



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:

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.

REPAIR AND UPGRADE OF THE ONSEEPKANS WATER SUPPLY AND FLOOD PROTECTION INFRASTRUCTURE, ORANGE RIVER, NORTHERN CAPE

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.

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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.
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	NO
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 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

It is proposed that the existing open canal, which runs the length of the Onseepkans settlement (a distance of approximately 16.4 km), before it releases its surplus water back into the Orange River, be repaired and upgraded (please refer to Figure 1 below). It is proposed that the original earth and concrete canal be replaced by a closed concrete pipeline.

Over the years the canal had been repaired and upgraded on numerous occasions, usually after flooding incidents. The existing water supply system has an average water loss percentage of 30% (which are constantly aggravated with each new flood). The proposed activity will not only include the repair to the damage done by floods, but the closed pipeline will ensure better water conservation and management (a maximum of 5% water loss is expected from such a closed system).

The infrastructure will not be expanded or the capacity increased (although much better results are expected from the enclosed system) and the pipeline will be placed within the existing canal footprint. In addition the existing flood protection structures will also be repaired and the intake works as well as outlet works will be repaired and upgraded to better complement the new system and for better protection of the inlet and outlet structures and the environment at these structures (erosion management).

Water from the Orange River is currently supplied to the agricultural land and smallholdings through gravity feed earth canal system designed and build with the establishment of the settlement (no pumping is done). Water is extracted from the Orange River by means of a weir constructed in the river from where it enters the canal. The system is designed to extract a maximum of 1500 l/s. During months with low water demands, flow is regulated with a sluice gate.

Fill/bedding material will be required for the pipeline upgrade, and will be sourced from seven proposed borrow pits, which have been identified in Onseepkans. These are located at seven different locations along the canal route, to minimise the distance from the borrow pit to the pipeline (please refer to figure 2 below).

Table 1. Details on borrow pits

Borrow pit	Site co-ordinates	Area (ha)	Volume material (m ³)
1	28° 44' 49.23" S, 19° 18' 13.04" E	0.71	12780
2a	28° 45' 03.64" S, 19° 21' 17.25" E	0.11	1980
2b	28° 45' 06.13" S, 19° 21' 13.21" E	0.41	7380
3	28° 45' 24.63" S, 19° 19' 57.32" E	0.8	14400
4	28° 44' 25.45" S, 19° 17' 51.90" E	0.74	13320
5	28° 45' 16.52" S, 19° 16' 39.65" E	0.8	14400
6	28° 45' 45.71" S, 19° 16' 28.40" E	0.64	11520
7	28° 46' 23.50" S, 19° 16' 25.73" E	0.75	13500
Total		4.96	89280

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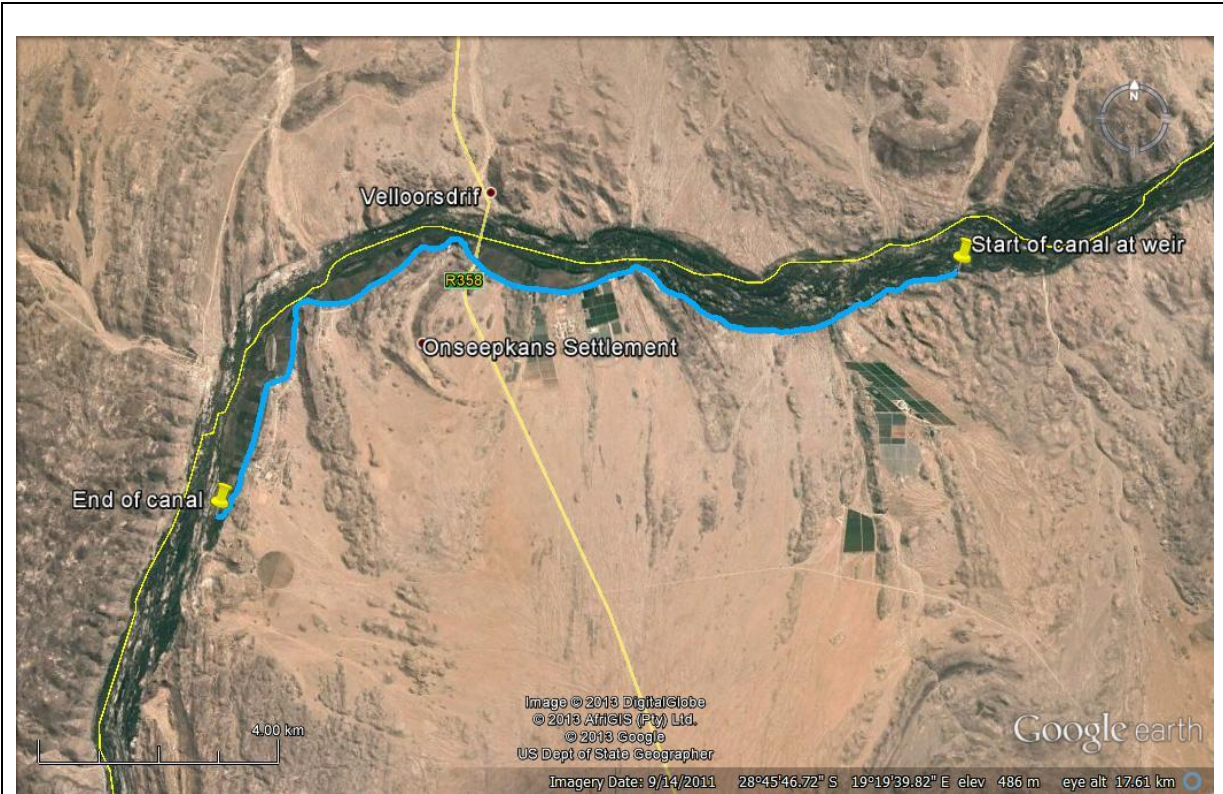


Figure 1: Location of the canal and the proposed pipeline route.



Figure 2: Location of the proposed borrow pits (red dots) in relation to the proposed pipeline route.

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

Listed activity as described in GN R.544, 545 and 546	Description of project activity
<p>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.</p>	<p>More than 5m³ of sand and/or soil will be used as fill/bedding for the proposed pipeline. Part of the pipeline will occur within a watercourse.</p>
<p>GN R.546 Item 13: The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, In the Northern Cape:</p> <ul style="list-style-type: none"> • Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority. 	<p>More than 1 hectare (but less than 5ha) of indigenous vegetation may be cleared for the establishment of the proposed borrow pits.</p>

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.

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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

Various alternative sites for the proposed borrow pits were identified by the engineers. The final site locations for the borrow pits were decided upon after a site visit by the engineers, biodiversity specialist and the Environmental Assessment Practitioner.

The final placement of the borrow pits took any watercourses (ephemeral streams) and protected trees such as Shepard's trees (*Boscia albitrunca*) and Camel Thorn tree (*Acacia erioloba*) identified on site into consideration.

A minimum buffer of 30m from the ephemeral streams and the avoidance of the protected trees within the development footprint of all the borrow pits gave the final placement of the borrow pits (see table 1 and Figure 2 below). Please also refer to Section B1 below and the Biodiversity Assessment (**Appendix D2**) for a description of the borrow pits sites.

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

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

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.

