



FINAL BASIC ASSESSMENT REPORT

PROPOSED AGRICULTURAL DEVELOPMENT AND ASSOCIATED INFRASTRUCTURE ON KAKAMAS SOUTH SETTLEMENT NO. 2094, AUGRABIES

DAER&LR Reference No.: NC/BA/17/ZFM/KAI!/KAK2/2022

Augustus 2022



DOCUMENT NAME:

Proposed agricultural development and associated infrastructure on Kakamas South Settlement
No. 2094, Augrabies

PROJECT NUMBER:

N/A

DATE:

August 2022

REPORT STATUS:

FINAL

CARRIED OUT BY:

GroenbergEnviro (Pty) Ltd

COMMISSIONED BY:

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SYNOPSIS:

Not part of this report.

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QUALITY CONTROL

Revision	Date	Author	Technical Review	Report Review
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List of abbreviations

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
DAER&LR	Department of Agriculture, Environment, Rural Development and Land Reform
DEA	National Department of Environmental Affairs
DWS	National Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
ELU	Existing Lawful Use
EMPr	Environmental Management Programme
ESA	Ecological Support Area
ERW	Ecological Release Water
EWR	Existing Water Rights
FEPA	Fresh Water Ecosystem Priority Areas
HWC	Heritage Western Cape
&AP's	Interested and Affected Parties
MAR	Mean Annual Run-off
MMP	Maintenance Management Plan
NFEPA	National Freshwater Ecology Priority Areas
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM: AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM: ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PA	Protected Area
PES	Present Ecological Status
PPP	Public Participation Process
RE	Resident Engineer
SANBI	South African National Biodiversity Institute
SAHRA	South African Heritage Resource Agency
SAHRIS	South Africa Heritage Resource Information System
SEI	Site Ecological Importance
SCC	Species of Conservation Concern
SWMP	Storm Water Management Plan
S24G	Section 24G Process
V&V	Validation and Verification
WMA	Water Management Area
WULA	Water Use License Application

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**agriculture, environmental affairs,
rural development and land reform**

Department:
agriculture, environmental affairs,
rural development and land reform .
NORTHERN CAPE PROVINCE
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BASIC ASSESSMENT REPORT

(For official use only)

File Reference Number:

Application Number:

Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to watercourse line 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 07 April 2017. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
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.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section? YES NO

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

1. ACTIVITY DESCRIPTION

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

Locality:

The Applicant is proposing the clearance of 19.7ha of indigenous vegetation for agricultural development on Kakamas South Settlement No. 2094. The farm is located 12km northwest of Kakamas, along the R64, and is situated in the Kai! Garib Local Municipality, which falls under the ZF Mgcawu District Municipality in the Northern Cape Province.

The location of the proposed area is shown in **Figure 1**.

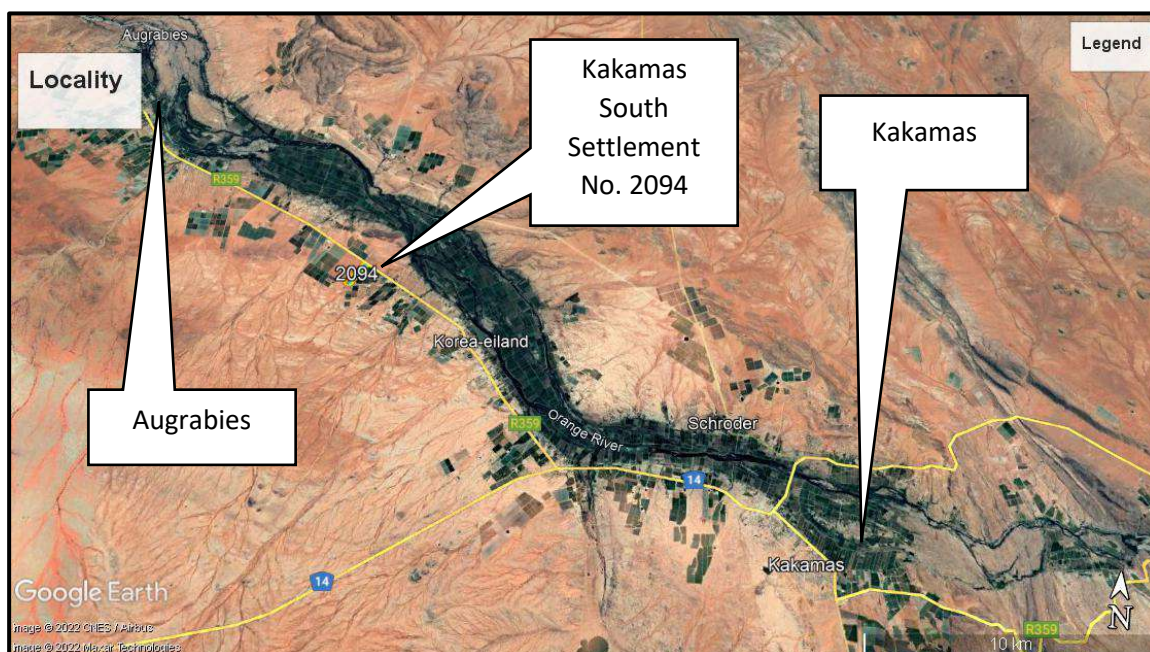


Figure 1: Locality Plan

Project Description:

This application is for the proposed development of 19.7ha for agricultural use on the Kakamas South Settlement No. 2094, Augrabies. The development consists of the following (see **Figure 2**):

- The proposal is for the establishment of an additional 19.7ha (turquoise area) of agricultural development, in order to fully utilise the property. Note no watercourses will be crossed or impacted by the development of this area. a small watercourse travels along the southern property boundary, but the proposed development will not impact on this watercourse.



Figure 2: Site Development Layout

Roads:

Access is achieved via an existing gravel road that has access to the R64, between Augrabies and Kakamas. The internal gravel roads consist of compacted earth, with no formal stormwater management control structures in place along the tracks. The reason for this is the low rainfall characteristic of the area negates the need to provide for formal stormwater control.

Pipelines:

Water is required to irrigate the established agricultural development by means of the drip irrigation method. The water is currently pumped from the Orange River through an existing pipeline. The water is then pumped from an existing booster pump station along the existing pipelines to the agricultural development (See **Figure 3** – pink lines). The proposed agricultural development will be irrigated by the same system.

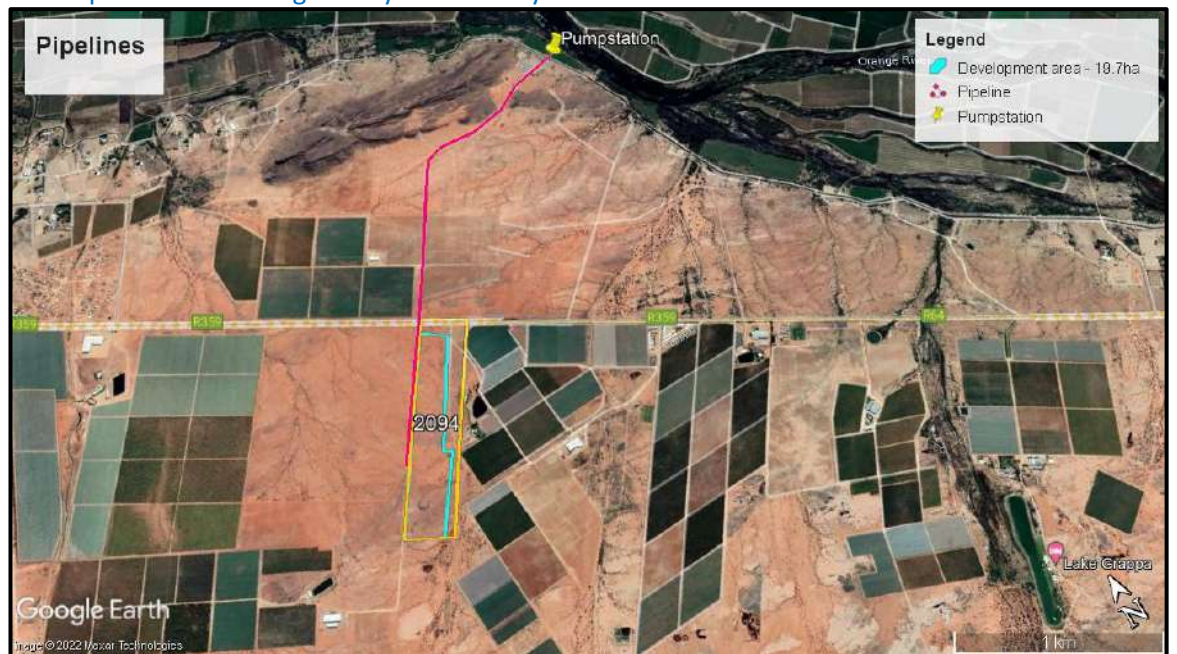


Figure 3: Pipelines

Water:

There is an existing Licence in terms of the National Water Act, 1998 (NWA) that has been issued to the applicant, Eternal Flame Investments 104 (Pty) Ltd. The WUL No. 10/D81A/A/11331 was issued on 22 December 2021 The property has an Existing Lawful use for 10ha and the additional license for 10ha, which provides the property with 20ha (300 000m³/a) water rights. See included in Appendix J2.

Electricity:

There is existing electricity available on the property for the proposed development.

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

Detailed description of listed activities associated with the project		
Government Notice 517 Activity No(s):	Listed activity as described in GN 517	Description of project activity that triggers listed activity
GN 517: Listing Notice 1: Activity 12:	<p>The development of—</p> <p>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres: or</p> <p>(ii) infrastructure or structures with a physical footprint of 100 square metres or more.</p> <p>where such development occurs—</p> <p>(a) within a watercourse.</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse: —</p> <p>excluding—</p> <p>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</p> <p>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of</p>	<p>For the construction of agricultural areas and associated infrastructure within 32m of a watercourse. Note the small watercourse crosses the site on the southern boundary, however, the development does not cross the small watercourse.</p> <p>This activity was included, only as it is within 32m of the stream, but however in our opinion is not applicable.</p>

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	<p>2014, in which case that activity applies.</p> <p>(dd) where such development occurs within an urban area.</p> <p>(ee) where such development occurs within existing roads, road reserves or railway line reserves; or</p> <p>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.</p>	
27	<p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</p> <p>(i) the undertaking of a linear activity; or</p> <p>maintenance purposes undertaken in accordance with a maintenance management plan.</p>	For the clearance of 19.7ha uncultivated land consisting of indigenous vegetation.
Government Notice 517 Activity No(s):	Listed activity as described in GN517	Description of project activity that triggers listed activity
	Not applicable	
Government Notice 517 Activity No(s):	Listed activity as described in GN517	Description of project activity that triggers listed activity
GN 517: Listing Notice 3: Activity 12	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>a. Northern Cape</p> <p>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such</p>	The proposed development lies within a CBA 2; therefore, this activity is triggered for the removal of 300 square meters of or more of vegetation, within a CBA.

	<p>a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004.</p> <p>ii. Within critical biodiversity areas identified in bioregional plans.</p> <p>iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuary, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas: or</p> <p>On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</p>	
<p>GN 517: Listing Notice 3: Activity 14</p>	<p>The development of—</p> <p>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres: or</p> <p>(ii) infrastructure or structures with a physical footprint of 10 square metres or more.</p> <p>where such development occurs—</p> <p>(a) within a watercourse.</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse.</p> <p>Excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p>a. Northern Cape</p> <p>i. In an estuary.</p> <p>ii. Outside urban areas:</p>	<p>The proposed development lies within a CBA 2 and therefore this activity is triggered for the removal of 10 square meters or more of vegetation within a CBA, as well as within 10km of the Augrabies National Park.</p>

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	<p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies.</p> <p>(bb) National Protected Area Expansion Strategy Focus areas.</p> <p>(cc) World Heritage Sites.</p> <p>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority.</p> <p>(ee) Sites or areas identified in terms of an international convention.</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.</p> <p>(gg) Core areas in biosphere reserves.</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve.</p> <p>(ii) Area's seawards of the development setback line or within 1 kilometre from the high-water mark of the</p>	
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	<p>sea if no such development setback line is determined; or</p> <p>iii. Inside urban areas:</p> <p>(aa) Areas zoned for use as public open space.</p> <p>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose; or</p> <p>Area's seawards of the development setback line.</p>	
<p>Please note: Only those activities for which the applicant applies will be considered for authorization. The onus is on the applicant to ensure that all the applicable listed activities are included in the application. Failure to do so may invalidate the application.</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 Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

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a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 1 (preferred alternative) located away from the road and the watercourse. Site layout alternative.	28°41'40.23"	20°26'46.89"
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 1 (preferred alternative) located away from the road and the watercourse. Site layout alternative.	28°41'40.23"	20°26'46.89"
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative:		Latitude (S):			Longitude (E):		
Alternative 1: New Cultivation areas:							
Starting point of the activity.	1.	28°	41'	20.70 "	20°	26'	56.61"
	2.	28°	41'	23.52 "	20°	27'	01.20"
	3.	28°	41'	41.60 "	20°	26'	48.86"
	4.	28°	41'	42.39 "	20°	26'	50.26"
	5.	28°	41'	54.02 "	20°	26'	41.11"
End point of the activity.	6.	28°	41'	50.95 "	20°	26'	34.50"
Middle/Additional point of the activity.		28°	41'	40.23 "	20°	26'	46.89"
Alternative 2: New Cultivation areas:							
Starting point of the activity.	1.	28°	41'	20.70 "	20°	26'	56.61"
	2.	28°	41'	23.52 "	20°	27'	01.20"
	3.	28°	41'	41.60 "	20°	26'	48.86"
	4.	28°	41'	42.39 "	20°	26'	50.26"
	5.	28°	41'	54.02 "	20°	26'	41.11"
End point of the activity.	6.	28°	41'	50.95 "	20°	26'	34.50"
Middle/Additional point of the activity.		28°	41'	50.95 "	20°	26'	34.50"

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

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

b) Lay-out alternatives

Alternative 1: Removal of vegetation for the cultivation of agricultural development on Remainder of Kakamas South Settlement No. 2094

The application is for the proposed development of 19.7ha for agricultural use on Kakamas South Settlement No. 2094, Augrabies. The development consists of the following (see **Figure 4**):

- The proposal is for the develop of the property by establishing an additional 19.7ha (turquoise area) of agricultural development to fully utilise the property. Note no watercourses will be crossed or impacted by the development of this area. a small watercourse travels along the southern property boundary, but the proposed development will not impact on this watercourse.

