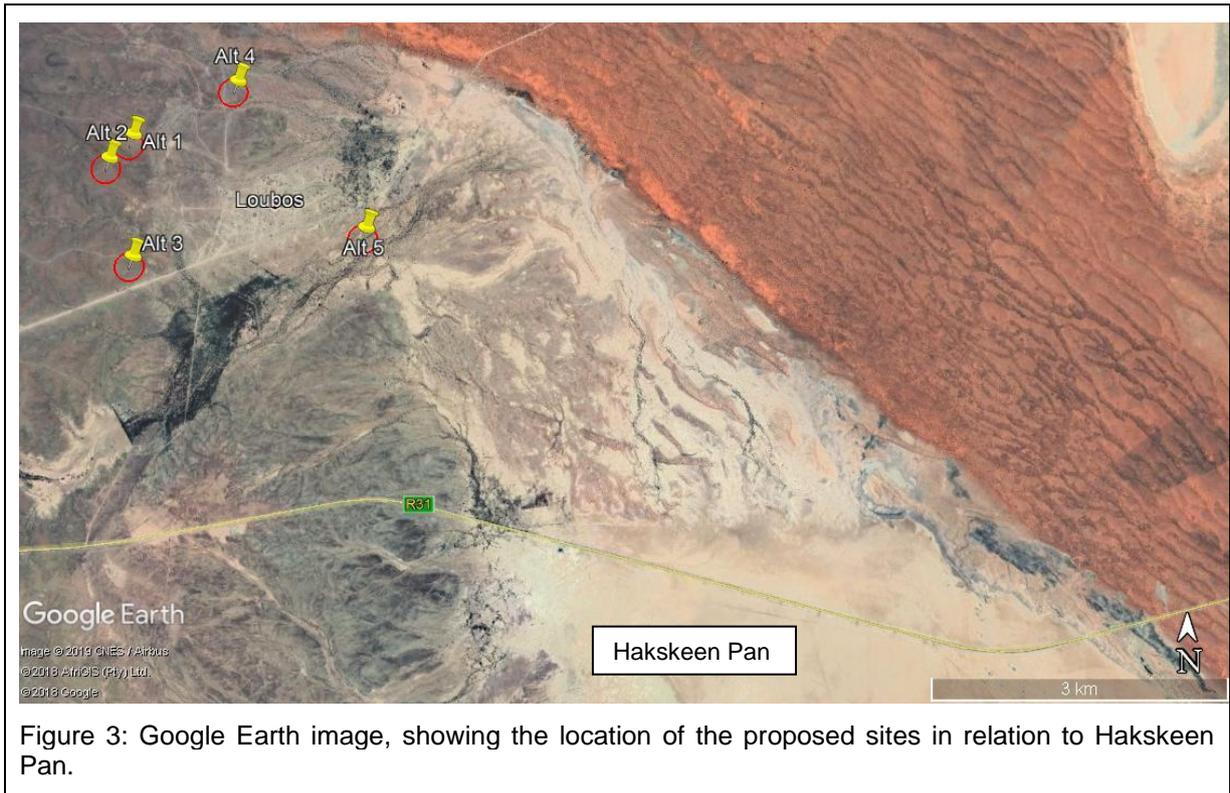


Figure 3: Google Earth image, showing the location of the proposed sites in relation to Hakskeen Pan.

• **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 (livestock grazing) |
| 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 this impact will / be impacted upon by the proposed activity? Specify and explain:

No impacts are expected.

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:

No impacts are expected.

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) | YES | NO |
| Core area of a protected area? | YES | NO |
| Buffer area of a protected area? | YES | NO |
| Planned expansion area of an existing protected area? | YES | NO |
| Existing offset area associated with a previous Environmental Authorisation? | YES | NO |
| Buffer area of the SKA? | YES | NO |

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

• **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 | NO |
| | Uncertain | |

The following are the findings according to the Heritage Impact Assessment (**Appendix D3**):

A total of ten incidences of Stone Age material were found across the surveyed area marked as Alternatives 1 & 2. Four lithic occurrences were documented within the development footprint Alternative 2, while no lithic material was observed within the boundaries of Alternative 1. Furthermore, three locations of lithic material were recorded outside the northern boundary of Alternative 2, one to the northwest, and two locations towards the south. Predominantly the lithic assemblages consist of chunks, flakes, and knapping debris scattered ex situ in low densities ($n < 5$ per m^2). Raw material includes quartz, quartzite, sandstone, shale and chert. The cultural material recorded shows various degrees of weathering and is representative of the Early Later Stone Age and the Middle Stone Age. One site, within the southwestern quadrant of Alternative 2, has a higher density of lithics ($n > 5/m^2$; $n < 10/m^2$) in area of approximately 20 m^2 . The higher quantity of knapping debris could be indicative of a small knapping site.