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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 – N/A

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 – N/A

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

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

Alternative 1 (preferred alternative)
<p><u>Pipeline</u></p> <p>It is proposed that the original earth and concrete canal be replaced by a closed concrete pipeline.</p> <p>The infrastructure will not be expanded or the capacity increased (although much better results are expected from the enclosed system) and the pipeline will be placed within the existing canal footprint. In addition the existing flood protection structures will also be repaired and the intake works as well as outlet works will be repaired and upgraded to better complement the new system and for better protection of the inlet and outlet structures and the environment at these structures (erosion management).</p> <p>This design alternative was preferred by the majority of the small scale farmers. Based on this, Department of Agriculture recommended this alternative as the preferred option.</p>
Alternative 2
<p><u>Centralised Pump System</u></p> <p>A pump system, driven by solar energy, and supplying water under pressure to the existing farmers, were presented to the Onseepkans irrigation farmers as an alternative.</p> <p>A 1 MW Photo Voltaic installation would be installed, supplying enough energy to pump water from the river to a storage dam, located 60m higher than the existing canal .From this storage dam, water could be supplied to all the existing farmers, at a pressure of 2.5 Bar. At these higher</p>

pressures, farmers would be able to cultivate higher income crops.

With the increase in water use efficiency, an additional 60ha of arid land could be irrigated with this system, compared to the existing system.

All the members of the Onseepkans were given the opportunity to vote for one of the following:

- 1) Pump system, powered with solar energy, or
- 2) Conventional canal/pipe system (see preferred alternative)

The outcome was 50/50, with the majority of the small scale farmers supporting the conventional system. The Department of Agriculture selected the conventional system as the preferred option.



Figure 3: Location and layout of the pump-station and storage dam.

Alternative 3

Open concrete canal

This design solution would entail the construction of an open concrete canal in the footprint of the existing earth canal. It would operate exactly the same as the earth canal, but with less maintenance.

This option was not preferred due to its exposure during flood conditions.

e) **No-go alternative**

The no-go option would be the option of not constructing the pipeline. The current status quo will remain, with the current earthen canal remaining in use.

According to the Biodiversity Assessment (**Appendix D2**), the "No-Go alternative" does not signify

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significant biodiversity gain or loss especially on a regional basis.

However, it will ensure that none of the potential impacts during construction occur. The current status quo will remain and there will be no immediate additional impact on the vegetation, protected species or river corridors.

There will also be no potential impacts on archaeological aspects on the proposed site.

However, the positive socio-economic impacts from the proposed pipeline will not be achieved. The potential environmental improvement, better water management and conservation will also not be implemented and the canal will remain subject to flood damage, siltation and alien infestation, which will be associated with constant maintenance and repair (thus constant disturbance).

No jobs will be created during the construction or operational phase.

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)

- Borrow pits

Size of the activity:

Borrow pit 1 = 7100m ²
Borrow pit 2a = 1100m ²
Borrow pit 2b = 4100m ²
Borrow pit 3 = 8000m ²
Borrow pit 4 = 7400m ²
Borrow pit 5 = 8000m ²
Borrow pit 6 = 6400m ²
Borrow pit 7 = 7500m ²
Total = 49 600m² (4.96ha)

Alternative A2 (if any)

Alternative A3 (if any)

m ²
m ²

or, for linear activities:

Alternative:

Alternative A1 (preferred activity alternative)

- Pipeline within existing canal

Length of the activity:

16 400m
m
m

Alternative A2 (if any)

Alternative A3 (if any)

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

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

4. SITE ACCESS

Does ready access to the site exist?

YES	NO
	m

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

Describe the type of access road planned:

It is not expected that any new access roads will need to be built, as the areas surrounding the borrow pits have existing access via dirt roads.

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 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	NO	Please explain
The proposed pipeline will be constructed within the development footprint of the existing canal. A mining permit will be applied for, for the establishment of the borrow pits.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	NO	Please explain
The activity is for the upgrade and repair of the Onseepkans Water Supply Scheme and flood protection infrastructure. The applicant is the Northern Cape Department of Agriculture, land reform and development planning.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
The site is not located within 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 activity is for the upgrade and repair of the Onseepkans Water Supply Scheme and flood protection infrastructure. The applicant is the Northern Cape Department of Agriculture, land reform and development planning.			
(d) Approved Structure Plan of the Municipality	YES	NO	Please explain
The activity is for the upgrade and repair of the Onseepkans Water Supply Scheme and flood protection infrastructure. The applicant is the Northern Cape Department of Agriculture, land reform and development planning.			

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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 Namakwa District Municipality, Integrated Development Plan 2012-2016, the Namakwa Environmental Management Framework (EMF) and Strategic Environmental Management Plan (SEMP) was developed in order to provide a high level plan for sustainable development in the Namakwa District Municipality of the Northern Cape Province.</p> <p>There are six Environment Managements Zones and one additional zone for areas where insufficient information exists to make a determination.</p> <p>The focus of the Environmental Management Zones is to restrict development in the zones with the greatest sensitivity, and allow development in the zones of low sensitivity. The EMF does not prohibit development in any one zone, neither does it give carte blanche for un-restricted development in any zone. The EMF should be used as guidance to the sensitivities of the proposed development area and tailor development planning and environmental authorisation approaches to the level of sensitivity in each zone.</p> <p>The location of the borrow pits considered the sensitivity of the area, and the final location of each borrow pits was decided on where minimal environmental impact would occur, avoiding any protected tree species and allowing a minimal 30m buffer from watercourses.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>	YES	NO	Please explain
<p>N/A</p>			
<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	NO	Please explain
<p>The activity is for the upgrade and repair of the Onseepkans Water Supply Scheme and flood protection infrastructure. The applicant is the Northern Cape Department of Agriculture, land reform and development planning.</p>			
<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	NO	Please explain
<p>The present open canal system is subject to flooding and flood damage. The system also has an average water loss percentage of 30% (which are constantly aggravated with each new flood).</p> <p>The proposed activity will not only include the repair the damage done by floods, but the closed pipeline will ensure better water conservation and management (a maximum of 5% water loss is expected from such a closed system).</p> <p>This system was also preferred by the community as it has lower annual maintenance and operational costs.</p>			

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<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>	YES	NO	Please explain
<p>N/A. The proposed activity does not require electricity, water supply, sewerage or waste removal services.</p>			
<p>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.)</p>	YES	NO	Please explain
<p>The applicant is the Northern Cape Department of Agriculture, land reform and development planning.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	YES	NO	Please explain
<p>The applicant is the Northern Cape Department of Agriculture, land reform and development planning.</p>			
<p>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.)</p>	YES	NO	Please explain
<p>The proposed pipeline will be constructed within the footprint of the existing canal, and will therefore not lead to an expansion of the development footprint.</p> <p>The location of the borrow pits is located on areas in relative close proximity to the existing canal, therefore requiring minimal travel distances during constructions. The borrow pits also have existing roads in close proximity to the sites of the borrow pits. The location of the borrow pits was decided in conjunction with the engineers, biodiversity specialist and Environmental Assessment Practitioner and are placed in areas of existing disturbance and/or areas with the least to no natural vegetation and a suitable distance from any natural watercourses.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	YES	NO	Please explain
<p>Although the establishment of the proposed borrow pits will cause some disturbance, the implementation of the Environmental Management Programme, and recommendations from the specialist, the proposed activity is expected to have a low negative impact. However, the benefits of the proposed activity are expected to outweigh any potential negative environmental impacts.</p>			