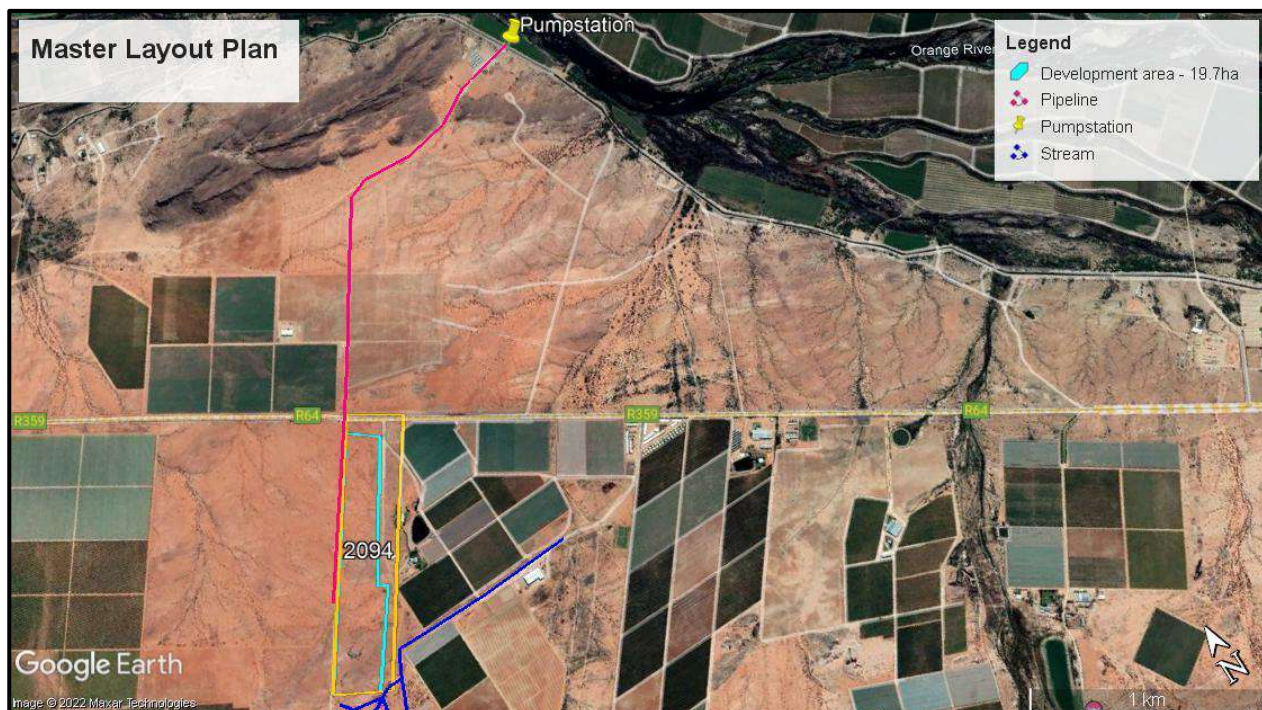


Figure 4: Site Development Layout

This alternative took into consideration the following aspects and is therefore considered preferred:

- This alternative took into consideration the existing road and access.
- This alternative took into consideration the position of the site in relation to the Main Road (R64).
- This alternative took into consideration the watercourse aligned along the southern boundary of the property.
- This alternative took into consideration the recommendation of the Botanical specialist in relation to the access roads, site sensitivity and state of the vegetation on site.
- This alternative took into consideration the recommendations from the specialist in terms of the fact that no sensitive archaeological or paleontological impacts were observed.
- This alternative took into consideration the socio-economic benefits that will be obtained if this development is to proceed.

However, as outlined per the Botanical, Archaeology, Palaeontology and Fresh water impacts, this alternative is therefore deemed preferred.

Alternative 2: Removal of vegetation for the development of an agricultural area on Kakamas South Settlement No. 2094, Site layout alternative 2.

Alternative 2:

The proposal is for the develop of the property by establishing an additional 19.7ha (purple area) of agricultural development to fully utilise the site, see **Figure 5**.

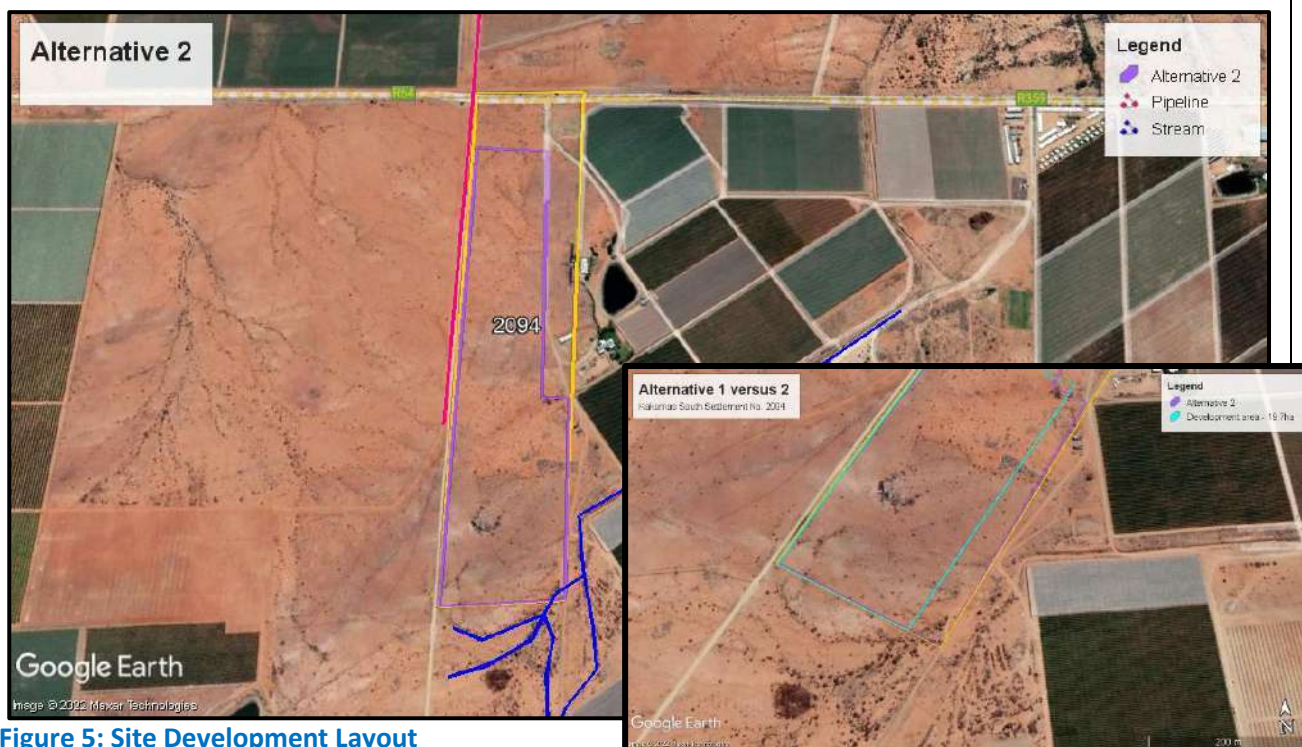


Figure 5: Site Development Layout

This alternative took into consideration the following aspects and is therefore considered preferred:

- This alternative took into consideration the existing road and access.
- This alternative took into consideration the position of the site in relation to the Main Road (R64).
- This alternative, however, did not take into consideration the watercourse running along the southern boundary.
- This alternative also didn't take into consideration the recommendation of the Botanical specialist in relation to the keeping and utilising the existing access roads.
- This alternative took into consideration the socio-economic benefits that will be obtained if this development is to proceed.

However, as outlined per the Botanical, Archaeology, Palaeontology and Fresh water impacts, this alternative is therefore not deemed preferred.

c) Technology alternatives

Alternative 1 (preferred alternative)
Not applicable.
Alternative 2

Alternative 3

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

Alternative 1 (preferred alternative)		
See a and b.		
Alternative 2		
Alternative 3		

e) No-go alternative

No-Go Option
<p>The No-Go Option would have meant that vegetation would not have been removed from the property. Not cultivation of the land would have meant that there were no additional table grapes grown for export, with no associated employment creation, and an opportunity cost for the landowners with their land zoned for agricultural use. This would result in a major financial loss for the applicant. This would have resulted in no additional job opportunities for local communities and no income to the business and country's economy. Water that would have been used for the agricultural development would now not be utilised. Therefore, the No-Go Option not deemed not preferred.</p>

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

Alternative A1¹ (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

or, for linear activities:

Size of the activity:

19.7ha
19.7ha
m ²

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Length of the activity:

19.7ha
19.7ha
m

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

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Size of the site/servitude:

19.7ha
19.7ha

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

Alternative A3 (if any)

	m ²
--	----------------

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:

Not applicable.

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 A1](#). 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 A2](#) 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 DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in [Appendix A3](#).

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 applicant is the landowner, and the activity will form part of the agricultural activities taking place on the adjacent properties/farms. The surrounding land use and current land use of the property is agriculture and therefore is in line with the existing rights.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	NO	Please explain
The activity will be of agricultural benefit.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
The proposed development is not within the Urban Edge. Not applicable.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g., would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	NO	Please explain
The proposed development will not compromise the integrity of the municipal SDF or IDP, as it is situated within a non-urban area.			

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(d) Approved Structure Plan of the Municipality	YES	NO	Please explain
Not applicable.			
(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?)	YES	NO	Please explain
Not applicable.			
(f) Any other Plans (e.g., Guide Plan)	YES	NO	Please explain
Not applicable.			
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)?	YES	NO	Please explain
The proposed development is in line with the existing use of the property, which is agricultural. The development of the orchards, therefore, will be, an expansion of the existing uses and the continuation of the existing use.			
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.)	YES	NO	Please explain
The proposed agricultural development is not a societal priority. However, the agricultural development on the property will ensure that the applicant will be able to secure existing jobs and generate more job opportunities, it could alleviate some unemployed in the local community.			
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.)	YES	NO	Please explain
The property has existing rights, Water Use License (Appendix J2) for 20ha (300 000m ³ /a) of water on the property.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	NO	Please explain
The proposed development is not affected or will not affect infrastructure planning within the municipality. The development is for agricultural development.			

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7. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO	Please explain
Not applicable.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES	NO	Please explain
The proposed development will be located on agricultural land and add to greater agricultural potential in the area. The activities will further contribute to job creation, therefore favouring this land use from an economic perspective.			
9. Is the development the best practicable environmental option for this land/site?	YES	NO	Please explain
The property is currently zoned for agricultural use and from an environmental perspective is the best possible area for the agricultural activities, as the alternative area will have a higher environmental impact in comparison to the preferred option. Most of the site is considered as "barren". It is surrounded by agricultural development, so would be in line with the surrounds. The proposed development will have a low negative impact on vegetation for the construction of agricultural development if the mitigation measures are implemented.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	NO	Please explain
The environmental impact is minimal and will not outweigh the financial and social gains generated within the area.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO	Please explain
The activity is in line with the surrounding area.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO	Please explain
The property is privately owned, job opportunities will be generated if the development is approved.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO	Please explain
The development is not within the urban edge.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO	Please explain
The proposed development does not form part of the SIPS.			

15. What will the benefits be to society in general and to the local communities?	Please explain
<p>The proposed development will contribute the following:</p> <ul style="list-style-type: none"> • Will provide temporary job opportunities for local residents during the construction phase and seasonal jobs; • Promotes job security for current works and provide additional permanent job opportunities on the farm. • Provide additional funds for the local economy through job creation which could lead to families standard of living being improved. 	
16. Any other need and desirability considerations related to the proposed activity?	Please explain
None.	
17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>It contributes to the following:</p> <ul style="list-style-type: none"> • Provides temporary job opportunities for local residents; • Promotes job security; • Minimise negative environmental impacts; and • Contributes to the local economy. 	

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
Section 23 of NEMA	Implementation for this proposed development
(a) Promote the integration of the principles of environmental management, as set out in section 2, into the making of all decisions which may have a significant effect on the environment;	The needs of people, the economy of the area and the environment were considered in developing the preferred option.
(b) Identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2;	The selected development area was chosen due to the low impact on the environment. Even though socio-economic conditions will not be maximised directly, temporary and possibly permanent job opportunities will be created.
(c) Ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;	The selected development option has been investigated and the necessary environmental analysis carried out in order to minimise impact to the environment.
(d) Ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;	The public will be kept informed through the distribution of information during the environmental process, as required by the NEMA regulations.
(e) Ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and	Attributes such as natural vegetation, freshwater features, archaeology, palaeontology and socio-economy have been identified, which aided the identification of the proposed development layout.
(f) Identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2.	The required activities and process (Basic Assessment) has been identified and verified by the relevant authority, in order to process the proposed activity correctly, according to the NEMA regulations.

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

In achieving sustainable development, the focus, therefore, may not be restricted to environmental or nature conservation factors only. It should include economic and social realities and also consider social factors such as those that determine income, quality of life, social networks, and other means aimed at maintaining and improving the well-being of people. Economic factors deal with the affordability of processes, their potential to generate an income over an extended period (into future generations) and to maintain its ability to support both the environmental and social needs of an area.

In short, if people are impoverished, there will be no environment to protect; if a project is not attractive economically, it will not be launched.

One way of testing whether a project meets with the demands of sustainability in development is to establish whether or not a project increases environmental, social, and economic values. Sustainable development mainly has as its aim the maintenance of environmental capital. This is achieved if the project that will be established in the developmental process is likely to provide at least the same value as is likely to be destroyed by its development.

Looking at the three tiers of NEMA principles, this development should be socially, environmentally, and economically viable. They are summarized for this project as follows:

Social viability:

The development will meet the local and regional needs through securing job opportunities, as the proposed new development will provide additional working opportunities. In addition to this, the visual aspect and sense of place are in line with the surroundings, which are all agriculture-related activities.

Economic viability:

The development will have a positive impact by improving the economy of local workers through the provision of job opportunities during construction. The proposed development will also secure the financial viability of the company by increasing its income through farming. The proposed new development area will ensure long-term economic viability as well as the sustainability of the project. The proposed development will create some permanent employment opportunities and will contribute positively to the local economy.

Environmental viability:

The development will have a low negative impact on the natural vegetation and no impact on the aquatic ecosystems, with no impact on archaeology or palaeontology. The impacts will be mitigated as far as possible to reduce the impacts as far as possible.

In summary, it will have many positive impacts that include:

- Will provide temporary job opportunities for local workers during construction.
- Provide the farmer with the opportunity to fully utilize the land for agricultural use; and
- Create new permanent and seasonal job opportunities during the operational phase.

1. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act	Department of Environment and Nature Conservation	Environmental Authorisation	Pending
Heritage Resources Act	South African Heritage Resource Association.	Comments under Section 38 (1)	Pending
CARA	Department of Agriculture: Land Care Unit	Ploughing Certificate	Pending
National Water Act, 1998	Department of Water Affairs	Water Use License Application (WULA)	Existing (22 December 2021)
Northern Cape Nature Conservation Act, 2009 (Act No. 9 of 2009) and Regulations (2011)	Department of Nature Conservation	Nature Conservation Permit	After approval of Environmental Authorisation
National Forests Act (Act no 84 of 1998)	Department of Agriculture, Forestry and Fisheries	DAFF Permit	After approval of Environmental Authorisation

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES	NO
Minimal amount.	
m ³	

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

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

The associated waste will be for the cultivation of land, removal of rocks etc. All associated rubble will be taken to an approved landfill site in Kakamas.

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

All associated rubble will be taken to an approved landfill site in Kakamas.

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)?

No rubble will be generated during the operational phase.

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

Kakamas Landfill site.

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

Not applicable. See above

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 watercourse, 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
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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
----------------	----

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

m³

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

YES	NO
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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:

Not applicable.

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:

Not applicable.

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

YES	NO
----------------	---------------

Describe the noise in terms of type and level:

Some noise may be generated during the construction phase of the development. During the operational phase of the development, no additional noise will be generated.

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

300 000m³/a

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

YES	NO
----------------	-----------

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

Existing Water Use License, find included in **Appendix J2**.

13. ENERGY EFFICIENCY

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

The pumps utilised on site are selected based on their optimum delivery to agricultural development area at minimum water demand, there are no other types of pumps available that are as efficient for this type of irrigation.

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

Drip irrigation utilises less energy (and water) than spray irrigation.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

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

Property description/physical address:

Province	Northern Cape
District Municipality	ZF Mgcawu District Municipality
Local Municipality	Kai! Garib Municipality
Ward Number(s)	
Farm name and number	Kakamas South Settlement No. 2094
Portion number	0
SG Code	C03600070000209400000

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:

Agricultural Zone I

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

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 1:20	-	1:20 1:15	-	1:15 1:10	1:10 1:7,5	1:7,5 1:5	Steeper than 1:5
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Alternative S2 (if any):

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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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 checked="" 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"/>
2.10 At sea	<input type="checkbox"/>				

The following is taken from the Botanical Assessment included in **Appendix D1**:

“The ridge towards the centre of the project area is the highest point (683masl) and is characterised by some small rocky outcrops (Figure 6). From the ridge, the site slopes towards the north with a change in elevation of 18m. The slope towards the south is gentler with a change in elevation of 6m.”



Figure 6: Elevation profile showing the change in elevation from the northeast to the southwest of the project site.

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):	
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.

The following is taken from the Botanical Assessment included in **Appendix D1**:

“The project site is located in the Nama-Karoo Biome (refer to section 4) and is characterised by underlying sedimentary rocks that include the Cape Supergroup, Dwyka tillites other fossil-rich sediments of the Karoo Supergroup (Mucins et al.; 2011). Igneous activity is present within the region, and this has resulted in intrusions of dolerite sills and dykes into the karoo sediments.

Soils within the site are red and typically freely draining, non-swelling clays and are high in most plant nutrients (Mucina et al., 2011).”

4. GROUNDCOVER

Indicate the types of groundcovers 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.

The following is taken from the Botanical Assessment included in **Appendix D1**:

“The project site occurs within the Nama-Karoo Biome which is located on the central plateau of the western half of South Africa, extending into south-eastern Namibia (Mucina et al., 2006). Plant diversity in the Nama-Karoo is typically low compared to other biomes in South Africa and there are no centres of endemism and limited local endemic plant species. Dominant species in this biome typically include species from families such as Asteraceae, Fabaceae and Poaceae.

According to the National Vegetation Map (2018), which was compiled to provide a greater level of detail for floristically based vegetation units in South Africa, the project site occurs within Bushmanland Arid Grassland (Figure 7).

Bushmanland Arid Grassland occurs in the Northern Cape Province between Aggenys and Prieska and is characterised by extensive and irregular plains on slightly sloping plateaus. It is typically sparsely vegetated by grasses such as Stipagrostis interspersed with low shrubs such as Salsola.

This vegetation type is listed on the Red List of Terrestrial Ecosystems as Least Concern and has a conservation target of 21%. It is currently listed as not protected, however over 99% of the remaining natural extent is intact.”

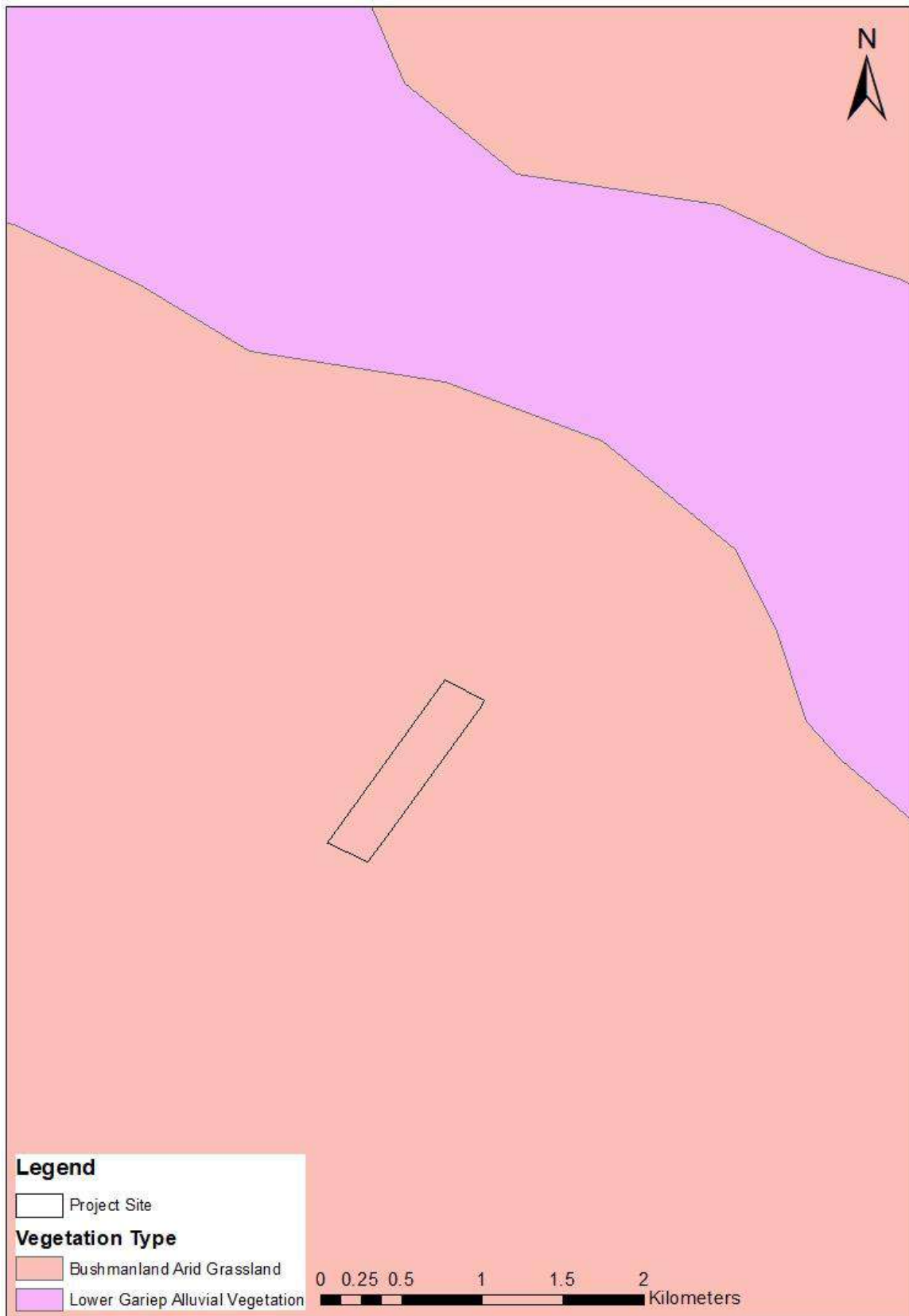


Figure 7: National Vegetation Map showing all three alternatives as occurring within Namaqualand Spinescent Grassland

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	YES	NO	UNSURE
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO	UNSURE

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

Not applicable, no watercourse crossing the site. A small watercourse at the northern boundary, however, it will not be impacted by the development.

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	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant^A	Nature conservation area
Medium industrial^{AN}	Train station or shunting yard^N	Mountain, Koppie or ridge
Heavy industrial^{AN}	Railway line^N	Museum
Power station	Major road (4 lanes or more)^N	Historical building
Office/consulting room	Airport^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

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

Not applicable.

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:

Not applicable.

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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:

Not applicable.

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 A3**.

The following is taken from the Botanical Assessment included in **Appendix D1**:

“According to the Northern Cape CBA Map, the majority of the project site falls within a CBA 2 and a small portion in the southern section of the project area falls within an ESA (Figure 8).

The reason layer for the spatial data set was consulted to determine the reason given for the site being listed as a CBA2. The reasons for the planning unit in which the project site falls are listed in Table 5.1 and comment provided on the specific conditions within the site. Of the five reasons for the planning unit being listed as a CBA, only two are directly applicable to the project site itself; (1) the project site falls within Bushman Arid Grassland and (2) the project site falls within a NPAES focus area.

It should be noted that Bushman Arid Grassland is listed as Least Concern and the RLE (2021) indicates that 99% of this vegetation type remains intact suggesting that the conservation target for this vegetation type can still be met elsewhere. The loss of this vegetation type at the project site is equivalent to 0.07% (19.4ha) of the remaining extent.

Although the site occurs within a NPAES focus area, the land on either side of the property has been transformed for agriculture. The current Google Earth imagery is dated 2020 and does not reflect the changes within the general area. The field survey confirmed that the properties immediately to the east and west of the site have been planted with orchards. Given its location within an agricultural farming area, it is unlikely this parcel of land will be the preferred choice as a future protected area.

Based on the above it is unlikely the overall ecological functioning of the CBA would be compromised by the development.”



Figure 8: The project site in relation to identified CBAs and ESAs

“Conclusions:

The project site is located within Bushmanland Arid Grassland which is listed as Least Concern with 99% of its extent intact. If the project proceeds it will result in the loss of 0.07% of the remaining extent of this vegetation type.

Site Ecological Importance (SEI) for the site was determined to be moderate since there are no confirmed or highly likely Species of Conservation Concern (SCC) that could occur within the site and receptor resilience is moderate.

Four impacts were identified for the project, three of which are of low significance after mitigation measures have been implemented and one of which is moderate significance.”

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	

The following is a summary taken from a baseline study conducted by Lloyd Rossouw from Paleo Field Services. This Archaeological Assessment (**Appendix D2**) was dated December 2017, with the following conclusion and recommendations:

“FIELD ASSESSMENT

The proposed footprint lies on undulating terrain where metasedimentary rocks are capped by a thin veneer of bedrock – derived, gritty to gravelly topsoils on the high ground, with sandy pediments and sandy dry stream beds predominating low-lying drainage lines to the south (Fig. 8). An isolated piece of a polished grindstone (on basalt) was recorded (Fig. 9), but there is no evidence of in situ Stone Age archaeological material, either as capped assemblages or distributed as intact surface scatters on the landscape within the boundaries of the proposed development footprint. A very low density (< 1 / 200 m) stone tool component included an assortment of debitage and crude flakes on crystalline quartz (Fig. 10). There are no indications of rock art (fineline, scraped or pecked engravings), stonewalled structures or historically significant buildings older than 60 years, or aboveground evidence of graves or cairns within the boundary of the proposed footprint.

IMPACT STATEMENT AND RECOMMENDATION

The proposed development footprint is underlain by paleontologically insignificant metamorphic rocks and geologically recent superficial sediments (Kalahari Group sand & sandy soils). The field assessment provided no aboveground evidence of prehistoric structures, buildings older than 60 years, or material of cultural significance or in situ archaeological sites within the study area. Given the nature of the underlying geology, potential impact on rock engraving sites within the study area is considered unlikely. The proposed development footprint and associated access road are not considered paleontologically or archaeologically vulnerable and is assigned a site rating of Generally Protected C (Table 1). It is advised that the proposed project can proceed with no further palaeontological or archaeological assessments required.”

The following is a summary taken from a baseline study conducted for the directly adjacent site, with the same vegetation elevations etc. This Palaeontology Assessment (**Appendix D3**) was dated December 2017, with the following conclusion and recommendations:

“Conclusions & recommendations:

In view of the negligible palaeontological sensitivity of the ancient Precambrian bedrocks as well as the low sensitivity of the geologically recent superficial sediments along the Orange River in the Kakamas – Augrabies region, the proposed agricultural development – including new citrus orchards and buried pipelines - is not considered to pose a significant threat to palaeontological heritage.

Although diamond prospecting has occurred in the Renosterkop region, substantial, potentially fossiliferous older alluvial deposits are not mapped here. Pending any significant new fossil discoveries in the area, no further specialist studies or mitigation are considered necessary for this agricultural project. All South African fossil heritage is protected by the National Heritage Resources Act, 1999. Should substantial fossil remain - such as vertebrate bones and teeth, or petrified logs of fossil wood - be encountered at surface or exposed during construction, the ECO should safeguard these, preferably in situ.

They should then alert the relevant provincial heritage management authority as soon as possible - i.e., SAHRA (Contact details: Dr Ragna Redelstorff, SAHRA, P.O. Box 4637, Cape Town 8000. Tel: 021 202 8651. Email: rredelstorff@sahra.org.za). This is to ensure that appropriate action (i.e., recording, sampling or collection of fossils, recording of relevant geological data) can be taken by a professional palaeontologist at the developer's expense.

These mitigation recommendations should be incorporated into the Environmental Management Programme (EMPr) for this agricultural project.

Please note that:

- All South African fossil heritage is protected by law (South African Heritage Resources Act, 1999) and fossils cannot be collected, damaged or disturbed without a permit from SAHRA or the relevant Provincial Heritage Resources Agency.*
- The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g. museum or university collection).*
- All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g. data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).*

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:

See above section.

Will any building or structure older than 60 years be affected in any way?

YES	NO
YES	NO

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.

It is not necessary to apply for a permit, however, the documentation was sent for comments to SAHRIS. The impacts on archaeology and palaeontology are deemed to be low to negligible and the following conditions will be implemented to ensure any potential impacts are taken into account.

- Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during proposed activities, these must immediately be reported to the archaeologist or the South African Heritage Resources Agency (Ms Natasha Higgitt 021 4624502). Burials, particularly, must not be removed or disturbed until inspected by a professional archaeologist.
- All South African fossil heritage is protected by law (South African Heritage Resources Act, 1999) and fossils cannot be collected, damaged or disturbed without a permit from SAHRA or the relevant Provincial Heritage Resources Agency.
- The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g., museum or university collection).
- All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g., data recording fossil collection and curation,

final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).

- The above recommendations must be incorporated into the Environmental Management Plan (EMP) for the proposed development.

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:

The following information was extracted from the Integrated Development Plan (IDP) of June 2021 for the Kai! Garib Municipality and summarises the Labour sector at the time:

“Labour (Employment and unemployment)

The labour force of a country consists of everyone of working age (above a certain age and below retirement) that are participating as workers, i.e. people who are actively employed or seeking employment. This is also called the economically active population (EAP). People not included are students, retired people, stay-at-home parents, people in prisons or similar institutions, people employed in jobs or professions with unreported income, as well as discouraged workers who cannot find work.

The working age population in Kai! Garib in 2018 was 51 000, increasing at an average annual rate of 1.21% since 2008. For the same period the working age population for ZF Mgcawu District Municipality increased at 1.81% annually, while that of Northern Cape Province increased at 1.68% annually. South Africa's working age population has increased annually by 1.50% from 32.1 million in 2008 to 37.2 million in 2018.

Out of the working age group, 68.1% are participating in the labour force, meaning 34 700 residents of the local municipality forms currently part of the economically active population (EAP). Comparing this with the non-economically active population (NEAP) of the local municipality: fulltime students at tertiary institutions, disabled people, and those choosing not to work, sum to 16 300 people. Out of the economically active population, there are 4 170 that are unemployed, or when expressed as a percentage, an unemployment rate of 12.0%. Up to here all the statistics are measured at the place of residence. On the far right we have the formal non-Agriculture jobs in Kai! Garib, broken down by the primary (mining), secondary and tertiary industries. The majority of the formal employment lies in the Primary industry, with 12 900 jobs. When including the informal, agricultural and domestic workers, we have a total number of 27 900 jobs in the area. Formal jobs make up 35.1% of all jobs in the Kai! Garib Local Municipality. The difference between the employment measured at the place of work, and the people employed living in the area can be explained by the net commuters that work outside of the local municipality.

In 2018, Kai! Garib employed 27 900 people which is 30.94% of the total employment in ZF Mgcawu District Municipality (90 100), 8.63% of total employment in Northern Cape Province (323 000), and 0.17% of the total employment of 16.1 million in South Africa. Employment within Kai! Garib increased annually at an average rate of 0.88% from 2008 to 2018. The Kai! Garib Local Municipality average annual employment growth rate of 0.88% exceeds the average annual labour force growth rate of 0.72% resulting in unemployment decreasing from 11.17% in 2008 to 12.00% in 2018 in the local municipality.

Kai! Garib employs a total number of 27 900 people within its municipality area. In Kai! Garib Local Municipality the economic sectors that recorded the largest number of employments in 2018 were

the agriculture sector with a total of 12 400 employed people or 44.6% of total employment in the local municipality. The community services sector with a total of 5 960 (21.4%) employs the second highest number of people relative to the rest of the sectors. The electricity sector with 75.2 (0.3%) is the sector that employs the least number of people in Kai! Garib Local Municipality, followed by the mining sector with 500 (1.8%) people employed.

In 2018, there were a total number of 4 170 people unemployed in Kai! Garib, which is an increase of 557 from 3 610 in 2008. The total number of unemployed people within Kai! Garib constitutes 19.19% of the total number of unemployed people in ZF Mgcawu District Municipality. The Kai! Garib Local Municipality experienced an average annual increase of 1.45% in the number of unemployed people, which is better than that of the ZF Mgcawu District Municipality which had an average annual increase in unemployment of 1.65%.

In 2018, the unemployment rate in Kai! Garib Local Municipality (based on the official definition of unemployment) was 12.00%, which is an increase of 0.83 percentage points. The unemployment rate in Kai! Garib Local Municipality is lower than that of ZF Mgcawu. Comparing to the Northern Cape Province it can be seen that the unemployment rate for Kai! Garib Local Municipality was lower than that of Northern Cape which was 28.73%. The unemployment rate for South Africa was 27.18% in 2018, which is an increase of -3.59 percentage points from 23.60% in 2008.

When comparing unemployment rates among regions within ZF Mgcawu District Municipality, Kheis Local Municipality has indicated the highest unemployment rate of 31.6%, which has increased from 22.8% in 2008. It can be seen that the Kai! Garib Municipality had the lowest unemployment rate of 12.0% in 2018, this increased from 11.2% in 2008.”

Economic profile of local municipality:

The following information was extracted from the Integrated Development Plan (IDP) of June 2021 for the Kai! Garib Municipality and summarises the agricultural sector at the time:

“The agricultural sector is still the main economic sector making the biggest contribution to the economy of Kai! Garib. The agriculture sector is also a major employer in the Municipality in terms of all formal employment. It is also the sector with the largest potential for economic growth. The commercial farmers farm especially with grapes for export, raisins, and wine, while citrus types of fruit are also becoming more prevalent in the area.

There are three wine cellars in the area at Keimoes, Kakamas and Kanoneiland. High-quality table wine is produced at these wine cellars, as well as quality grape juice. Several permanent jobs are created through these wine cellars. Two major raisin export companies (Frut da Sud & Red Sun Raisin) are also established in Kai! Garib Area.

Lucerne, cotton, corn, and nuts are cultivated under irrigation from the Orange River.

The emerging farmers focus more on small stock farming. The Kenhardt area is known for small stock farming, especially dorper sheep. Abattoirs are available at Kenhardt and Kakamas.

Major constraints for agricultural development include poor quality of access roads to and from farms, farming skills amongst the youth and finance for emerging farmers.

Opportunities in the agricultural sector include the expansion of the production of lucerne and citrus, as well as the possible establishment of ostrich farming. Another sector that shows potential within the sector is agritourism, which has not been investigated or explored as yet.

The municipality embarked on a process to become an active facilitator of local economic development when it established a local economic development (LED) strategy with assistance from the Department of Economic Development and Tourism.”

Level of education:

The following information was extracted from the Integrated Development Plan (IDP) of June 2021 for the Kai! Garib Municipality and summarises the education sector at the time:

“Educating is important to the economic growth in a country and the development of its industries, providing a trained workforce and skilled professionals required. The education measure represents the highest level of education of an individual, using the 15 years and older age category. (According to the United Nations definition of education, one is an adult when 15 years or older. IHS uses this cut-off point to allow for cross-country comparisons. Furthermore, the age of 15 is also the legal age at which children may leave school in South Africa).

Within Kai! Garib Local Municipality, the number of people without any schooling decreased from 2008 to 2018 with an average annual rate of -3.17%, while the number of people within the 'matric only' category, increased from 6,420 to 8,920. The number of people with 'matric and a certificate/diploma' increased with an average annual rate of 1.35%, with the number of people with a 'matric and a Bachelor's' degree increasing with an average annual rate of 0.07%. Overall improvement in the level of education is visible with an increase in the number of people with 'matric' or higher education.

The number of people without any schooling in Kai! Garib Local Municipality accounts for 29.53% of the number of people without schooling in the district municipality, 5.26% of the province and 0.15% of the national. In 2018, the number of people in Kai! Garib Local Municipality with a matric only was 8,920 which is a share of 20.33% of the district municipality's total number of people that has obtained a matric. The number of people with a matric and a Postgrad degree constitutes 15.53% of the district municipality, 2.59% of the province and 0.03% of the national.

A total of 42 800 individuals in Kai! Garib Local Municipality were considered functionally literate in 2018, while 13 400 people were considered to be illiterate. Expressed as a rate, this amounts to 76.11% of the population, which is an increase of 0.1 percentage points since 2008 (66.12%). The number of illiterate individuals decreased on average by -2.27% annually from 2008 to 2018, with the number of functional literate people increasing at 2.63% annually.

Kai! Garib Local Municipality's functional literacy rate of 76.11% in 2018 is lower than that of ZF Mgcaawu at 79.67% and is lower than the province rate of 78.61%. When comparing to National Total as whole, which has a functional literacy rate of 84.42%, it can be seen that the functional literacy rate is higher than that of the Kai! Garib Local Municipality.”

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R4.2 million	
What is the expected yearly income that will be generated by or as a result of the activity?	R1.92 million	
Will the activity contribute to service infrastructure?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Is the activity a public amenity?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	16	
What is the expected value of the employment opportunities during the development and construction phase?	R6 million	
What percentage of this will accrue to previously disadvantaged individuals?	100%	

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How many permanent new employment opportunities will be created during the operational phase of the activity?	3
What is the expected current value of the employment opportunities during the first 10 years?	R5.08 million
What percentage of this will accrue to previously disadvantaged individuals?	100%

9. BIODIVERSITY

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

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

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNA)	<p>See below for summary from the Botanical Report.</p> <p><i>"According to the Northern Cape CBA Map, the majority of the project site falls within a CBA 2 and a small portion in the southern section of the project area falls within an ESA."</i></p>

- 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)	100%	<p>Bushmanland Arid Grassland only vegetation found on site:</p> <p><i>This vegetation type was present within the site. However, it is listed as Least Concern and the RLE (2021) indicates that 99% of this vegetation type remains intact suggesting that the conservation target for this vegetation type can still be met elsewhere. Further to the above, the project will only result in the loss of 0.07% (19.7ha) of this vegetation type.</i></p>
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed	%	

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(includes cultivation, dams, urban, plantation, roads, etc)		
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- 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)	YES	NO	UNSURE	Estuary		Coastline	
	Endangered								
	Vulnerable								
	Least Threatened					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)**

The following summary was taken from the Botanical Report included in **Appendix D1**:

“According to the Northern Cape CBA Map, the majority of the project site falls within a CBA 2 and a small portion in the southern section of the project area falls within an ESA (Figure 9).

The reason layer for the spatial data set was consulted to determine the reason given for the site being listed as a CBA2. The reasons for the planning unit in which the project site falls are listed in Table 5.1 and comment provided on the specific conditions within the site. Of the five reasons for the planning unit being listed as a CBA, only two are directly applicable to the project site itself; (1) the project site falls within Bushman Arid Grassland and (2) the project site falls within a NPAES focus area.

It should be noted that Bushman Arid Grassland is listed as Least Concern and the RLE (2021) indicates that 99% of this vegetation type remains intact suggesting that the conservation target for this vegetation type can still be met elsewhere. The loss of this vegetation type at the project site is equivalent to 0.07% (19.7ha) of the remaining extent.

Although the site occurs within a NPAES focus area, the land on either side of the property has been transformed for agriculture.

The current Google Earth imagery is dated 2020 and does not reflect the changes within the general area. The field survey confirmed that the properties immediately to the east and west of the site have been planted with orchards. Given its location within an agricultural farming area, it is unlikely this parcel of land will be the preferred choice as a future protected area.

Based on the above it is unlikely the overall ecological functioning of the CBA would be compromised by the development. As such, the impact of the development on the CBA is considered acceptable.”

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Table below: Reasons for the site occurring within a CBA2 and comment on the conditions specific to the project site

Reason	Comment specific to the site
<i>Lower Gariep Alluvial Vegetation</i>	<i>Although the planning unit in which the project site falls may have some Lower Gariep Alluvial Vegetation, this vegetation type was not present within the site itself.</i>
<i>Bushman Arid Grassland</i>	<i>This vegetation type was present within the site. However, it is listed as Least Concern and the RLE (2021) indicates that 99% of this vegetation type remains intact suggesting that the conservation target for this vegetation type can still be met elsewhere. Further to the above, the project will only result in the loss of 0.07% (19.4ha) of this vegetation type.</i>
<i>All Natural Wetlands and all Natural Rivers</i>	<i>No NFEPA wetlands or rivers were present within the site.</i>
<i>PA distance buffers 5km and 10km</i>	<i>The site itself is 10.2km from a protected area.</i>
<i>NPAES PA and Focus</i>	<i>The site occurs within a NPAES. However, it should be noted that the land on either side of the property has been transformed for agriculture. The Google Earth imagery is dated 2020 and does not reflect the current changes at the site. During the field survey it was noted that the properties immediately to the east and west have been planted with orchards. Given its location within an agricultural farming area, it is unlikely this parcel of land will be the preferred choice as a protected area in the future.</i>



Figure 9: The project site in relation to ESA and CBA's.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Local Newspaper: The Gemsbok	
Date published	24 June 2022	
Site notice position	Latitude	Longitude
	28° 41' 21.93" S	20° 27' 03.01" E
Date placed	24 June 2022	

Include proof of the placement of the relevant advertisements and notices in [Appendix E3](#) and [Appendix E4](#).

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733. Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733.

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (Tel. number or e-mail address)
Ms Natasha Higgitt	SAHRA	Cell: 021 462 4502

Include proof that the key stakeholder received written notification of the proposed activities as [Appendix E5](#). This proof may include any of the following:

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

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
<p>The main issue with the project was the request from SAHRA to conduct an archaeological assessment/statement.</p> <p>This was compiled and the report went out for an additional 30-day public participation.</p>	<p>An archaeological assessment was conducted by an independent specialist and the report went out for an additional 30-day public participation.</p>

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 E6](#) and [Appendix E7](#).

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

1		Mac Kay	Mr.	Kai Garib Municipality: Municipal Manager	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
2		Ipinge	R	Kai Garib Municipality: Ward Councillor Ward 2	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
3		Klim	WD	Kai Garib Municipality: Ward Councillor	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
4		Toerien	N	Department of Agriculture and Land Reform and Rural Development.			nicotoerien@gmail.com	P. O. Box 52	Upington	8800	L
5		Cloete	S	Department of Water Affairs	0836333642/0543 385827		CloeteS@dws.gov.za	Private Bag X5912	Upington	8800	L
6		Abrahams	N	Department of Transport: Environmental Coordinator	021 957 4602	021 910 1699	Abrahamsn@nra.co.za	Private Bag X19, Sanlamhof	Belville	7535	L
7		CEO		Kakamas Water Users Association	054 431 0725/6	054 431 0348	kakamaswg@isat.co.za	Private Bag X4	Kakamas	8870	L
8		Seshupo	O	DAER&LR	053 631 0601		olebileseshupo@gmail.com	Private Bag X6102 SASKO Building	Kimberley	8300	L
9		CEO		Boegoeberg Water Users Association	054 841 0002	054 841 0000	info@boegoebergwater.co.za	P. O. Box 15	Groblershoop	8850	L
10		CEO		Kakamas Water Users Association	054 431 0725/6	054 431 0348	kakamaswg@isat.co.za	Private Bag X4	Kakamas	8870	L
11		De la Fontaine	S	Nature Conservation	054 338 4800		sdelafontaine@gmail.com	Evelina De Bruin (former Provincial) Building, Corner of Rivier & Nelson Mandela Road	Upington	8800	L

Include proof that the Authorities and Organs of State received written notification of the proposed activities as [Appendix E5](#).