Isolated, the identified archaeological materials are of low significance, as the archaeological samples are small and without context, and therefore of little scientific value. However, due to the concentrated frequency and density of the lithic scatters across the landscape around Alternatives 1 & 2, holistically the material is of medium significance and it is recommended that these two alternatives be avoided or mitigated before development could commence.

These Stone Age heritage finds are given a General protection B (IV B). This means sites

should be recorded before destruction.

No historical features and no formal or informal graves were identified.

According to the Heritage Impact Assessment (**Appendix D3**), the following recommendations are made:

- The lithic traces on the landscape of proposed Alternatives 1, 3, 4, and 5 are of Low Significance and the impact of the development on these resources are inconsequential. Alternative 5 lies within a flood plain, and although the impact on heritage resources is negligible, might not be a feasible option. No further mitigation is required regarding heritage resources. Therefore, from a heritage point of view we recommend that the proposed development can continue any of these proposed Alternatives.
- Alternatives 2 and 6 have lithics scatters that are deemed as Medium Significance and should be mitigated before development can commence on these proposed Alternatives. Mitigation would require sampling, mapping and recording of sensitive areas. Furthermore, care should be taken to avoid these areas completely until its significance can be fully accessed by a professional, especially during construction at any of the more feasible Alternatives.
- Due to the low palaeontological significance of the area, no further palaeontological heritage studies, ground truthing and/or specialist mitigation are required pending the discovery of newly discovered fossils. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area. If fossil remains are discovered during any phase of construction, either on the surface or unearthed by fresh excavations, the ECO in charge of these developments ought to be alerted immediately. These discoveries ought to be protected (preferably in situ) and the ECO must report to SAHRA so that appropriate mitigation (e.g. recording, collection) can be carried out by a professional palaeontologist.

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:

| |
|--|
| |
|--|

| | | |
|---|-----|----|
| Will any building or structure older than 60 years be affected in any way? | YES | NO |
| Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)? | YES | NO |

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

Please note that the site is larger than 5 000m² and the character of the site will change. The project is therefore subject to Section 38(1) of the NHRA. The project will be registered with SAHRA through SAHRIS.

- **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 Dawid Kruiper Municipality: Integrated Development Plan (2017-2022), the unemployment rate decreases significantly from 34% in 2001 to 22.1% in 2011. There was a huge decline in the youth unemployment rate too from 42.3% in 2001 to 29% in 2011 but the youth unemployment rate is still very high in comparison with the overall unemployment rate of the municipality. Although about 44.7% of the Dawid Kruiper population are between 14 and 35 years old, youths remain relatively marginalised.

Economic profile of local municipality:

According to the Dawid Kruiper Municipality: Integrated Development Plan (2017-2022), the Mier Area is predominantly extensive stock and game farming area. Currently sheep farming is probably the most important farming activity. Other farming activities such as cattle, donkeys, mules, goats and game are currently secondary in the area.

Sheep as the most important farming activity is marketed either locally at auctions in Loubos and Askham, or per road transported to auctions in Upington, or for slaughtering in Upington and Groblershoop.

At Loubos and Philandersbron irrigated land is available, which were used in earlier years during good rainy seasons. Two conserving dams were built for this purpose as well as a canal system which is currently in a poor condition. Products from the irrigated land were mainly used for own consumption.

The potential of the area and its people; the average income of farmers in Mier I below the average in comparison to the average of South Africa. The current income of the farming community could improve visibly, if the typical problems in the area could be addressed.

The manufacturing sector of the economy is not currently performing well. However, given the good agricultural base, opportunities for the expansion of the manufacturing industry exists through agro-processing and other activities. The local manufacturing sector also has a lot of potential for expansion and diversification, and the NCPGDS and the Dawid Kruiper IDP suggests that funds be invested in this sector.