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10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	NO	Please explain
<p>The proposed pipeline will decrease water loss from the existing canal, and help prevent future flood damage. The pipeline will be constructed within the existing canal footprint.</p> <p>The site of the borrow pits were chosen with the minimal environmental impact, and with implementation of the Environmental Management Programme, and recommendations from the specialist, the proposed activity is expected to have a low negative impact.</p>			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO	Please explain
<p>The proposed activity is not expected to set a precedent, unless any other canal systems will require upgrading/repair in future.</p>			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO	Please explain
<p>The rights of residents, local farmers, the community etc. are not expected to be negatively impacted as the proposed activity is expected to have positive impact by ensuring the repair of damage done by floods, and ensuring better water conservation and management.</p>			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO	Please explain
<p>The activity is for the construction of a pipeline, with associated borrow pits, and is not expected to compromise the urban edge.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?	YES	NO	Please explain
<p>The project may contribute to SIP 11 – Agri-logistics and rural infrastructure (<i>Improve investment in agricultural and rural infrastructure that supports expansion of production and employment, small-scale farming and rural development, including facilities for storage (silos, fresh-produce facilities, packing houses); transport links to main networks (rural roads, branch train-line, ports), fencing of farms, irrigation schemes to poor areas, improved R&D on rural issues (including expansion of agricultural college colleges), processing facilities (abattoirs, dairy infrastructure), aquaculture incubation schemes and rural tourism infrastructure.</i>).</p>			
15. What will the benefits be to society in general and to the local communities?	Please explain		
<p>The proposed activity will not only include the repair to the damage done by floods, but the closed pipeline will ensure better water conservation and management, which is better for the users (agricultural land and smallholdings) being supplied water through the scheme.</p> <p>The activity will also provide temporary employment for approximately 100 people during the construction phase (75% previously disadvantaged) and 15 permanent job opportunities (75% previously disadvantaged).</p>			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
N/A			

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17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>According to the National Development Plan (2030), agriculture uses the largest volume of water, and as a result, the farming sector will have to increase the efficiency of its water use to expand production and allow transfers to other users in water-scarce areas.</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>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 – please refer to Section F below.- The effects of the activity on the environment have been considered before actions taken in connection with them – alternatives have been considered and investigated (please refer to Section E below).- Adequate and appropriate opportunity for public participation was ensured through the public participation process – please refer to Appendix E 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.- The environmental attributes have been considered in the management and decision-making of the activity – an EMP has been included (Appendix G) with the proposed activity and must adhere to the requirements of all applicable state Authorities.	

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 – the proposed activity will have a beneficial impact on people, especially the local community and local farmers.
- 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 is expected to have little to no environmental impact, these impacts 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 – 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 **Appendix E** 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 F 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 in the EMP are implemented.

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
Mining permit in terms of The Mineral and Petroleum Resources Development Act, Act No. 28 of 2002.	A mining permit is required for each of the seven proposed borrow pits	Department of Mineral Resources	The application is running concurrently with the NEMA Environmental Authorisation Application

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES	NO
m ³	

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

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

All construction waste will be disposed of at the nearest licenced facility.

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

All construction waste will be disposed of at the nearest licenced facility.

Will the activity produce solid waste during its operational phase?

YES	NO
m ³	

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

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

N/A. The proposed activity is not expected to produce waste during the operational phase.

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

N/A. The proposed activity is not expected to produce waste during the operational phase.

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

N/A. The proposed activity is not expected to produce waste during the operational phase.

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?

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?

YES	NO
m ³	

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

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

YES	NO
-----	----

BASIC ASSESSMENT REPORT

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.

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. The proposed activity is not expected to produce wastewater during the operational phase.

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:

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	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
-----	----

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
-----------	-------------	-------------	-------------------------------	-------	------------------------------------

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?

If YES, please provide proof that the application has been submitted to the Department of Water Affairs. [This will be confirmed with consultation from the Department of Water Affairs.](#)

litres	
YES	NO

14. ENERGY EFFICIENCY

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

[N/A. The proposed activity is the construction of a pipeline within the existing footprint of the existing canal, and will therefore not require energy usage during the operational phase.](#)

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

[N/A. The proposed activity is the construction of a pipeline within the existing footprint of the existing canal, and will therefore not require energy usage during the operational phase.](#)

SECTION B: SITE/AREA/PROPERTY DESCRIPTION – BORROW PITS

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): 1

- 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	Namaqualand District Municipality
Local Municipality	Khai Ma Municipality
Ward Number(s)	
Farm name and number	Farm No. 88 Farm No. 421
Portion number	n/a
SG Code	C03600000000008800000 C036000000000042100000

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:

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

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
------	-------------	------------------------	------------------------	-------------------------	------------------------	------------------

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
------	-------------	-------------	-------------	--------------	-------------	------------------

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
------	-------------	-------------	-------------	--------------	-------------	------------------

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

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

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.

Please refer to the Biodiversity Assessment ([Appendix D2](#)) for a more detailed description of each of the borrow pit sites.

5. 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 – Ephemeral streams	YES	NO	UNSURE
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO	UNSURE

BASIC ASSESSMENT REPORT

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

Borrow pit 1 – A small ephemeral (seasonal) stream is located at least 35m North from the proposed borrow pit. The excavation of the borrow pit is not expected to have an impact on the stream. The stream will be declared a no-go area in the EMP.

Borrow pit 2 – The proposed borrow pits is located within the alluvial fan of a dry seasonal stream. The site is already heavily disturbed, and the alluvial sand deposits are likely as a result of flood protection structures for the existing canals diverting, and allowing the stream to deposit sand during periods of flow. It is proposed that the borrow pit be split into two areas (Borrow pit 2a to the east of the fan and 2b to the west of the fan) and only relatively small amounts of sand be excavated here (2a ~ 1980m³ and 2b ~ 7380m³ of sand).

Borrow pit 3 – No surface water present on or near the site.

Borrow pit 4 – A small ephemeral (seasonal) stream is located at least 35m West from the proposed borrow pit. The excavation of the borrow pit is not expected to have an impact on the stream. The stream will be declared a no-go area in the EMP.

Borrow pit 5 - No surface water present on or near the site.

Borrow pit 6 – There are a number of very small ephemeral (seasonal) streams in close proximity to the borrow pit. The general area, including these small streams is heavily degraded, mostly from grazing, and the impact is expected to minimal.

Borrow pit 7 – There is a small ephemeral (seasonal) stream to the north and to the south of the proposed borrow pit. The excavation of the borrow pit is not expected to have an impact on the stream. The stream will be declared a no-go area in the EMP.

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)

BASIC ASSESSMENT REPORT

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)	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.

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	NO
Uncertain	

According to the Archaeological Impact Assessment (**Appendix D3**), the following archaeological heritage resources were identified:

Borrow Pit 1 - No archaeological heritage was found, but five graves were identified in the proposed footprint area.

Borrow Pit 2a & 2b - A single quartzite cobble flake was found in borrow pit 2b, while no archaeological heritage was encountered in BP2a. A grave, a fragment of pre-colonial pottery, an elliptical grindstone and a Later Stone Age flake was encountered about 70m outside the footprint area of BP2b.

Borrow Pit 3 - One weathered chunk and one small quartzite flake was found in the footprint area of BP3.

Borrow Pit 4 - One banded ironstone flake and core, and one edge retouched quartzite cobble were counted in the severely degraded footprint area of BP4.

Borrow Pit 5 - One snapped retouched/utilized quartzite blade, and one partially retouched/utilized banded ironstone flake was found in BP5.

Borrow Pit 6 - One broken quartzite chunk, one large indurated shale utilized flake, one weathered indurated shale flake, one broken, edge damaged quartzite cobble and one banded ironstone core was encountered in the footprint area of BP6.

Borrow Pit 7 - One utilized quartz flake was located in BP7.