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 E1](#).

Copies of any correspondence and minutes of any meetings held must be included in [Appendix E8](#).

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

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.

Legend		
Significance Ratings (after mitigation)	Negative Impacts	Positive Impacts
Low		
Medium		
High		

CONSTRUCTION PHASE

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative) – for the construction of an agricultural development area of 19.7ha.			
Geology and geohydrological aspects.	Direct impacts: Clearing of topsoil to include the complete transformation of 19.7 ha, which currently has indigenous vegetation. Minimal impacts on surroundings, as the vegetation that will be removed has a least threatened conservation status.	Low negative after mitigation.	Topsoil will be utilised for the new agricultural areas.
	Indirect impacts:	None	Not applicable

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	No geohydrological aspects will be impacted.		
	Cumulative impacts: Low Negative	None	Not applicable
Botanical aspects - Loss of Bushmanland Arid Grassland	Direct impacts: The clearance of indigenous vegetation will result in the loss of approximately 0.07 % (19.7 ha) of the remaining extent of Bushmanland Arid Grassland which is listed as Least Concern. Although this vegetation type is not protected, 99% of it remains intact. The loss of this vegetation within the site will be permanent.	Low Negative	The clearing of vegetation is difficult to mitigate as it will be permanently lost. However, it is important that clearing is kept to a minimum and as such the following mitigation measures must be included in the EMPr. <ul style="list-style-type: none"> • Project activities must remain within the designated footprint. • <i>Prosopis grandiflora</i> must be cleared, and project activities must not contribute to further infestation. • Vegetation that is impacted by project activities but not required during the operational phase must be rehabilitated back to its original state. • All service infrastructure must be located within the same corridor and preferably along the same corridor as the access road.
	Indirect impact: Negative impacts on the ecological environment and animal species.	Degree to which the impact can be managed: Unmanageable	Not applicable
	Cumulative impacts: This vegetation type is being lost within the immediate area as it is converted for farming practices. However, given that	Low Negative	None

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	<p>this is a small extent, the cumulative loss of this vegetation type will be low negative.</p>		
<p>Botanical aspects - Loss of Species of Conservation Concern</p>	<p>Direct impacts: The likelihood of occurrence of SCC within the site is low and as such the loss of SCC will be negligible.</p>	<p>Low Negative</p>	<p>In the event that SCC are found, permits for their removal must be applied for and these species must be translocated to a suitable nearby site.</p>
	<p>Indirect impact: Indirect impacts will be low</p>	<p>Degree to which the impact can be managed: Marginal loss</p>	<p>Not applicable</p>
	<p>Cumulative impacts:</p>	<p>Low Negative</p>	<p>None</p>
<p>Botanical aspects - Disruption of Ecosystem Function and Process</p>	<p>Direct impacts: Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when more and more areas are cleared, resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors. The development is situated within a corridor of existing farmland and will result in further habitat fragmentation through the clearance of 19.4 ha of indigenous vegetation.</p>	<p>Moderate Negative</p>	<p>The following mitigation measures must be included in the EMPr.</p> <ul style="list-style-type: none"> • Project activities must remain within the designated footprint. • Where feasible, existing infrastructure and access roads must be used. • Service infrastructure must be located within the same corridor, preferably along the access road.
	<p>Indirect impact: None</p>	<p>Degree to which the</p>	<p>Not applicable</p>

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		impact can be managed: Irreversible	
	Cumulative impacts: Moderate. The further loss of habitat will have a cumulative effect on the remaining natural habitat in the area.	Low Negative	None
Continuous alien removal	Direct impacts: Disruption of habitats and disturbance often result in the infestation of alien invasive plant species which can displace natural vegetation from natural habitat. The species <i>Prosopis glandulosa</i> , a category 1b invasive species, is already present on site. Further disturbance could lead to further infestation if not managed properly.	High positive	<ul style="list-style-type: none"> The site must be checked regularly for the presence of alien invasive species during and immediately after construction. Alien invasive species must be removed, preferably by mechanical means. Areas that are impacted during the construction phase but no longer required for operation must be rehabilitated back to their natural state and monitored for the presence of alien invasive until these areas are rehabilitated.
	Indirect impact:	None	Not applicable
	Cumulative impacts: Continuous improvement of vegetation on site.	Positive	Not applicable
Impeding the flow of the watercourse.	Direct impacts: The site is not located within the watercourse, however, is within 32m from the watercourse	Very low negative.	No impeding or diverting of flow necessary
	Indirect impacts:	Low negative	Buffer area of 20m, therefore preventing the impact on the watercourse.
	Cumulative impacts: Construction within 32m of a watercourse.	Low negative	Buffer area of 20m, therefore preventing the impact on the watercourse.

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Noise	Direct impacts: Minimal noise during construction of the storage dam and clearing of vegetation during construction.	Low negative, but only for a short period of time.	<ul style="list-style-type: none"> Working hours will be restricted to daily normal working hours. All noise and sounds generated by plant or machinery must adhere to SABS 0103 specifications for the maximum permissible noise levels for residential areas. All plant and machinery are to be fitted with adequate silencers. No sound amplification equipment such as sirens, loud hailers or hooters may be used on site after normal working hours, except in emergencies. If work is to be undertaken outside of normal work hours, permission must be obtained from the landowner. Prior to commencing any such activity, the contractor is also to advise the potentially affected neighbouring residents. Dates, times and the nature of the work to be undertaken are to be provided. The notification could include letter-drops. The acceptable noise level according to SABS 10103 Code of Practice is 45dBA in the rural district during the day and 35dBA at night. The applicant must comply/adhere to these requirements.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Visual	Direct impacts: During construction, there will be a period during which development activities will be	Low negative	Visual impacts will contribute to the surrounding land use which is agricultural

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	visual, but this will only be for a short period.		
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Job creation	Direct impacts: Temporary job creation during the construction phase.	Medium positive	This is the mitigation.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Job security	Direct impacts: Job security for current employees and job creation for new employees during the operational phase	Medium positive	This is the mitigation.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Heritage and cultural-historical	Direct impacts: The potential loss of archaeological artefacts (localised permanent impact).	Low negative.	No archaeological mitigation is required. Low probability of impact on archaeological heritage. Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during construction activities, these must immediately be reported to an archaeologist, or the South African Heritage Resources Agency (SAHRA – Att: Natasha Higgitt). Burials must not be removed or disturbed until inspected by the archaeologist.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Paleontological	Direct impacts: Given the low palaeontological sensitivity, small area and disturbed character of the	None	<ul style="list-style-type: none"> All South African fossil heritage is protected by law (South African Heritage Resources Act, 1999) and fossils cannot be

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	<p>study area, it is concluded that the proposed area is very unlikely to have significant impacts on local palaeontological heritage resources.</p>		<p>collected, damaged or disturbed without a permit from SAHRA or the relevant Provincial Heritage Resources Agency.</p> <ul style="list-style-type: none"> • The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g., museum or university collection); • All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g., data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Alternative 2			
Geology and geohydrological aspects.	<p>Direct impacts:</p> <p>Clearing of topsoil to include the complete transformation of an area of 19.7 ha, which currently has indigenous vegetation.</p>	High negative	Clearing of an area closer to a watercourse.
	<p>Indirect impacts:</p> <p>No geohydrological aspects will be impacted.</p> <p>Watercourses identified are small ephemeral watercourses.</p>	None	Not applicable

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	<p>Cumulative impacts:</p> <p>None</p>	None	Not applicable
Botanical aspects - Loss of Bushmanland Arid Grassland	<p>Direct impacts:</p> <p>The clearance of indigenous vegetation will result in the loss of approximately 0.07 % (19.4 ha) of the remaining extent of Bushmanland Arid Grassland which is listed as Least Concern. Although this vegetation type is not protected, 99% of it remains intact. The loss of this vegetation within the site will be permanent.</p>	Low Negative	<p>The clearing of vegetation is difficult to mitigate as it will be permanently lost. However, it is important that clearing is kept to a minimum and as such the following mitigation measures must be included in the EMPr.</p> <ul style="list-style-type: none"> • Project activities must remain within the designated footprint. • <i>Prosopis grandiflora</i> must be cleared, and project activities must not contribute to further infestation. • Vegetation that is impacted by project activities but not required during the operational phase must be rehabilitated back to its original state. <p>All service infrastructure must be located within the same corridor and preferably along the same corridor as the access road.</p>
	<p>Indirect impact:</p> <p>Negative impacts on the ecological environment and animal species.</p>	Degree to which the impact can be managed: Unmanageable	Not applicable
	<p>Cumulative impacts:</p> <p>This vegetation type is being lost within the immediate area as it is converted for farming practices. However, given that this is a small extent, the cumulative loss of this</p>	Low Negative	None

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	vegetation type will be low negative.		
Botanical aspects - Disruption of Ecosystem Function and Process	<p>Direct impacts:</p> <p>Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when more and more areas are cleared, resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors. The development is situated within a corridor of existing farmland and will result in further habitat fragmentation through the clearance of 19.4 ha of indigenous vegetation.</p>	Moderate Negative	<p>The following mitigation measures must be included in the EMPr.</p> <ul style="list-style-type: none"> • Project activities must remain within the designated footprint. • Where feasible, existing infrastructure and access roads must be used. • Service infrastructure must be located within the same corridor, preferably along the access road.
	<p>Indirect impact:</p> <p>None</p>	Degree to which the impact can be managed: Irreversible	Not applicable
	<p>Cumulative impacts:</p> <p>Moderate. The further loss of habitat will have a cumulative effect on the remaining natural habitat in the area.</p>	Low Negative	None
Continuous alien removal	<p>Direct impacts:</p> <p>Disruption of habitats and disturbance often result in the infestation of alien invasive plant species which can displace natural vegetation from natural habitat. The species <i>Prosopis glandulosa</i>, a category 1b invasive species, is</p>	High positive	<ul style="list-style-type: none"> • The site must be checked regularly for the presence of alien invasive species during and immediately after construction. • Alien invasive species must be removed, preferably by mechanical means.

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	already present on site. Further disturbance could lead to further infestation if not managed properly.		<ul style="list-style-type: none"> Areas that are impacted during the construction phase but no longer required for operation must be rehabilitated back to their natural state and monitored for the presence of alien invasive until these areas are rehabilitated.
	Indirect impact:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Noise	<p>Direct impacts:</p> <p>Minimal noise during construction of the storage dam and clearing of vegetation during construction.</p>	Low negative, but only for a short period of time.	<ul style="list-style-type: none"> Working hours will be restricted to daily normal working hours. All noise and sounds generated by plant or machinery must adhere to SABS 0103 specifications for the maximum permissible noise levels for residential areas. All plant and machinery are to be fitted with adequate silencers. No sound amplification equipment such as sirens, loud hailers or hooters may be used on-site, after normal working hours, except in emergencies. If work is to be undertaken outside of normal work hours, permission must be obtained from the landowner. Prior to commencing any such activity, the contractor is also to advise the potentially affected neighbouring residents. Dates, times and the nature of the work to be undertaken are to be

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			<p>provided. The notification could include letter-drops.</p> <ul style="list-style-type: none"> The acceptable noise level according to SABS 10103 Code of Practice is 45dBA in the rural district during the day and 35dBA at night. The applicant must comply/adhere to these requirements.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Visual	<p>Direct impacts:</p> <p>During construction, there will be a period during which development activities will be visual, but this will only be for a short period.</p>	Low negative	Visual impacts will contribute to the surrounding land use which is agricultural
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Job creation	<p>Direct impacts:</p> <p>Temporary job creation during the construction phase</p>	Medium positive.	This is the mitigation.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Job security	<p>Direct impacts:</p> <p>Job security for current employees and job creation for new employees during the operational phase</p>	Medium positive.	This is the mitigation.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Heritage and cultural-historical.	<p>Direct impacts:</p> <p>The potential loss of archaeological artefacts (localised permanent impact).</p>	Low negative.	No archaeological mitigation is required. Low probability of impact on archaeological heritage. Should any unmarked human burials/remains or ostrich eggshell water flask caches be

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			uncovered, or exposed during construction activities, these must immediately be reported to an archaeologist, or the South African Heritage Resources Agency (SAHRA – Att: Natasha Higgitt). Burials must not be removed or disturbed until inspected by the archaeologist.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Paleontological	<p>Direct impacts:</p> <p>Given the low palaeontological sensitivity, small area and disturbed character of the study area, it is concluded that the proposed development is very unlikely to have significant impacts on local palaeontological heritage resources.</p>	None	<ul style="list-style-type: none"> • All South African fossil heritage is protected by law (South African Heritage Resources Act, 1999) and fossils cannot be collected, damaged or disturbed without a permit from SAHRA or the relevant Provincial Heritage Resources Agency. • The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g., museum or university collection). • All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g., data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).

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	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Impeding the flow of the watercourse.	Direct impacts: Changing /altering the flow of the ephemeral watercourses.	Medium negative.	Canalize flow surrounding the agricultural area.
	Indirect impacts:	Medium negative.	No buffer area of 32 m, therefore not preventing the impact on the watercourse.
	Cumulative impacts: Construction within 32m of a watercourse.	Medium negative, prior to mitigation.	The ephemeral watercourse is already cut off from the Orange River via the canal.
No-go option			
Botanical:	In the case of the “No-Go” alternative, where there would be no change, the status quo would persist and there would be no farming of the designated site. Under the no-go alternative, vegetation and thus SCC will remain intact and as such there will be no change if the project does not go ahead.	None	Negligible
Archaeological/palaeontology:	The results of the study indicate that the proposed cultivation of 19.7 will not have an impact of great significance on the archaeological heritage or palaeontology.	None	Negligible
Alien Clearing	Direct impacts: No disruption of habitats and therefore no result in the infestation of alien invasive plant species which can displace natural vegetation from natural habitat. However, the species <i>Prosopis glandulosa</i> , a category 1b invasive species, is already present on site. Therefore, no	Low negative	<ul style="list-style-type: none"> • The site must be checked regularly for the presence of alien invasive species during and immediately after construction. • Alien invasive species must be removed, preferably by mechanical means. • Monitoring for the presence of alien invasive species and rehabilitation.

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	proper managed currently on site.		
Job security	Indirect impacts: No job security or job opportunities.	Low negative	None.
Socio-economic	Cumulative impacts: No foreign capital to the area.	Low negative	None.