Level of education:

According to the Dawid Kruiper Municipality: Integrated Development Plan (2017-2022), an increase of 5.1% (20.9% in 2001 to 26% in 2011) of people living in Dawid Kruiper over the age of twenty years have completed the 12th grade while there was a significant decline of 6.5% (13.6 in 2001 to 7.1% in 2011) in people that had no schooling at all. Higher education increases from 20.9% in 2001 to 26% in 2011.

b) Socio-economic value of the activity

| | | |
|--|----------------|----|
| What is the expected capital value of the activity on completion? | R 3 500 000-00 | |
| What is the expected yearly income that will be generated by or as a result of the activity? | R90 000-00 | |
| Will the activity contribute to service infrastructure? | YES | NO |
| Is the activity a public amenity? | YES | NO |
| How many new employment opportunities will be created in the development and construction phase of the activity/ies? | 15 | |
| What is the expected value of the employment opportunities during the development and construction phase? | R396 000-00 | |
| What percentage of this will accrue to previously disadvantaged individuals? | 100% | |
| How many permanent new employment opportunities will be created during the operational phase of the activity? | 1 | |
| What is the expected current value of the employment opportunities during the first 10 years? | R 1 200 000-00 | |
| What percentage of this will accrue to previously disadvantaged individuals? | 100% | |

• **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 (NNA) | According to the Botanical Assessment (Appendix D2), four of the alternative sites including the preferred site) are located in an area mapped as 'Other Natural Areas' whereas Alternative 5 is located in an area mapped as Critical Biodiversity Area Category 2 (CBA2). |



Figure 3: SANBI BGIS map of the Northern Cape Critical Biodiversity Areas (2016) showing the location of the proposed development site within an “Other Natural Area”.

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) | % | |
| Degraded (includes areas heavily invaded by alien plants) | 100 % | According to the Botanical Assessment (Appendix D2), the area of Alternative 1 is on a rough gravel plain where a two-spoor track runs. The vegetation is sparse on the gravel plain with the dominant species being <i>Rhigozum trichotomum</i> (driedoring), with scattered specimens of <i>Boscia foetida</i> subsp. <i>Foetida</i> . A few other notable species were recorded namely, <i>Aptosimum spinescens</i> , <i>Zygophyllum</i> cf. <i>rigidum</i> , one plant of the enigmatic <i>Hoodia gordonii</i> (bitterghaap; muishondghaap) and a single tree of <i>Parkinsonia</i> |

| | | |
|--|----|---|
| | | <i>africana</i> (green hair tree). The Alternative 1 site is heavily grazed by goats which could partly account for the sparse vegetation, particularly with respect to herbaceous plants. |
| Transformed (includes cultivation, dams, urban, plantation, roads, etc) | 0% | |

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 | UNSURE | YES | NO | 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)

Vegetation

According to the Botanical Assessment (**Appendix D2**), the vegetation found in the immediate surrounds of Loubos where the oxidation ponds would be constructed is Kalahari Karroid Shrubland which fall into the Bushmanland and West Griqualand Bioregion of the Nama Karoo Biome. It is a low karroid shrubland with taller shrubs in the drainage lines. It is found on gravel plains as opposed to the vegetation found on sandy soils, the so-called *Gordonia* Duneveld that falls within the Kalahari Duneveld Bioregion of the Savanna Biome. However, it is in this vegetation type that karroid elements meet and mix with northern, savannah floristic elements meaning that this vegetation is transitional between Karoo and Savanna.

Although a number of grass species are listed as occurring in Kalahari Karroid Shrubland, almost no grass was found in the Loubos study area. This is ascribed to both the very dry conditions but also to the heavy grazing, mainly by goats. The low shrub component was also lacking and relatively few species were recorded. This is also ascribed to severe grazing pressure in a hyper-arid environment.

Kalahari Karroid Shrubland is not listed in the National List of Threatened Ecosystems and it is thus Least Threatened.

According to the Botanical Assessment (**Appendix D2**), the area of Alternative 1 is on a rough gravel plain where a two-spoor track runs. The vegetation is sparse on the gravel plain with the dominant species being *Rhigozum trichotomum* (driedoring), with scattered specimens of *Boscia foetida* subsp. *Foetida*. A few other notable species were recorded namely, *Aptosimum spinescens*, *Zygophyllum* cf. *rigidum*, one plant of the enigmatic *Hoodia gordonii* (bitterghaap; muishondghaap) and a single tree of *Parkinsonia africana* (green hair tree).