The Archaeological Impact Assessment (**Appendix D3**) concluded that:

- The very small numbers and the disturbed context in which they were found, means that the archaeological remains have been rated as having low (Grade 3C) significance.
- The study has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated, prior to quarrying commencing.
- Five graves in Borrow Pit 1 might be impacted by proposed quarrying.
- In terms of the archaeological heritage, the proposed activity is deemed to be viable.

With regard to the proposed upgrade of the Onseepkans irrigation canal, the following recommendations are made:

1. No archaeological mitigation is required.
2. The five graves in BP1 must be excluded from the footprint area. This should be easily accommodated as the features are located on the north eastern boundary of the proposed borrow pit. A buffer of at least 10m must be established around each of the graves. There is also additional fill alongside the R358 where suitable material may be exploited.
3. Should any unmarked human remains, or ostrich eggshell water flask caches for example, be uncovered, or exposed during quarrying, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency - Att Ms Katie Smuts 021 462 4502.

BASIC ASSESSMENT REPORT

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?
 Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?
 If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

YES	NO
YES	NO

The Application will be registered on SAHRIS for comment from SAHRA.

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:

<p style="color: blue;">The Khai-Ma Local Municipality has an unemployment rate of 20.1% according to Statistics South Africa.</p>
--

Economic profile of local municipality:

<p style="color: blue;">According to the Local Government Handbook (www.localgovernment.co.za), the main economic sectors are: Agriculture; tourism; community, social and personal services; and renewable energy.</p>
--

Level of education:

<p style="color: blue;">According to the Local Government Handbook (www.localgovernment.co.za), 3.9% of the population has no schooling, 5.8% has higher education and 18.1% has matric.</p>

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?
 What is the expected yearly income that will be generated by or as a result of the activity?
 Will the activity contribute to service infrastructure?
 Is the activity a public amenity?
 How many new employment opportunities will be created in the development and construction phase of the activity/ies?
 What is the expected value of the employment opportunities during the development and construction phase?
 What percentage of this will accrue to previously disadvantaged individuals?

R120,000,000.00	
R6,750,000.00	
YES	NO
YES	NO
100	
R8,000,000.00	
75%	

BASIC ASSESSMENT REPORT

How many permanent new employment opportunities will be created during the operational phase of the activity?	15
What is the expected current value of the employment opportunities during the first 10 years?	R4,000,000.00
What percentage of this will accrue to previously disadvantaged individuals?	75%

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)	See below

According to the Biodiversity Assessment (**Appendix D2**), the CBA map for the Onseepkans area indicates that all the proposed borrow pit sites as well as the whole of Onseepkans is located within proposed CBA 1 or CBA 2 areas. Ideally the proposed borrow pit sites should have been placed outside of these CBA areas. In this case it will be almost impossible to this, because of the distances involved. It is however, also a fact that many of the areas within the proposed CBA areas are already very much degraded or even transformed as a result of the agricultural and rural development within Onseepkans. The aim should thus be to minimise further disturbances and to locate the borrow pit sites in or near areas already disturbed. However, good environmental control during construction and rehabilitation after wards should be non-negotiable, especially in this arid region where re-instatement of natural vegetation would be especially difficult after disturbance.

BASIC ASSESSMENT REPORT

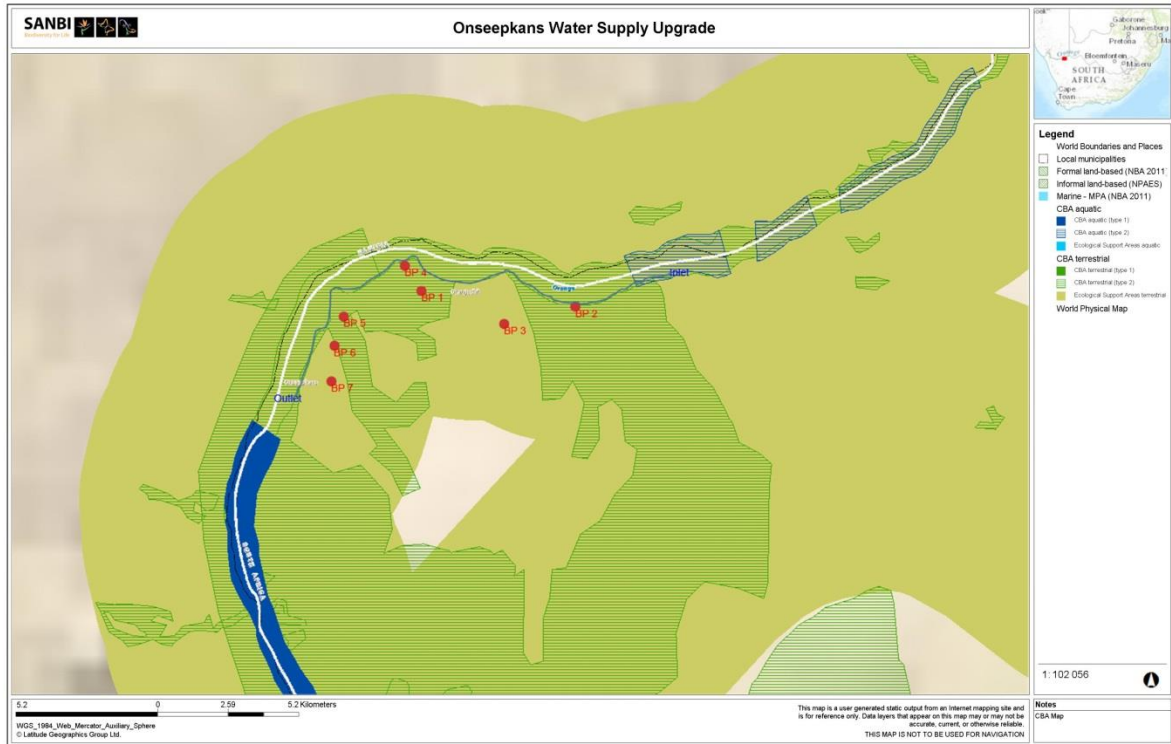


Figure 3: Critical Biodiversity Areas Map of Onseepkans, showing the location of the borrow pits and the proposed pipeline

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%	See description of the proposed borrow pit sites in section 9d below
Degraded (includes areas heavily invaded by alien plants)	>50%	See description of the proposed borrow pit sites in section 9d below
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 unchannelled 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 Type

According to the Biodiversity Scan (**Appendix D2**), in accordance with the 2006 Vegetation map of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2006) only two vegetation types are expected to be impacted by the proposed borrow pits namely; *Eastern Gariep Plains Desert* (Borrow Pits 3, 6 & 7) and *Eastern Gariep Rocky Desert* (Borrow Pit 1, 2, 4 & 5).

According to the *National list of ecosystems that are threatened and in need of protection* (GN 1002, December 2011) these vegetation types are currently classified as 'Least Threatened'

The Biodiversity Scan (**Appendix D2**), describes the vegetation at each of the proposed borrow pits sites as follows:

Borrow pit 1 - is expected to be located within the Eastern Gariep Rocky Desert vegetation type. The vegetation encountered conformed to that of a very sparsely covered hyperarid vegetation type in relatively good condition. The vegetation was characterised by a two strata, with a third stratum sparsely spotted throughout the landscape. Cover was less than 20%, but it is expected to be higher after rains (due to grassy component). Species diversity was relative low, and the cover seemed to be dominated by single species.