OPERATIONAL PHASE

Alternative 1 (preferred alternative) – for the development of 19.7ha of agricultural area.			
Heritage and cultural-historical.	Direct impacts: The potential loss of archaeological artefacts (localised permanent impact).	Negligible	Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during construction activities, these must immediately be reported to an archaeologist, or the South African Heritage Resources Agency (SAHRA – (Att: Natasha Higgitt). Burials must not be removed or disturbed until inspected by the archaeologist.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Paleontological	Direct impacts: Given the low paleontological sensitivity, small area and disturbed character of the study area, it is concluded that the proposed Louisvale agricultural development is very unlikely to have significant impacts on local paleontological heritage resources.	Negligible	Should any substantial fossil remain (e.g. mammalian bones and teeth) be encountered during excavation, however, these should be safeguarded, preferably <i>in situ</i> , and reported by the ECO to the South African Heritage Resources Authority as soon as possible so that appropriate action can be

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			taken by a professional palaeontologist, at the developer's expense (SAHRA contact details: Mrs Colette Scheermeyer, P.O. Box 4637, Cape Town 8000. Tel: 021 462 4502 email: cscheermeyer@sahra.org.za). Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g., stratigraphy, sedimentology, taphonomy) by a professional palaeontologist.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Continuous alien removal	<p>Direct impacts:</p> <p>Disruption of habitats and disturbance often result in the infestation of alien invasive plant species which can displace natural vegetation from natural habitat. The species <i>Prosopis glandulosa</i>, a category 1b invasive species, is already present on site. Further disturbance could lead to further infestation if not managed properly.</p>	High positive	<ul style="list-style-type: none"> The site must be checked regularly for the presence of alien invasive species immediately after construction. Alien invasive species must be removed, preferably by mechanical means. Areas that are impacted during the construction phase but no longer required for operation must be rehabilitated back to their natural state and monitored for the presence of alien invasive until these areas are rehabilitated.
Job security	Indirect impacts:	Low negative	None.

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	Job security and new job opportunities.		
Socio-economic	Cumulative impacts: Foreign capital to the area.	Low negative	None.
Impeding the flow of the watercourse.	Cumulative impacts: Development within 32m of a watercourse.	High positive	Buffer area of 20m, to be adhered to, preventing further impact on the watercourse.
Alternative 2: Not preferred option			
Heritage and cultural-historical.	Direct impacts: The potential loss of archaeological artefacts (localised permanent impact).	Negligible	Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during construction activities, these must immediately be reported to an archaeologist, or the South African Heritage Resources Agency (SAHRA – (Att: Natasha Higgitt). Burials must not be removed or disturbed until inspected by the archaeologist.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Paleontological	Direct impacts: Given the low paleontological sensitivity, small area and disturbed character of the study area, it is concluded that the proposed Louisvale agricultural development is very unlikely to have significant impacts on local paleontological heritage resources.	Negligible	Should any substantial fossil remain (e.g., mammalian bones and teeth) be encountered during excavation, however, these should be safeguarded, preferably in situ, and reported by the ECO to the South African Heritage Resources Authority as soon as possible so that appropriate action can be taken by a professional palaeontologist, at the developer's expense (SAHRA contact details: Mrs Colette Scheermeyer, P.O.

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			Box 4637, Cape Town 8000. Tel: 021 462 4502 email: cscheermeyer@sahra.org.za). Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g., stratigraphy, sedimentology, taphonomy) by a professional palaeontologist.
	Indirect impacts:	None	Not applicable
	Cumulative impacts:	None	Not applicable
Continuous alien removal	<p>Direct impacts:</p> <p>Disruption of habitats and disturbance often result in the infestation of alien invasive plant species which can displace natural vegetation from natural habitat. The species <i>Prosopis glandulosa</i>, a category 1b invasive species, is already present on site. Further disturbance could lead to further infestation if not managed properly.</p>	High positive	<ul style="list-style-type: none"> • The site must be checked regularly for the presence of alien invasive species immediately after construction. • Alien invasive species must be removed, preferably by mechanical means. • Areas that are impacted during the construction phase but no longer required for operation must be rehabilitated back to their natural state and monitored for the presence of alien invasive until these areas are rehabilitated.

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Job security	Indirect impacts: Job security or job opportunities.	High positive	None.
Socio-economic	Cumulative impacts: Foreign capital to the area.	High positive	None.

A complete impact assessment in terms of Regulation 19(3) of GN 733 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 1 (preferred alternative)

The following impacts are outlined:

Botanical:

- The project site is located within Bushmanland Arid Grassland which is listed as Least Concern with 99% of its extent intact. If the project proceeds it will result in the loss of 0.07% of the remaining extent of this vegetation type.
- SEI for the site was determined to be moderate since there are no confirmed or highly likely SCC that could occur within the site and receptor resilience is **moderate**.
- Four impacts were identified for the project, three of which are of **low significance** after mitigation measures have been implemented and one of which is **moderate significance**.

Archaeology:

- The results of the study indicate that the proposed cultivation of 19.7 ha agricultural development on Kakamas South Settlement No. 2094, **will not have an impact** of great significance on the archaeological heritage. No archaeological mitigation is required.

Palaeontology:

- Given the **low palaeontological sensitivity**, outlined in the previous study and the small area and disturbed character of the study area, it is concluded that the proposed agricultural development is very unlikely to have significant impacts on local palaeontological heritage resources.

Socio-Economic:

- **Medium positive** impact on job security and income for locals
- Job security for current employees;
- Job creation for new employees during the operational phase.

Visual:

- Temporary **low negative** visual impact during construction. However, the overall visual impacts are in line with the surrounding land use, which is agricultural.

Noise:

- Temporary **low negative impact** during construction. Minimal noise during construction of the storage dam and clearing of vegetation during construction.

An overall **low to moderate negative** impact on the environment may be present due to the removal of native indigenous vegetation, but if proper mitigation and management measurements are adhered to, the impact will be **low negative overall**. Most of the impacts will also only be of short duration (during the construction phase).

Alternative 2

The following impacts are outlined:

Botanical:

- The project site is located within Bushmanland Arid Grassland which is listed as Least Concern with 99% of its extent intact. If the project proceeds it will result in the loss of 0.07% of the remaining extent of this vegetation type.
- SEI for the site was determined to be moderate since there are no confirmed or highly likely SCC that could occur within the site and receptor resilience is **moderate**.
- Four impacts were identified for the project, three of which are of **low significance** after mitigation measures have been implemented and one of which is **moderate significance**.

Archaeology:

- The results of the previous study indicate that the proposed cultivation of 19.7 ha agricultural development on Kakamas South Settlement No. 2094, **will not have an impact** of great significance on the archaeological heritage. No archaeological mitigation is required.

Palaeontology:

- Given the **low palaeontological sensitivity**, outlined in the previous study and the small area and disturbed character of the study area, it is concluded that the proposed agricultural development is very unlikely to have significant impacts on local palaeontological heritage resources.

Impeding the flow of the watercourse:

- **Low to moderate negative** impact after mitigation;
- Taken into account the impact on the ephemeral watercourses at the southern boundary of the site.

Socio-Economic:

- **Medium positive impact** on job security and income for locals
- Job security for current employees;
- Job creation for new employees during the operational phase.

Visual:

- Temporary **low negative** visual impact during construction. However, the overall visual impacts are in line with the surrounding land use, which is agricultural.

Noise:

- Temporary **low negative** impact during construction. Minimal noise during construction of the storage dam and clearing of vegetation during construction.

An overall **moderate negative** impact on the environment may be present due to the removal of native indigenous vegetation and the impediment of the flow of the watercourse. Most of the impacts will also only be of short duration (during the construction phase).

No-go alternative (compulsory)

The following impacts are outlined:

- No agricultural development will take place, resulting in no financial benefits and no improvement in water use management practices.
- Lower rate of job security to those currently employed; and
- No new job opportunities for local residents of Augrabies.

SECTION E: RECOMMENDATION OF PRACTITIONER

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

YES

NO

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

Not applicable

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:

- The site must be checked regularly for the presence of alien invasive species during and immediately after construction.
- Alien invasive species must be removed, preferably by mechanical means.
- Areas that are impacted during the construction phase but no longer required for operation must be rehabilitated back to their natural state and monitored for the presence of alien invasive until these areas are rehabilitated.

The following mitigation measures must be included in the EMPr.

- Project activities must remain within the designated footprint.
- Where feasible, existing infrastructure and access roads must be used.
- Service infrastructure must be located within the same corridor, preferably along the access road.
- In the event that SCC are found, permits for their removal must be applied for and these species must be translocated to a suitable nearby site.
- The clearing of vegetation is difficult to mitigate as it will be permanently lost. However, it is important that clearing is kept to a minimum and as such the following mitigation measures must be included in the EMPr:
 - Project activities must remain within the designated footprint.
 - *Prosopis grandiflora* must be cleared, and project activities must not contribute to further infestation.
 - Vegetation that is impacted by project activities but not required during the operational phase must be rehabilitated back to its original state.
 - All service infrastructure must be located within the same corridor and preferably along the same corridor as the access road.

It is summarized that the following recommendation conditions are included in the Final EMPr as well as the conditions of the Environmental Authorisation (EA), if granted:

- All necessary plant permits must be obtained prior to the commencement of any construction activities;
- A comprehensive Search and Rescue should be conducted prior to clearance of vegetation;
- All SCC must be relocated to the nearest appropriate habitat;
- Alien species occurring within and directly adjacent to the site must be removed; and
- Where feasible existing access roads must be used and all service infrastructure must be located within the same servitude and preferably along the access road.

Archaeology:

Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during construction activities, these must immediately be reported to an archaeologist, or the South African Heritage Resources Agency (SAHRA – Att. Ms Natasha Higgitt 021 462 4502). Burials must not be removed or disturbed until inspected by the archaeologist.

Palaeontology:

The below mentioned recommendations must be incorporated into the Environmental Management Plan (EMP) for the proposed development.

- All South African fossil heritage is protected by law (South African Heritage Resources Act, 1999) and fossils cannot be collected, damaged or disturbed without a permit from SAHRA or the relevant Provincial Heritage Resources Agency.
- The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g., museum or university collection);
- All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g., data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).

Is an EMPr attached?

YES

~~NO~~

The EMPr must be attached as **Appendix G**.

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

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in **Appendix I (NOTE specialist declaration included in their reports)**.

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

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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

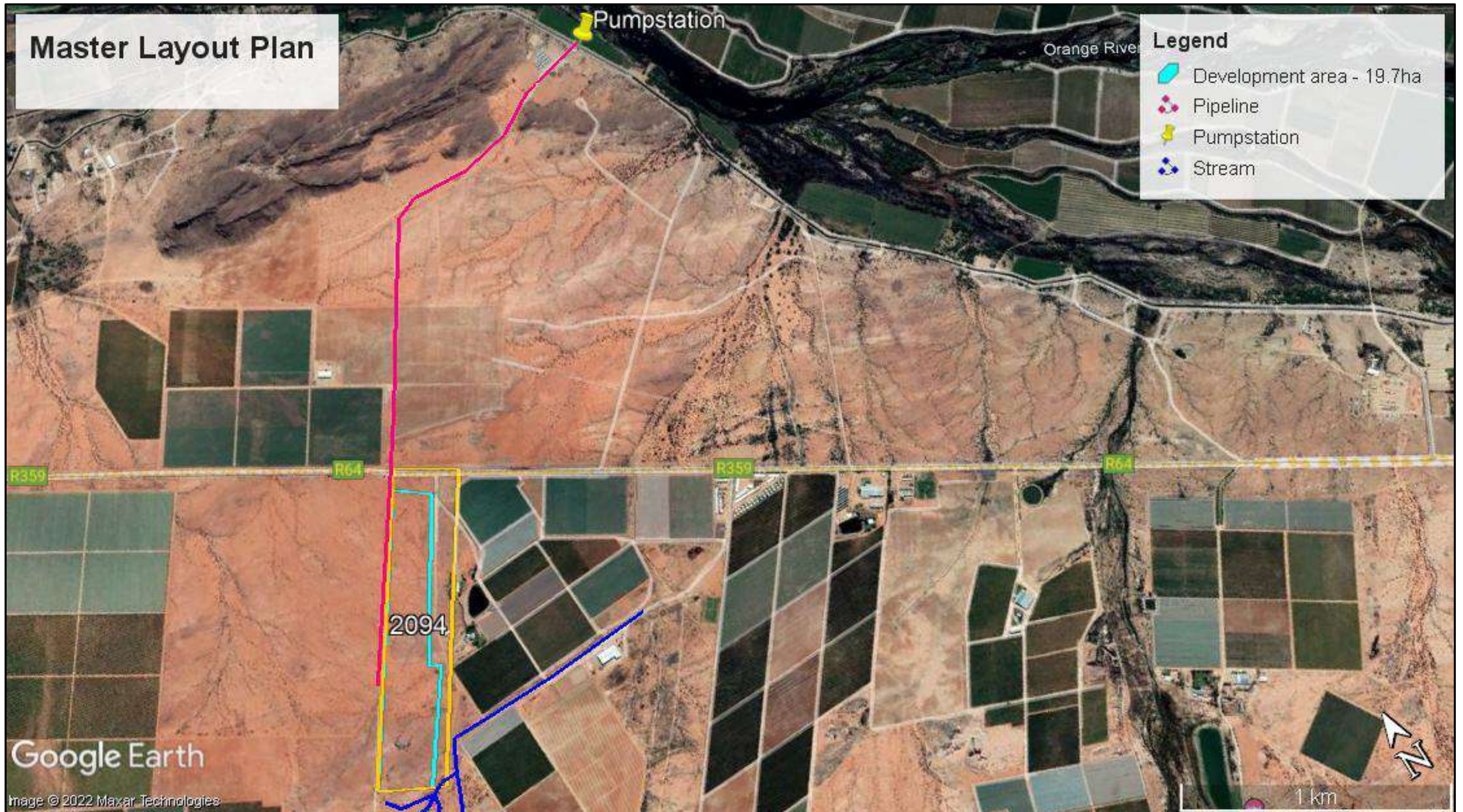
Appendix J: Additional Information

APPENDIX A: MAPS

APPENDIX A1: LOCALITY



APPENDIX A2: PREFERRED ALTERNATIVE LAYOUT



APPENDIX A3: BIODIVERSITY OVERLAY INDICATING THE CBA'S.



APPENDIX B: PHOTOGRAPHS



Ridge in the
centre of the site

Photograph illustrating the typical topography and soils associated with the site. The photograph was taken from the north-eastern corner of the site looking towards the southwest.



An Eskom powerline traverses the southern section of the project site.



Old farm equipment is currently being stored in the southern portion of the project site.