The Alternative 1 site is heavily grazed by goats which could partly account for the sparse vegetation, particularly with respect to herbaceous plants.

According to the Botanical Assessment (**Appendix D2**), a nominal ranking of the Alternative 1—4 site would be to select Alternative 1 first, Alternative 4 second and then Alternative 3 and finally Alternative 2. This ranking is based mainly on terrain characteristics and access rather than on plant community characteristics since the latter are similar across the sites.

No threatened plant species were found at any of the sites and since Alternative 5 is recommended for avoidance, no protected *Vachellia erioloba* (camel-thorn) trees would be affected.

Aquatic ecosystems

According to the Freshwater Assessment (**Appendix D1**), an ephemeral stream crosses through the proposed site (Alternative 1). However, the WWTW can be positioned to be outside the main drainage line channel. This drainage line passes the town of Loubos to the north, and are not part of the main water way above the Swartbas Dam. They all connect to the Hakskeen Pan downstream of the Swartbas Dam.

The site, including all alternative sites, are subject to moving water during high rainfall events.

SECTION C: PUBLIC PARTICIPATION

• ADVERTISEMENT AND NOTICE

| | | |
|-----------------------------|-----------------------|------------------|
| Publication name | Northern Cape Express | |
| Date published | 24 October 2018 | |
| Site notice position | Latitude | Longitude |
| | | |
| Date placed | See Appendix E1 | |

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

• DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

| 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.

• 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 PPP period | |
| <p>Only comment from Department of Agriculture, Forestry and Fisheries (Northern Cape) was received:</p> <ul style="list-style-type: none"> - Scattered protected trees are known to occur in the vicinity of Loubos. Kindly assess the six site alternatives in terms of the number of protected trees per site alternative. Protected trees must be avoided as far as possible. No protected | <p>This was noted, and a Botanical Impact Assessment has been conducted (Appendix D2).</p> <p>According to the Botanical Impact Assessment, no threatened plant species were found at any of the sites, except for trees of <i>Vachellia erioloba</i> (camel thorn) [a protected tree species] occurring as scattered individuals of moderate age at Alternative 5. Since Alternative 5 is</p> |

| | |
|--|---|
| <p>tree may be damaged or disturbed without a valid Forest Act License.</p> <ul style="list-style-type: none"> - Trees with bird nests may not be disturbed without a valid Fauna Permit from the provincial Department of Environment and Nature Conservation (DENC), if affected. | <p>recommended for avoidance, no protected <i>Vachellia erioloba</i> (camel-thorn) trees would be affected.</p> |
|--|---|

• **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.

• **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 |
|--|---|---------------|---------------|---------------|--|
| NC Department of Agriculture & Land Reform | W. Mothibi (HOD) | (053)838 9102 | | | Private Bag X5018, Kimberley, 8300 |
| Department of Cooperative Governance, Human Settlements and Traditional Affairs (NC) | Gladys Botha | 053 830 9513 | | | Private bag X5005, Kimberley, 8300 |
| Department of Roads and Public Works | K. Nogwili (HOD) | (053)839 2241 | | | P O Box 3132, Kimberley, 8300 |
| Directorate Forestry Management | J. Mans | 054 338 5909 | | | PO Box 2782, Upington, 8800 |
| Department of Water and Sanitation | A. Abrahams | 053 830 8803 | 053 831 4534 | | 28 Central Road, Beaconsfield, Kimberley, 8301 |
| Department of Water Affairs-Northern Cape | R. Mazwi | 053 7731239 | | | Private Bag X6101, Kimberley, 8300 |
| SAHRA | | 021 462 4502 | | | P.O.Box 4637, Cape Town, 8000 |

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.

- **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, 2014 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.