The dominant bottom stratum (reaching approximately 0.5 m) was dominated by grass species (which was also responsible for most of the vegetation cover) including, *Stipagrostis*-, *Enneapogon*-species and *Schmidtia kalahariensis*. The middle stratum (0.5-1m) consists of a short to medium shrubby layer, absolutely dominated by the hardy shrub *Petalidium setosum*, but with *Sisyndite spartea*, *Aptosimum spinescens*, *Zygophyllum microcarpum*, *Boscia foetida* (3 low growing individuals). The top stratum reaching 2.5 m consisted out of *Parkinsonia africana* and *Lycium cf. bosciifolium*. Next to the stream individuals of *Boscia albitrunca* and a few other species was also observed, but since they will not be impacted they were not recorded.

Borrow pit 2 - The vegetation encountered can be described as sparsely covered hyperarid vegetation. The vegetation again imitates a two strata structure, with a third over storage sometimes present. Cover was between 10-15%, but it is expected to be higher after rains (due to grassy component). Species diversity was slightly higher than that encountered at BP 1, but still relative low.

Unlike the vegetation at borrow pit 1 the vegetation at borrow pit 2 was dominated by the middle stratum (reaching 2 m) via *Sisyndite spartea*. Other species encountered that formed part of the middle stratum were *Petalidium setosum*, *Lycium* cf. *bosciifolium*, *Lessertia* cf. *spinescens*, *Zygophyllum microcarpum*, *Zygophyllum* cf. *decumbens*, *Adenolobus gariepensis* and *Kohautia caespitosa*.

The top stratum (reaching upwards of 3 m) included two individuals of the nationally protected Camel Thorn tree (*Acacia erioloba*) as well as two individuals of the protected Shepard's trees (*Boscia albitrunca*) was also encountered. However, all four of these plants were located outside of the proposed footprints and will not be impacted by the proposed sand mining. A number of alien *Prosopis grandulosa* trees were also encountered within and in the immediate surroundings of the proposed sites.

The bottom stratum (reaching approximately 0.5 m) was dominated by grass species including, *Stipagrostis*-, *Enneapogon*- species, *Schmidtia kalahariensis* and *Hirpicium* cf. *alienatum* and *Cotula* cf. *leptalea*.

Borrow pit 3 - Only two vegetation strata were observed, which was dominated by the top stratum (reaching up to 2 m) consisting mostly of *Euphorbia gregaria* and *Lycium* cf. *bosciifolium* with single individuals of *Boscia foetida* and *Boscia albitrunca* also observed. In order to avoid having any impact on any of the protected *Boscia* species, the final site location was slightly adjusted. The bottom layer which reached approximately 0.5 m in height consisted mostly out of the following species: *Asparagus* species, *Blepharis mitrata*, *Chascanum garipense*, *Euphorbia* cf. *gariepina*; *Petalidium setosum* and *Zygophyllum* cf. *decumbens*.

Borrow pit 4 - A number of the protected *Boscia* individuals (both *B. albitrunca* and *B. foetida*) were observed as well as one individual of the protected *Acacia erioloba*. However, the proposed borrow pit will not impact on any of these protected species. Most of the *Boscia* and *Acacia erioloba* was associated with the small seasonal stream which is located just west of the proposed site. Again the site was chosen to stay at least 32 m away from the relative natural and seasonal stream. Apart from a few exotic *Prosopis grandulosa* individuals the seasonal stream showed some of the best preserved riparian vegetation encountered during the study including: *Acacia erioloba*, *A. mellifera*, *Boscia albitrunca*, *Boscia foetida*, *Lycium* cf. *bosciifolium*, *Sisyndite spartea*, *Ziziphus mucronata* and *Zygophyllum* cf. *decumbens*.

The natural vegetation encountered on and in the vicinity of the proposed borrow pit showed a much more sparsely covered vegetation dominated by *Acacia mellifera*. Two stratum was mostly observed. The top stratum, reaching approximately 2 m in height, was dominated by *Acacia mellifera*, but also included the following identified species: *Calicorema capitata*, *Lycium* cf. *bosciifolium* and *Sisyndite spartea*. The bottom stratum (reaching approximately 0.5 m) was mostly dominated by grass species like *Stipagrostis*- and *Enneapogon*- species, but also included *Aptosimum spinescens*, *Cotula* cf. *leptalea*, *Petalidium setosum*, *Rogeria longiflora*, *Salsola* cf. *rabiena*, *Solanum* cf. *nigrum*, *Zygophyllum decumbens* and *Z. microcarpum*.

Borrow pit 5 - The area that will be impacted by the proposed borrow pit is almost transformed and showed very little remaining natural vegetation. A few individuals of *Cotula* cf. *leptalea* and *Zygophyllum microcarpum* was however observed together with a remaining Poaceae (grassy) component.

To the west of the proposed site in the vicinity of the small seasonal stream a variety of expected species were still encountered including: *Boscia albitrunca* (1 individual), *Dyerophytum africanum*, *Lycium* cf. *bosciifolium*, *Petalidium setosum*, *Prosopis grandulosa*, *Sisyndite spartea* and *Zygophyllum microcarpum*

Borrow pit 6 - The borrow pit will be located within an area almost devoid of vegetation. Most of the area is heavily utilized for grazing (Boerbok) by the local inhabitants. As a result very few grasses were observed. The grazing practice coupled with the aridity of the area seems to have ensured that only a very few hardy / unpalatable plant species remain in basically the whole of the area behind the Mission settlement.

The only areas showing some natural vegetation is the larger drainage lines found in the vicinity of the site. The species encountered where, *Adenolobus gariensis*, *Aptosimum spinescens*, *Blepharis mitrata*, *Boscia albitrunca*, *Chascanum garipense*, *Commiphora gracilifrons*, *Lycium* cf. *bosciifolium*, *Parkinsonia africana*, *Prosopis grandulosa*, *Sisyndite spartea*, *Zygophyllum decumbens* and *Zygophyllum microcarpum*.

Borrow pit 7 - The vegetation encountered is basically a replica of that found at Borrow pit 6, and only the location of the *Boscia* species differs. Apart from the *Adenolobus gariensis*, *Chascanum garipense* and *Commiphora gracilifrons* all species encountered at BP6 were again encountered, but with the following additions namely: *Boscia foetida* as well as a *Monsonia*- and an *Oxalis* species.

Significant and/or protected plant species

According to the Biodiversity Assessment (**Appendix D2**), both *Acacia erioloba* and *Boscia albitrunca* was observed in the study area. All locations of these individuals were mapped and is shown on the various google images pertaining to each site location. However, none of these plants will be impacted by the proposed development.

In addition, six protected species in terms of the NCNCA was also encountered on site (Refer to Table 3 of **Appendix D2**). All *Boscia* species was referenced as well as the *Commiphora* species encountered. *Euphorbia* species will be protected where ever possible (especially the larger *Euphorbia gregaria*). Flora permits will have to be obtained for the possible impact on the remaining species also encountered.

Avi-Fauna

According to the Biodiversity Assessment (**Appendix D2**), the presence of the Martin (Oewerswaeltjies) Colony's which had established itself in the steep banks of the original excavation was discussed with an Ornithologist and it was established that it was most probably colonies of the Banded Martin – *Riparia cincta* (Gebande Oewerswael). All Martins are protected species which may not be disturbed while breeding. However, it was also established that these birds will leave the nests and is likely to build a new nest during the next season. It would thus be possible to still utilise the sand, but only once they have left the nests after breeding, making it an easily manageable prospect.