Project site characterised by Bushmanland Arid Grassland

APPENDIX C: FACILITY ILLUSTRATION(S)

No facilities, therefore not applicable

APPENDIX D: SPECIALIST REPORTS

APPENDIX D2: BOTANICAL ASSESSEMENT REPORT

**BOTANICAL IMPACT ASSESSMENT
FOR THE PROPOSED CLEARANCE OF INDIGENOUS
VEGETATION FOR AGRICULTURAL DEVELOPMENT ON
KAKAMAS SOUTH SETTLEMENT NO. 4092, KAKAMAS,
NORTHERN CAPE**

Prepared for:

GroenbergEnviro (PTY) Ltd
PO Box 1058
Wellington 7654

Prepared by:

Biodiversity
Africa

30 Chudleigh Road
Plumstead, 7800
Cape Town, Western Cape



April 2022

Details of Company

Biodiversity Africa	Biodiversity Africa is situated in Cape Town and specialises in terrestrial botanical and faunal impact assessments.
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Author

Tarryn Martin (Botanical Specialist) (Pri. Sci. Nat 008745)

Tarryn has over ten years of experience working as a botanist, nine of which are in the environmental sector. She has worked as a specialist and project manager on projects within South Africa, Mozambique, Lesotho, Zambia, Tanzania, Cameroon, Swaziland and Malawi. The majority of these projects required lender finance and consequently met both in-country and lender requirements.

Tarryn has extensive experience writing botanical impact assessments, critical habitat assessments, biodiversity management plans, biodiversity monitoring plans and Environmental Impact Assessments to International Standards, especially to those of the International Finance Corporation (IFC). Her experience includes working on large mining projects such as the Kenmare Heavy Minerals Mine, where she monitored forest health, undertook botanical impact assessments for their expansion projects and designed biodiversity management and monitoring plans. She has also project managed Environmental Impact Assessments for graphite mines in northern Mozambique and has a good understanding of the Mozambique Environmental legislation and processes.

Tarryn holds a BSc (Botany and Zoology), a BSc (Hons) in African Vertebrate Biodiversity and an MSc with distinction in Botany from Rhodes University. Tarryn's Master's thesis examined the impact of fire on the recovery of C3 and C4 Panicoid and non-Panicoid grasses within the context of climate change for which she won the Junior Captain Scott-Medal (Plant Science) for producing the top MSc of 2010 from the South African Academy of Science and Art as well as an Award for Outstanding Academic Achievement in Range and Forage Science from the Grassland Society of Southern Africa. Tarryn is a professional member of the South African Council for Natural Scientific Professionals (since 2014).

Declaration of Independence

Tarryn Martin (Botanical Specialist)

- I, Tarryn Martin, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;
- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

.....
SIGNED

.....
DATE

Non-Technical Summary

The Applicant is proposing the clearance of 19.7ha of indigenous vegetation for Agricultural Development on Kakamas South Settlement No. 4092 (Figure 1.1). The farm is located 12km north west of Kakamas along the R64 (Figure 1.2) and is situated in the Kai IGarib Local Municipality which falls under the ZF Mgcawu District Municipality in the Northern Cape Province.

A field survey was undertaken during the late summer on the 25-26 March 2022. The purpose of the survey was to assess the site-specific ecological state of the project area by recording the species present (both indigenous and alien invasive species), identifying sensitive ecosystems (e.g. areas with species of conservation concern) and identifying the current land use.

The project site is located within Bushmanland Arid Grassland which is listed as Least Concern with 99% of its extent intact. If the project proceeds it will result in the loss of 0.07% of the remaining extent of this vegetation type.

SEI for the site was determined to be moderate since there are no confirmed or highly likely SCC that could occur within the site and receptor resilience is moderate.

Four impacts were identified for the project, three of which are of low significance after mitigation measures have been implemented and one of which is moderate significance.

It is recommended that the following conditions are included in the Final EMPr as well as the conditions of the Environmental Authorisation (EA), if granted:

- All necessary plant permits must be obtained prior to the commencement of any construction activities;
- A comprehensive Search and Rescue should be conducted prior to clearance of vegetation;
- All SCC must be relocated to the nearest appropriate habitat;
- Alien species occurring within and directly adjacent to the site must be removed; and
- Where feasible existing access roads must be used and all service infrastructure must be located within the same servitude and preferably along the access road;

Given that the impacts on the project site are generally low and the SEI is medium, the specialist is of the opinion that the development can proceed provided that the above recommendations are implemented.

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Glossary of Terms

Alien Invasive Species refers to an exotic species that can spread rapidly and displace native species causing damage to the environment

Biodiversity is the term that is used to describe the variety of life on Earth and is defined as “the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems” (Secretariat of the Convention on Biological Diversity, 2005).

Habitat Fragmentation occurs when large expanses of habitat are transformed into smaller patches of discontinuous habitat units isolated from each other by transformed habitats such as farmland.

Key Biodiversity Area are globally recognised sites that contain significant concentrations of biodiversity.

Natural Habitat refers to habitats composed of viable assemblages of plant and/or animal species of largely native origin and/or where human activity has not essentially modified an area’s primary ecological function and species composition.

Protected Area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. (IUCN Definition 2008)

Acronyms

CBA	Critical Biodiversity Area
CR	Critically Endangered
CCR	Core Cape Subregion
ECO	Environmental Control Officer
EDGE	Evolutionarily Distinct and Globally Endangered
EN	Endangered
EIA	Environmental Impact Assessment
EOO	Extent of Occupancy
GBIF	Global Biodiversity Information Facility
GCFR	Greater Cape Floristic Region
GIS	Geographical Information System
IBA	Important Birding Areas
IUCN	International Union for Conservation of Nature
KBA	Key Birding Areas
LC	Least Concern
NBSAP	National Biodiversity and Strategy Action Plan
NEMBA	National Environmental Management Biodiversity Act
PNCO	Provincial Nature Conservation Ordinance
SCC	Species of Conservation Concern
QDS	Quarter Degree Square
SA	South Africa
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
TOPS	Threatened and Protected Species
VU	Vulnerable

BASIC ASSESSMENT REPORT

Specialist Check List

The contents of this specialist report complies with the legislated requirements as described in the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020).

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 320		SECTION OF REPORT
3.1	The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:	
3.1.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page 2 and Appendix 1 and 2
3.1.2	A signed statement of independence by the specialist;	Page 2
3.1.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 2.3
3.1.4	A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Chapter 2
3.1.5	A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;	Section 1.3
3.1.6	A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);	Section 5.3
3.1.7	Additional environmental impacts expected from the proposed development;	Chapter 6
3.1.8	Any direct, indirect and cumulative impacts of the proposed development;	Chapter 6
3.1.9	The degree to which the impacts and risks can be mitigated;	Chapter 6
3.1.10	The degree to which the impacts and risks can be reversed;	
3.1.11	The degree to which the impacts and risks can cause loss of irreplaceable resources;	
3.1.12	Proposed impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);	Section 7.2
3.1.13	A motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a "low" terrestrial biodiversity sensitivity and that were not considered appropriate;	N/A
3.1.14	A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability, or not, of the proposed development, if it should receive approval or not; and	Chapter 7
3.1.15	Any conditions to which this statement is subjected.	Section 7.2
3.2	The findings of the Terrestrial Biodiversity Specialist Assessment must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr where relevant.	✓
3.3	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	

1. INTRODUCTION

1.1. Project Location and Description

The Applicant is proposing the clearance of 19.7ha of indigenous vegetation for Agricultural Development on Kakamas South Settlement No. 4092 (Figure 1.1). The farm is located 12km north west of Kakamas along the R64 (Figure 1.2) and is situated in the Kai !Garib Local Municipality which falls under the ZF Mgcawu District Municipality in the Northern Cape Province.



Figure 1.1: Location of the area to be cleared (turquoise polygon) within the property boundary (orange polygon)

1.2. Objectives

The objectives of the botanical assessment are as follows:

- Undertake a desktop assessment of the site to determine its sensitivity and plant species of conservation concern (SCC) that could be present within the site;
- Undertake a field survey to record the following information:
 - Species present;
 - Identification of species that are either protected (TOPS and PNCO) or considered threatened (CR, EN, VU) on the South African Red Data List;
 - Assess the level of degradation/ecological status of the site (i.e. intact, near natural, transformed);
- Assess the sensitivity of each site using the sensitivity analysis outlined in the Species Environmental Guideline Document (2021);

- For areas of moderate and high sensitivity, assess the impact that the construction of the proposed development will have on the vegetation and plant species present;
- Where necessary, provide mitigation measures to reduce the impact of the infrastructure on the environment; and
- Provide a specialist statement/opinion.

1.3. Limitations and Assumptions

This report is based on current available information and, as a result, the following limitations and assumptions are implicit:

- The report is based on a project description received from the client.
- Species of Conservation Concern (SCC) are difficult to find and may be difficult to identify, thus species described in this report do not comprise an exhaustive list.
- Sampling could only be carried out at one stage in the annual or seasonal cycle, during the late flowering season. The time available in the field was sufficient to provide recommendations into the Environmental Impact Assessment (EIA) process.
- This is a botanical assessment and as such does not include an assessment of faunal species.

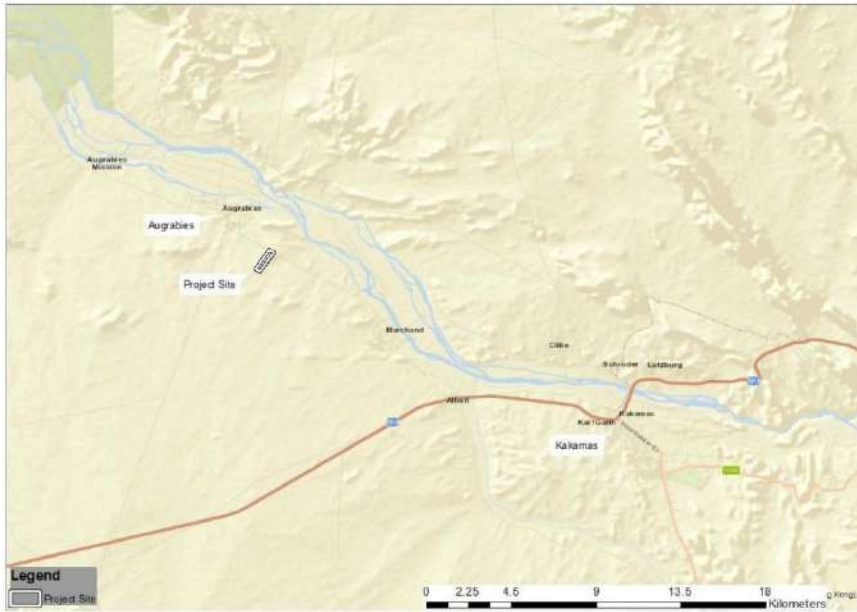


Figure 1.1: Locality map showing the project site in relation the town of Kakamas

2. METHODOLOGY

2.1. Project Area

The “project area” is defined as the area that will be directly impacted by project infrastructure which in this case is the 19.4ha footprint of the proposed facility. The project area of influence (PAOI) refers to the broader area around the project area that may be indirectly impacted by project activities.

2.2. Desktop Assessment

A desktop assessment was undertaken prior to the site visit to determine the vegetation types present, identify species of conservation concern that might occur on site and identify the threat and conservation status of the project site. Key resources that were consulted include:

- The DFFE screening report for the site;
- The South African Vegetation Map (Mucina and Rutherford, 2018);
- The Northern Cape Biodiversity Spatial Network (2018);
- The Red List of Ecosystems (SANBI, 2021);
- National Biodiversity Management: Biodiversity Act (NEMBA) List of Threatened or Protected Species;
- The National Biodiversity Assessment (SANBI, 2018);
- The Plants of Southern Africa (POSA) database; and
- iNaturalist.

A species list was compiled for the site and the likelihood of occurrence assessed for species listed as critically endangered, endangered and vulnerable (Section 4.5).

2.3. Field Survey

A field survey was undertaken during the late summer on the 25-26 March 2022. The purpose of the survey was to assess the site-specific ecological state of the project area by recording the species present (both indigenous and alien invasive species), identifying sensitive ecosystems (e.g. areas with species of conservation concern) and identifying the current land use.

Since this is a summer rainfall area, most species found within the site could be identified. Some early flowering geophytes may have gone undetected however, based on habitat availability, comment has been provided on the likelihood of occurrence of SCC identified in the DFFE screening report and available literature.

The project site was walked and all species within the site recorded, including alien invasive species and potential SCC. The site was sampled until no new species were recorded. Vegetation communities

were then described according to the dominant species recorded from each type, and these were mapped and assigned a sensitivity score.

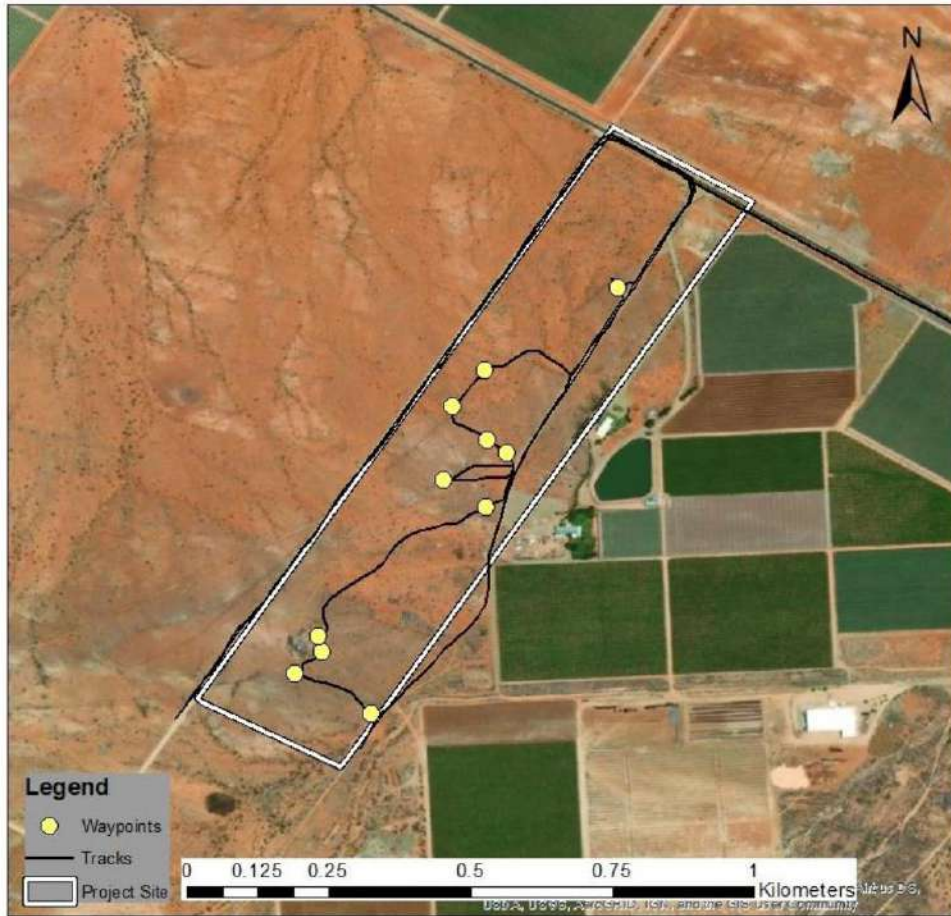


Figure 2.1: Map showing sample tracks within and adjacent to the project site.