- ### 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) | | | |
| | <p>Direct impacts:</p> <p>Potential impact on freshwater ecosystems</p> <ul style="list-style-type: none"> - Loosening of soil during construction phase, washing of soil down the drainage lines and into the Hakskeen Pan during a storm event. - Flood damage during operational phase, Washing of sewage, sludge or treated sewage effluent down the drainage lines and into Hakskeen Pan, - Leakage and overflowing of WWTW - Irrigation with treated sewage effluent. - Maintenance of WWTW - Desludging op anaerobic ponds, - Transport of raw sewage - Spillage from tanker trucks | <p>Low Negative</p> <p>Very Low Negative</p> <p>Very Low Negative</p> <p>Very Low Negative</p> | <ul style="list-style-type: none"> - The new WWTW should be sited as far as possible from drainage lines. If possible at all it should not be sited in a drainage line. As it stands now, it would be hard to find a locality at least 100m away from drainage lines, as these are densely distributed over the landscape. Drainage lines migrate over time across the sandy landscape. Even where there are no drainage lines, signs of water movement are evident. The siting of the new WWTW poses challenges and demand serious consideration. - The new WWTW should be located as far as possible from the banks of Hakskeen Pan. - If possible at all the new WWTW should be sited in the catchment area of the Swartbas Dam. The dam could serve as a buffer, in case of an accidental spillage. - During the construction phase only one access route should be allowed. Vehicles should not be allowed to move anywhere but on the access road. The footprint should be kept as |

| | | |
|--|--|--|
| | | <p>small as possible.</p> <ul style="list-style-type: none"> - Likewise, the WWTW's site should be kept as small as possible, with construction activities limited to a demarcated area. - Riparian zones should be kept intact, as far as possible. Where damaged, rehabilitation should take place. - Special care should be taken during the design of the new WWTW with regard to storm water management. Cut-off berms and erosion resistant materials should be included in the design. The design should make provision for a worst-case scenario - At least 500mm freeboard should be maintained in the ponds at all times. Additional ponds should be considered prior to the reaching of the design capacity of the new WWTW. - Written contingency plans should be drafted for implementation, should a spill ever occur. - Clean-up kits should be available, in case of a spill from tanker trucks. - The de-sludging of anaerobic ponds poses special challenges. A new pond should be ready for use prior to the de-sludging operation. The pond in need of maintenance should be allowed to properly dry out before the sludge is removed. Sludge should preferably not be disposed of in the direct Hakskeen Pan catchment area, but should be moved elsewhere so that there is no chance left for any of it to move into Hakskeen Pan during floods. - Given the ecological realities, treated sewage effluent should preferably not be used for irrigation of crops in the Hakskeen Pan catchment area. The effluent should rather be allowed to evaporate from a pond designed for this purpose. The very high evaporation rate of the Kalahari Desert would aid the process. - An ECO should be appointed for the construction of the new WWTW. - Staff operating the WWTW should be properly qualified and |
|--|--|--|

| | | | |
|--|---|-------------------|--|
| | | | experienced. |
| | Botanical impacts: Loss of Kalahari Karroid Shrubland | Very Low Negative | Given the sparse vegetation and low sensitivity habitat, the requirement for mitigation would be low. The only mitigation necessary in the case of Alternatives 1—4 would be to avoid the seasonal drainage lines and to ensure that they are buffered i.e. treated as watercourses and construction should not be within 32 m of the drainage lines. If this is properly applied and the season watercourses are protected, the mitigation would lower the impacts to Very Low Negative for Alternatives 1—4. |
| | The loss of Heritage resources | Low Negative | <ul style="list-style-type: none"> - The lithic traces on the landscape of proposed Alternatives 1, 3, 4, and 5 are of low significance and the impact of the development on these resources are inconsequential. Alternative 5 lies within a flood plain, and although the impact on heritage resources is negligible, might not be a feasible option. No further mitigation is required regarding heritage resources. Therefore, from a heritage point of view we recommend that the proposed development can continue any of these proposed Alternatives. - Alternatives 2 and 6 have lithics scatters that are deemed as Medium Significance and should be mitigated before development can commence on these proposed Alternatives. Mitigation would require sampling, mapping and recording of sensitive areas. Furthermore, care should be taken to avoid these areas completely until its significance can be fully accessed by a professional, especially during construction at any of the more feasible Alternatives. - Due to the low palaeontological significance of the area, no further palaeontological heritage studies, ground truthing and/or specialist mitigation are required pending the discovery of newly discovered fossils. It is considered that the |