No mining/excavation activities may take place at borrow pit 5 during the breeding season (November to March), and only be allowed once the Martin colony has finished their breeding cycle and have migrated north (normally during the winter periods).



Figure 4: View of the Martin Colony nesting site at Borrow Pit 5.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION – PIPELEINE ROUTE

Important notes:

4. 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): 2

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

6. 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	Namaqualand District Municipality
Local Municipality	Khai Ma Municipality
Ward Number(s)	
Farm name and number	Farm No. 88 Farm No. 421
Portion number	n/a
SG Code	C03600000000008800000 C036000000000042100000

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 of the pipeline is the existing open canal.

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

BASIC ASSESSMENT REPORT

10. 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):

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):

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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11. 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"/>

12. 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.

BASIC ASSESSMENT REPORT

13. 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

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.

14. 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

BASIC ASSESSMENT REPORT

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

According to the Freshwater Assessment (**Appendix D1**), there are a number of drainage lines and small ephemeral streams draining from the south into the Orange River within the study area. The ephemeral streams are visible in the landscape due to the relatively wide sandy beds and, in some instances, by vegetation associated with the river beds and riparian zones. The Orange River however dominates the surrounding landscape, and displays braided features with secondary channels that are only active during high flow events. The riparian vegetation in terms of species composition within the channel is still largely natural. The South African side (southern bank) of the Orange River has been developed and cultivated to within the riparian zone. The proposed pipeline could potentially impact on these freshwater features.

The freshwater assessment of the proposed activities to the features described above indicates that:

- The Orange river is in a moderately modified present ecological state and has a high ecological importance in these lower reaches,
- The ephemeral streams and small drainage lines are largely natural with a low ecological importance,
- The biodiversity conservation mapping has indicated that the lower section of the Orange River and its tributaries within the study area have been mapped as a River Freshwater Ecosystem Priority Area and a Fish Sanctuary for on endemic fish species, while the channel of the Orange River has been mapped as a CBA2 (Important Area) due to the fact that it contains Lower Gariep Alluvium vegetation which is considered as endangered and the river provides an important corridor for migration.

15. 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)

BASIC ASSESSMENT REPORT

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)	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.

16. 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

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:

Please refer to the Archaeological Impact Assessment ([Appendix D3](#)).

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)?

YES NO

YES NO

BASIC ASSESSMENT REPORT

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

The Application will be registered on SAHRIS for comment from SAHRA.

17. 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:

The Khai-Ma Local Municipality has an unemployment rate of 20.1% according to Statistics South Africa.

Economic profile of local municipality:

According to the Local Government Handbook (www.localgovernment.co.za), the main economic sectors are: Agriculture; tourism; community, social and personal services; and renewable energy.

Level of education:

According to the Local Government Handbook (www.localgovernment.co.za), 3.9% of the population has no schooling, 5.8% has higher education and 18.1% has matric.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R120,000,000.00
What is the expected yearly income that will be generated by or as a result of the activity?	R6,750,000.00
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?	100
What is the expected value of the employment opportunities during the development and construction phase?	R8,000,000.00
What percentage of this will accrue to previously disadvantaged individuals?	75%
How many permanent new employment opportunities will be created during the operational phase of the activity?	15
What is the expected current value of the employment opportunities during the first 10 years?	R4,000,000.00
What percentage of this will accrue to previously disadvantaged individuals?	75%

18. 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)	

According to the Freshwater Assessment (**Appendix D1**), in terms of the Critical Biodiversity Areas (CBA), the channel of the Orange River has been mapped as a CBA2 (Important Area) due to the fact that it contains Lower Gariep Alluvium vegetation which is considered as endangered and the river provides an important corridor for migration.

- 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)	~ %	According to the Freshwater Assessment (Appendix D1), the results of the habitat integrity assessments (summarised in Table 5 of Appendix D1), show both the riparian and instream habitat integrity of the Orange River can be described as being moderately modified. This is the result of flow modification, water quality changes and vegetation removal that have taken place in the entire catchment. The ephemeral streams can be described as largely natural due to the fact that very little modification of the flow regime has occurred. Alien vegetation encroachment and cattle grazing and vegetation removal are the impacts on these streams.

BASIC ASSESSMENT REPORT

Degraded (includes areas heavily invaded by alien plants)	%	According to the Biodiversity Assessment (Appendix D2), most of the footprint can be described as degraded to transformed as a result of continual maintenance and construction repairs due to flood damage and alien infestation. Very little natural vegetation remains, apart from dense stands of the common reed <i>Phragmites australis</i> , which often forms dense (almost single species) stands. <i>Phragmites australis</i> is the dominant semiaquatic macrophyte along the whole of the Orange River.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	%	See above

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 unchannelled 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)**

According to the Freshwater Assessment (**Appendix D1**), the study area consists of the Azonal Vegetation biome along the river channel and a mix of Nama Karoo and Savanna biomes adjacent to the river. The Azonal Vegetation biome comprises of Lower Gariep Alluvial Vegetation (AZa3 blue in Figure 4 below) which is considered Endangered due to the large-scale loss of this vegetation type that has already taken place. Further away from the river channel is Eastern Gariep Rocky Desert (Dg10 – blue-grey) and Eastern Gariep Plains Desert (Dg9 - mauve), with Lower Gariep Broken Veld (NKb1 - red) occurring further to the east of the study area. There are still large portions of these vegetation types remaining and as a result they are considered to be least Threatened.

The riparian vegetation in terms of species composition within the channel is still natural and consists largely of common *Phragmites australis* reeds along the river banks in the wetbank and lower wetbank zone and large trees (*Acacia Karoo*) in the upper wet and lower dry banks.

The South African side (southern bank) of the Orange River has been developed and cultivated to within the riparian zone. Vineyards in particular have been established in the riparian zone, resulting in many of the indigenous riparian trees and shrubs being removed in these areas. Some invasive alien plants such as *Arundo donax* (Spanish reed) and *Prosopis glandulosa* (mosquito bush) have invaded these disturbed areas.

According to the Biodiversity Assessment (**Appendix D2**), the proposed pipeline route will be located within the existing footprint of the canal (and its associated infrastructure and flood protection areas). For the whole length of the pipeline (Refer to the overview photos in appendix A of the Biodiversity Assessment) the actual footprint is well established and includes the canal, intake and outlet structures, the maintenance road and flood protection structures (mostly earthen walls).

Most of the footprint can be described as degraded to transformed as a result of continual maintenance and construction repairs due to flood damage and alien infestation. Very little natural vegetation remains, apart from dense stands of the common reed *Phragmites australis*, which often forms dense (almost single species) stands. *Phragmites australis* is the dominant semiaquatic macrophyte along the whole of the Orange River.

The Biodiversity Assessment has divided the canal section into two basic sections (based on disturbance and vegetation components) namely:

- The first 6.2 km portion or the supply portion of the canal, which is mostly an earth canal and describes the portion of the pipeline from the intake point to the first agricultural land.
- The transformed agricultural area (from 6.2 km to approximately 16.4 km, the outlet point), which include most of the small holding and intensive agricultural land of the settlement.

Abundant thickets are still found along the banks of the Orange River itself. However, the riparian vegetation (the zone of vegetation along the river banks) has been notably disturbed and replaced by invasive alien species, most commonly Mesquite (*Prosopis glandulosa*), with *Nicotiana glauca* (Wild tobacco), *Datura stramonium* (Thorn apple) and *Ricinus communis* (Castor-oil plant) also in evidence. Similarly the vegetation within the footprint of the canal can be described as heavily impacted with the alien invasive Mesquite tree (*Prosopis*) the most prominent tree, while the canal and its immediate vicinity is mostly dominated by the semi-aquatic reed *Phragmites australis*.

Although expected, no Camel Thorn *Acacia erioloba* (a nationally protected tree) were encountered within the footprint (areas that will be impacted by the construction). It was also considered possible that the Sheppard's Tree or Stink Sheppard's tree (*Boscia* species) may be encountered (also protected tree species) within the footprint. However, **no protected tree species were encountered**. A beautiful example of one of the *Ficus* species was encountered anchored against the rocks next to the canal, but the overwhelming impression of the vegetation within the footprint is, unfortunately, that of alien invasion.

The rest of the pipeline, passing through agricultural land, urban areas and smallholdings are even more degraded and or transformed

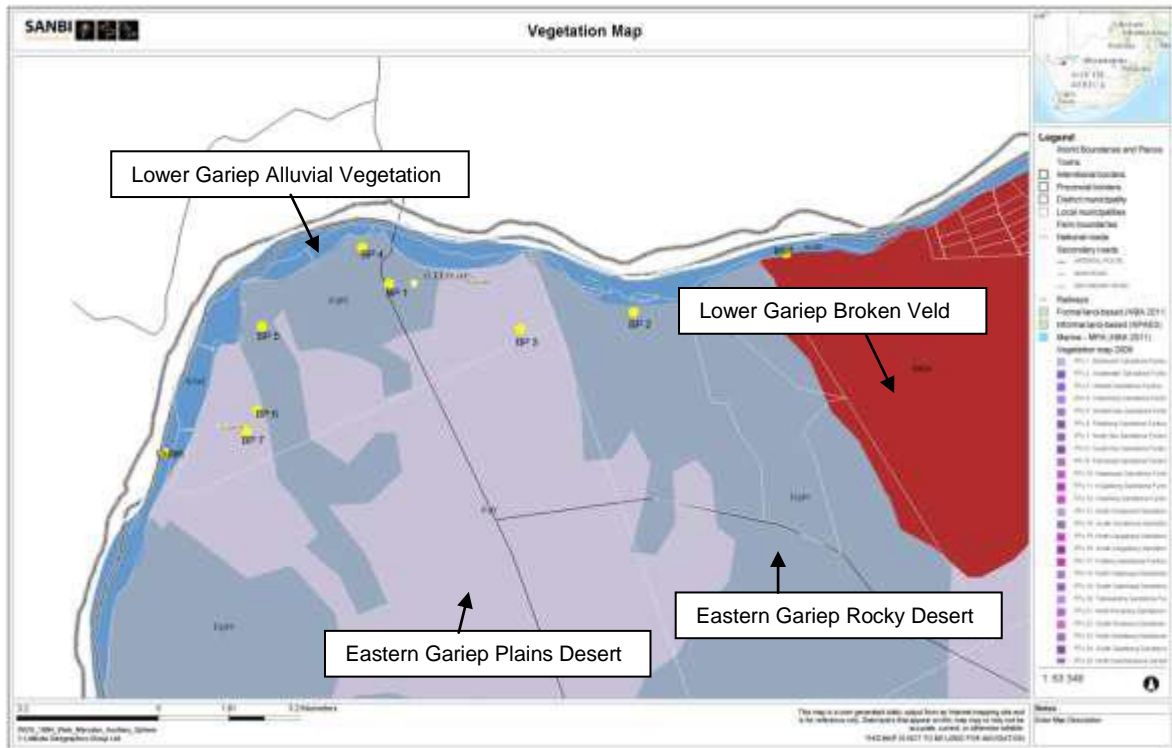


Figure 5: Vegetation map of SA, Lesotho and Swaziland (2006)

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Die Gemsbok	
Date published	02 August 2013	
Site notice position – Please refer to Appendix E2 for a map indicating location of site posters	Latitude	Longitude
Date placed	01 August 2013	

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.

Measures taken to inform as many potential I&APs as possible include:

- A3 Site posters were placed at various locations in and around Onseepkans, including at the Khai Ma Municipal Offices, Community Hall (Viljoensdraai), Rooipad shop (winkel), Hoofweg shop (winkel), Kontant shop (winkel), Melkbosrandt Clinic (please refers to **Appendix E2** for photographic proof).
- Site posters placed at the entrance or on site at borrowpits 2, 3, 6 and 7 (please refer to **Appendix E2** for photographic proof).
- Letters were handed out by Mr. G. le Roux (missionary and local inhabitant of Onseepkans) who distributed the letters to all residents along the canal route.
- Notification letters were posted to various organs of state (see below), ward councillors as well as to all identified neighbouring and/or adjacent landowners. (please refers to **Appendix E2**)

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)
Mr H. Ramon	Ward Councillor	354 Long Street, Pofadder, 8890

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.

BASIC ASSESSMENT REPORT

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

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

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.

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
Kai! Ma Local Municipality	Mr P.J. Baker/ E. Vries	054 933 1004	054 933 0252	vries@khaima.gov.za boet@khaima.gov.za	P.O. Box 108, Pofadder, 8890
Namakwa District Municipality	Ms. M. Brand	027 712 8000	027 712 8040	info@namakwa-dm.gov.za	P.O. Box 5, Springbok, 8240
Department of Environment and Nature Conservation – Northern Cape	Ms. L. Karsten	027 718 8800	027 718 8814	Karstenl.denc@gmail.com	Private Bag X 16, Springbok, 8240
Department of Water Affairs – Northern Cape	Ms. M. Ranwedzi	054 338 5800		ranwedzim@dwa.gov.za	Private Bag X5912, Upington, 8800
Department of Agriculture, Forestry and Fisheries – Northern Cape	Ms. J. Mans	054 338 5909	054 334 0030	jacolinema@daff.gov.za	P.O. Box 2782, 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)			
Proposed borrow pits	<i>Direct impacts:</i>		
	Vegetation - Impact on threatened ecosystems	Very Low (negative)	<ul style="list-style-type: none"> • All larger indigenous trees must be regarded as significant biodiversity features and all efforts must be made to protect and conserve any such tree. • Seasonal streams should be seen as significant biodiversity features, which should be protected by adequate corridors which must also address the protection of the riparian vegetation. • Permits must be obtained for the removal of any protected species which cannot be protected or avoided. • 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. • 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

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<p>the disturbed soil to 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 be done after construction. • 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 all associated footprints within the various construction sites.
	Vegetation - Impact on special habitats	Low – medium (negative)	See above
	Vegetation – Impact on corridors and or conservancy networks	Very low (negative)	See above
	Vegetation – Impact on Protected Species	Medium – low (negative)	See above
	Impacts to pre-colonial archaeological material	No significant impacts	No archaeological mitigation is required.
	Five graves in Borrow Pit 1 might be impacted by proposed quarrying.	No impact	<ul style="list-style-type: none"> • The five graves identified at borrow pit 1 must be excluded from the footprint area. This should be easily accommodated as the features are located on the north