| | | | |
|----------------------|--|-------------------|---|
| | | | development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area. If fossil remains are discovered during any phase of construction, either on the surface or unearthed by fresh excavations, the ECO in charge of these developments ought to be alerted immediately. These discoveries ought to be protected (preferably in situ) and the ECO must report to SAHRA so that appropriate mitigation (e.g. recording, collection) can be carried out by a professional palaeontologist (Butler 2018). |
| | | | |
| | Indirect impacts: Temporary jobs will be created in the construction industry during the construction phase. | Low positive | - No mitigation measures are required. Temporary jobs will be created during the construction phase |
| | Cumulative impacts: Botanical: Loss of Kalahari Karroid Shrubland | Very Low Negative | |
| | Direct impacts: | | |
| | Indirect impacts: | | |
| | Cumulative impacts: | | |
| Alternative 2 | | | |
| | Direct impacts: Botanical impacts: Loss of Kalahari Karroid Shrubland | Very Low Negative | |
| | Indirect impacts: | | |
| | Cumulative impacts: Botanical: Loss of Kalahari Karroid Shrubland | Very Low Negative | |
| | Direct impacts: | | |

| | | | |
|----------------------|---|----------------------|--|
| | | | |
| | Indirect impacts: | | |
| | Cumulative impacts: | | |
| Alternative 3 | | | |
| | Direct impacts: Botanical impacts: Loss of Kalahari Karroid Shrubland | Very Low Negative | |
| | Indirect impacts: | | |
| | Cumulative impacts: Botanical: Loss of Kalahari Karroid Shrubland | Very Low Negative | |
| | Direct impacts: | | |
| | Indirect impacts: | | |
| | Cumulative impacts: | | |
| Alternative 4 | | | |
| | Direct impacts: Botanical impacts: Loss of Kalahari Karroid Shrubland | Very Low Negative | |
| | Indirect impacts: | | |
| | Cumulative impacts: Botanical: Loss of Kalahari Karroid Shrubland | Very Low Negative | |
| | Direct impacts: | | |
| | Indirect impacts: | | |
| | Cumulative impacts: | | |
| Alternative 5 | | | |
| | Direct impacts: Botanical impacts: Loss of Kalahari Karroid Shrubland | Low Negative | |

| | | | |
|---------------------|--|-----------------|-----|
| | | | |
| | Indirect impacts: | | |
| | Cumulative impacts: Botanical: Loss of Kalahari Karroid Shrubland | Low Negative | |
| | Direct impacts: | | |
| | Indirect impacts: | | |
| | Cumulative impacts: | | |
| No-go option | | | |
| | Direct impacts: Botanical impacts: Loss of Kalahari Karroid Shrubland | Low Negative | N/A |
| | Indirect impacts: | | |
| | Cumulative impacts: | | |

A complete impact assessment in terms of Regulation 19(3) of GN 326 must be included as Appendix F.

• **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) |
| The following is a summary of the potential impacts, and their ratings after mitigation, and probability of occurrence: |
| <u>Construction phase.</u> |
| Freshwater ecosystems – Low to Very Low Negative (Unlikely with mitigation). |
| Loss of vegetation: |
| Loss of Kalahari Karroid Shrubland – Low to Very Low Negative (Highly Probable) |
| Potential impacts on heritage resources – Low Negative (Probable). |
| Job creation – Low (Positive), definite. |

Noise impact - **Low (negative), definite, during construction phase.**

Visual impact – **Low (negative), definite, during construction**

Operational Phase

Geographical and/or physical aspects - **No impact expected**

Freshwater ecosystems – **Very Low Negative (Unlikely with mitigation).**

Potential impacts on archaeological heritage – **No impact expected**

Socio-economic (additional job opportunities) – **Low (Positive), Definite**

Noise impact – Very **Low, Possible**

Visual impact – **Low, Probable**

Nuisance (odour) – **Low, Possible**

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)

This would mean that no-development would take place and the proposed site will remain as is. No new oxidation ponds will be constructed, and the town of Loubos will remain without a formal sanitation system.

Although this option would result in no potential negative environmental impacts, the socio-economic benefits from implementing the activity would not be achieved.

The no-go option would only have been recommended if it were found that the construction of the proposed development on this site or in this area might potentially cause substantial detrimental harm to the environment.

According to the Botanical Assessment (**Appendix D2**), the oxidation ponds would not be built and there would be no change to the *status quo*. The natural veld would persist around Loubos and there would be continued grazing by livestock, mainly goats. The 'no development' alternative or 'No Go' alternative would thus have a minimal further (negligible) impact on the natural vegetation with no significant further loss in the short- to long-term.

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 | NO |
|--|-----|----|

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.

| |
|---|
| Compliance with the EMP and recommendations of the specialists and appointment of an ECO during the construction phase. |
|---|

| | | |
|----------------------|-----|----|
| Is an EMPr attached? | YES | NO |
|----------------------|-----|----|

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.

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