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
			<p>eastern boundary of the proposed borrow pit. A buffer of at least 10m must be established around each of the graves. There is also additional fill alongside the R358 where suitable material may be exploited.</p> <ul style="list-style-type: none"> • Should any unmarked human remains, or ostrich eggshell water flask caches for example, be uncovered, or exposed during quarrying, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency - Att Ms Katie Smuts 021 462 4502.
	Impact on Banded Martin colony at Borrow Pit 5	Very low (negative)	No mining/excavation activities may take place at borrow pit 5 during the breeding season (November to March), and only be allowed once the Martin colony has finished their breeding cycle and have migrated north (normally during the winter periods).
	Indirect impacts:		
	<ul style="list-style-type: none"> - Establishment of temporary construction associated infrastructure or facilities. - Temporary storage areas (e.g. pipe's and fittings and concrete mixing material). - Waste management. 	Low – medium (negative)	Appoint a suitably experience ECO during the construction phase of the project.
	Cumulative impacts:		
Pipeline	Direct impacts:		
	Disturbance of riparian habitat	Very low (negative)	<ul style="list-style-type: none"> • Construction activities should not widen the existing maintenance road along the existing canal or create new disturbed areas within the riparian zone to the Orange River on the opposite side of the road from the trench – in particular the construction works should not intrude into the riparian areas which are considered to be more sensitive as shown in Figure 15a, Appendix D1; • Material (infill) should not be sourced from the riparian zones; • Excess material (and concrete slabs and

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Activity	Impact summary	Significance	Proposed mitigation
			<p>pipes) should not be dumped into the riparian zones;</p> <ul style="list-style-type: none"> • Existing dumped material along the maintenance road should be removed and placed back into the trench as backfilling. This should be done in such a way as not to bulldoze non disturbed areas or to widen the road; • The exotic trees currently growing in the riparian zones should be cut and the stumps treated with herbicide to prevent re-growth; • The borrow pits should adhere to the 30m buffers (measured form the lowest point in the stream channel) that are proposed for the ephemeral streams; • All crossings over pipeline and discharge points from the pipeline back into the river should be rehabilitated such that the flow within the drainage channel is not impeded; • Where possible the ephemeral streams previously cut off from the Orange River by the trench should be reconnected with the river; and • Appropriate construction methods should be deployed to ensure the prevention of erosion of the filled-in canal during flood events which could require the repetitive refilling the pipeline trenches once construction is completed.
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		
<p>Alternative 2 <u>Centralised Pump System</u></p>			
<p>Please note the impacts will be similar to the preferred alternative described above, unless otherwise indicated. The potential impacts (before and after mitigation) may be marginally higher, due to the construction of a storage dam and an additional 2km of pipeline (between canal and storage dam)</p>			
	<i>Direct impacts:</i>		
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		
	<i>Direct impacts:</i>		
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		

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Activity	Impact summary	Significance	Proposed mitigation
<p>Alternative 3 <u>Open concrete canal</u></p> <p>Please note that the alternative design will have the same proposed route (on same footprint), and the impacts will therefore be the same.</p> <p>However, the fill material may not be required (or if required, only minimal amounts and considerably less than for the preferred alternative). However, the establishment of the borrow pits is considered to have a low (negative) impact, with potential impacts sufficiently mitigated through the proposed measures described above, and the implementation of the EMP and the appointment of an ECO during the construction phase.</p>			
	<i>Direct impacts:</i>		
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		
	<i>Direct impacts:</i>		
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		
<p>No-go option</p> <p>The no-go option would be the option of not constructing the pipeline. The current status quo will remain, with the current earthen canal remaining in use.</p> <p>According to the Biodiversity Assessment (Appendix D2), the “No-Go alternative” does not signify significant biodiversity gain or loss especially on a regional basis.</p> <p>However, it will ensure that none of the potential impacts during construction occur. The current status quo will remain and there will be no immediate additional impact on the vegetation, protected species or river corridors.</p> <p>There will also be no potential impacts on archaeological aspects on the proposed site.</p> <p>However, the positive socio-economic impacts from the proposed pipeline will not be achieved. The potential environmental improvement, better water management and conservation will also not be implemented and the canal will remain subject to flood damage, siltation and alien infestation, which will be associated with constant maintenance and repair (thus constant disturbance).</p> <p>No jobs will be created during the construction or operational phase.</p>			
	<i>Direct impacts:</i>		
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		

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)

Summary:

The following is a summary of the potential impacts, and their ratings, after mitigation:

Construction phase.

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

Loss of vegetation and associated habitat - **Low (Negative)**

Freshwater ecosystems (riparian habitat) – **Very Low (Negative).**

Job creation – **Low (Positive),**

Noise impact - **Negligible**

Visual impact – **Very Low (Negative).**

Operational Phase

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

Loss of vegetation and associated habitat – **Negligible**

Freshwater ecosystems (riparian habitat) – **Negligible**

Job creation – **Low (Positive)**

Noise impact - **No impact**

Visual impact – **No impact**

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)

The no-go option would be the option of not constructing the pipeline. The current status quo will remain, with the current earthen canal remaining in use.

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 during construction occur. The current status quo will remain and there will be no immediate additional impact on the vegetation, protected

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species or river corridors.

There will also be no potential impacts on archaeological aspects on the proposed site.

However, the positive socio-economic impacts from the proposed pipeline will not be achieved. The potential environmental improvement, better water management and conservation will also not be implemented and the canal will remain subject to flood damage, siltation and alien infestation, which will be associated with constant maintenance and repair (thus constant disturbance).

No jobs will be created during the construction or operational phase.

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
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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).

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.

Botanical/biodiversity:

- All larger indigenous trees must be regarded as significant biodiversity features and all efforts must be made to protect and conserve any such tree.
- Seasonal streams should be seen as significant biodiversity features, which should be protected by adequate corridors which must also address the protection of the riparian vegetation.
- Permits must be obtained for the removal of any protected species which cannot be protected or avoided.
- As a pre-cautionary measure all viable herb-, bulb- and succulent plant species encountered within the footprint should be removed and replanted through a dedicated search and rescue operation.
- 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 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.
- Rehabilitation must be done after construction.
- 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 all associated footprints within the various construction sites.
- No mining/excavation activities may take place at borrow pit 5 during the breeding season (November to March), and only be allowed once the Martin colony has finished their breeding cycle and have migrated north (normally during the winter periods).

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Freshwater:

- Construction activities should not widen the existing maintenance road along the existing canal or create new disturbed areas within the riparian zone to the Orange River on the opposite side of the road from the trench – in particular the construction works should not intrude into the riparian areas which are considered to be more sensitive;
- Material (infill) should not be sourced from the riparian zones;
- Excess material (and concrete slabs and pipes) should not be dumped into the riparian zones;
- Existing dumped material along the maintenance road should be removed and placed back into the trench as backfilling. This should be done in such a way as not to bulldoze non disturbed areas or to widen the road;
- The exotic trees currently growing in the riparian zones should be cut and the stumps treated with herbicide to prevent re-growth;
- The borrow pits should adhere to the 30m buffers (measured from the lowest point in the stream channel) that are proposed for the ephemeral streams;
- All crossings over pipeline and discharge points from the pipeline back into the river should be rehabilitated such that the flow within the drainage channel is not impeded;
- Where possible the ephemeral streams previously cut off from the Orange River by the trench should be reconnected with the river; and
- Appropriate construction methods should be deployed to ensure the prevention of erosion of the filled-in canal during flood events which could require the repetitive refilling the pipeline trenches once construction is completed.

Archaeological:

- The five graves identified at borrow pit 1 must be excluded from the footprint area. This should be easily accommodated as the features are located on the north eastern boundary of the proposed borrow pit. A buffer of at least 10m must be established around each of the graves. There is also additional fill alongside the R358 where suitable material may be exploited.
- Should any unmarked human remains, or ostrich eggshell water flask caches for example, be uncovered, or exposed during quarrying, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency – Att. Ms Katie Smuts 021 462 4502.

Is an EMPr attached?

YES	NO
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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.

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