2.4. Site Sensitivity Assessment

The Species Environmental Assessment guideline (SANBI, 2020) was applied to assess the Site Ecological Importance (SEI) of the project area. The habitats and the species of conservation concern in the project area were assessed based on their conservation importance, functional integrity and receptor resilience (Table 2.1). The combination of these resulted in a rating of SEI and interpretation of mitigation requirements based on the ratings.

The sensitivity map was developed using available spatial planning tools as well as by applying the SEI sensitivity based on the field survey.

Table 2-1: Criteria for establishing Site Ecological importance and description of criteria

Criteria	Description
Conservation Importance (CI)	<i>The importance of a site for supporting biodiversity features of conservation concern present e.g. populations of Threatened and Near-Threatened species (CR, EN, VU & NT), Rare, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.</i>
Functional Integrity (FI)	<i>A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.</i>
Biodiversity Importance (BI) is a function of Conservation Importance (CI) and the Functional Integrity (FI) of a receptor.	
Receptor Resilience (RR)	<i>The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.</i>
Site Ecological Importance (SEI) is a function of Biodiversity Importance (BI) and Receptor Resilience (RR)	

2.5. Description of impact analysis methodology used

The following impact methodology was provided by the Environmental Assessment Practitioner to assess the impacts.

Nature of the impact

This is an appraisal of the type of effect (positive or negative) the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected.

Extent of the impact

Extent defines the physical extent or spatial scale of the impact. The impact could:

- **Site specific:** limited to the site.
- **Local:** limited to the site and the immediate surrounding area (1-10km)
- **Regional:** covers an area that includes an entire geographic region or extends beyond one region to another.
- **National:** across national boundaries and may have national implications.

Duration of the impact

- **Short term:** 0-5 years.
- **Medium term:** 5-15 years.
- **Long term:** beyond the operational phase, but not permanently.
- **Permanent:** where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.

Consequence of Impact

Indicate how the activity will affect the environment.

Probability of occurrence

- **Improbable/unlikely:** low likelihood of the impact occurring.
- **Probable:** distinct possibility the impact will occur.
- **Highly probable:** most likely that the impact will occur.
- **Definite:** impact will occur regardless of any prevention measures.

Irreplaceable loss of resources

The degree to which resources will be irreplaceably lost due to the proposed activity. It can be **no loss of resources**, **marginal loss**, **significant loss** or **complete loss of resources**.

Reversibility

This refers to the degree to which an impact can be reversed.

- **Fully reversible:** where the impact can be completely reversed.
- **Partly reversible:** where the impact can be partially reversed.
- **Irreversible:** where the impact is permanent.

Indirect impacts

Indirect impacts are secondary impacts and usually occur at a different place or time.

Cumulative impact

An effect which in itself may not be significant but may become significant if added to other existing or potential impacts that may result from activities associated with the proposed development.

The cumulative effect can be:

- **Negligible:** the impact would result in negligible to no cumulative effect.
- **Low:** the impact would result in insignificant cumulative effects.
- **Medium:** the impact would result in minor cumulative effects.
- **High:** the impact would result in significant cumulative effects.

Degree to which impact can be avoided

The degree of avoidance can either be **high** (impact is completely avoidable), **moderate** (impact is avoidable with moderate mitigation), **low** (the impact is difficult to avoid and will require significant mitigation measures) or **unavoidable** (the impact is cannot be avoided even with significant mitigation measures).

Degree to which impact can be managed

This indicates the degree to which an impact can be managed over time. The degree of management can either be **high** (impact is completely manageable), **moderate** (impact is manageable with moderate mitigation), **low** (the impact is difficult to manage and will require significant mitigation measures) or **unmanageable** (the impact is cannot be managed even with significant mitigation measures).

Degree to which an impact can be mitigated

This indicates the degree to which an impact can be reduced. The degree of mitigation can either be **high** (the impact can be **fully** mitigated), **moderate** (the impact can be **partly mitigated**) or **not mitigated at all**.

Significance

Based on a synthesis of the information contained in the above-described procedure, the significance of the potential impacts can be assessed (prior and post mitigation) in terms of the following significance criteria:

- **No impact.**
- **Low negative:** where it would have negligible effects, and would require little or no mitigation.
- **Medium negative:** the impact will have moderate negative effects and will require moderate mitigation.
- **High negative:** the impact will have significant effects and will require significant mitigation measures to achieve an accepted level of impact.
- **Very high negative:** the impact will have highly significant effects and are unlikely to be able to be mitigated adequately.

3. BIOPHYSICAL DESCRIPTION

3.1. Climate

The project site is located between Kakamas and Augrabies and is characterised by a semi-arid climate with very little rainfall throughout the year and extreme variations in temperature. Annual rainfall is 100mm with the highest rainfall occurring between January and March and the driest months being from June to August (Meteoblue.com; 2022). Rainfall in this region is unpredictable and droughts are typically unpredictable and prolonged (Mucina *et al.*; 2011).

January and February are the hottest months of the year with an average temperature of 37°C and maximum temperatures of up to 42-45°C and July has the lowest average of 2°C.

3.2. Topography

The ridge towards the centre of the project area is the highest point (683masl) and is characterised by some small rocky outcrops (Figure 3.1 and Figure 3.2). From the ridge, the site slopes towards the north with a change in elevation of 18m. The slope towards the south is more gentle with a change in elevation of 6m.



Figure 3.1: Elevation profile showing the change in elevation from the northeast to the south west of the project site.



Figure 3.2: Photograph illustrating the typical topography and soils associated with the site. The photograph was taken from the north eastern corner of the site looking towards the south west.

3.3. Geology and Soils

The project site is located in the Nama-Karoo Biome (refer to section 4) and is characterised by underlying sedimentary rocks that include the Cape Supergroup, Dwyka tillites other fossil-rich sediments of the Karoo Supergroup (Mucins *et al.*; 2011). Igneous activity is present within the region and this has resulted in intrusions of dolerite sills and dykes into the karoo sediments.

Soils within the site are red and typically freely draining, non-swelling clays and are high in most plant nutrients (Mucina *et al.*, 2011).

3.4. Current Land Use

The property is comprised of indigenous vegetation. There is an Eskom powerline that traverses the southern section of the property. Adjacent to that is an area that has been used to store/dump old farm equipment (Figure 3.3 and Figure 3.4).



Figure 3.3: An Eskom powerline traverses the southern section of the project site.



Figure 3.4: Old farm equipment is currently being stored in the southern portion of the project site.

4. VEGETATION AND FLORISTICS

The project site occurs within the Nama-Karoo Biome which is located on the central plateau of the western half of South Africa, extending into south-eastern Namibia (Mucina *et al.*, 2006). Plant diversity in the Nama-Karoo is typically low compared to other biomes in South Africa and there are no centres of endemism and limited local endemic plant species. Dominant species in this biome typically include species from families such as Asteraceae, Fabaceae and Poaceae.

According to the National Vegetation Map (2018), which was compiled to provide a greater level of detail for floristically based vegetation units in South Africa, the project site occurs within Bushmanland Arid Grassland (Figure 4.1).

4.1. Bushmanland Arid Grassland

Bushmanland Arid Grassland occurs in the Northern Cape Province between Aggenys and Prieska and is characterised by extensive and irregular plains on slightly sloping plateaus. It is typically sparsely vegetated by grasses such as *Stipagrostis* interspersed with low shrubs such as *Salsola*.

This vegetation type is listed on the Red List of Terrestrial Ecosystems as Least Concern and has a conservation target of 21%. It is currently listed as not protected, however over 99% of the remaining natural extent is intact.

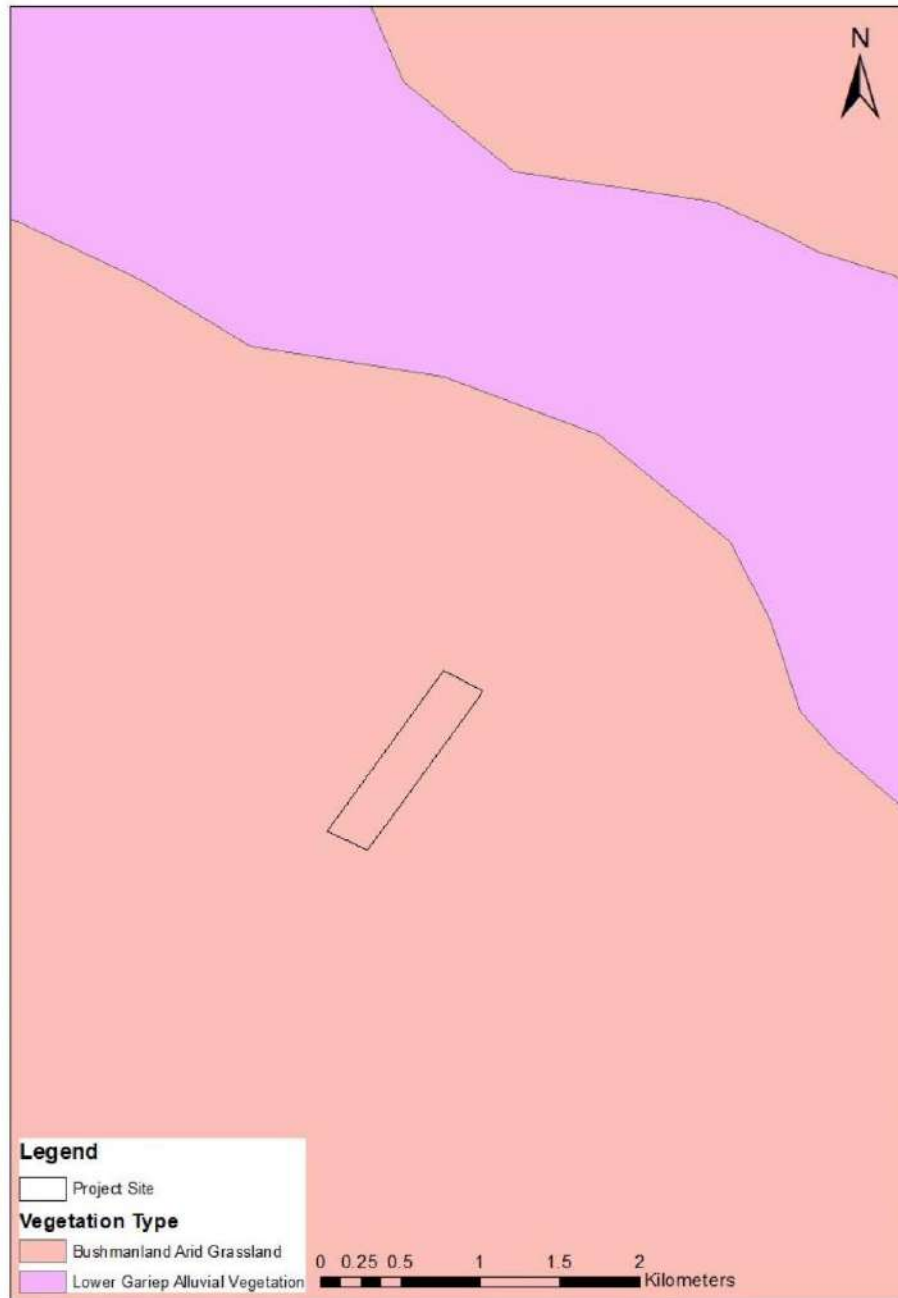


Figure 4.1: National Vegetation Map showing all three alternatives as occurring within Namaqualand Spinescent Grassland

4.2. Vegetation types recorded on site

The vegetation present on site is representative of Bushmanland Arid Grassland. The vegetation was dominated by the grass *Stipagrostis uniplumis* with scattered shrubs such as *Boscia foetida*, *Tapinanthus oleifolius*, *Salsola aphyllum*, *Lycium cinereum*, *Leucosphaera bainesii* and the alien invasive species *Prosopis glandulosa* throughout the site. Herbs such as *Blepharis mitrata*, *Indigofera heterotricha*, *Aptosimum lineare* and *A. spinescens* were present south of the ridge. *Euphorbia braunsii* and *Aloe claviflora* occurred among and adjacent to the rocks present on the ridge in the centre of the site.



Figure 4.2: Project site characterised by Bushmanland Arid Grassland

4.3. Floristics

Twenty-four species were recorded within the project site (Table 4.1). Of these twenty-four species, none are listed as Species of Conservation Concern although two are listed as Schedule 2 (Protected) species, twenty as schedule 3 (indigenous) species, and one as a Schedule 6 (invasive) species on the Northern Cape Nature Conservation Act (No. 9 of 2009). Schedule 2 species will require permits for their removal. No species on the TOPS list were recorded within the site.

BASIC ASSESSMENT REPORT

One species, *Prosopis glandulosa* is listed as a Category 1b Alien Invasive Plant Species on the National Environmental Management: Biodiversity Act (2004) Alien Invasive Species Lists, 2020. Individuals of this species must be removed and project activities must not result in the further spread of these alien invasive species.

Table 4.1: A list of species recorded on site and their conservation status

Family	Scientific Name	Status and Criteria	PNCO
ACANTHACEAE	<i>Blepharis mitrata</i>	Least Concern	Schedule 3
ACANTHACEAE	<i>Justicia australis</i>	Least Concern	Schedule 3
ACANTHACEAE	<i>Acanthopsis hoffmannseggiana</i>	Data Deficient	
AMARANTHACEAE	<i>Salsola aphyllum</i>	Least Concern	Schedule 3
AMARANTHACEAE	<i>Leucosphaera bainesii</i>	Least Concern	Schedule 3
ASPARAGACEAE	<i>Asparagus retrofractus</i>	Least Concern	Schedule 3
ASPHODELACEAE	<i>Aloe hereroensis</i>	Least Concern	Schedule 2
BRASSICACEAE	<i>Boscia foetida</i>	Least Concern	Schedule 3
EUPHORBIACEAE	<i>Euphorbia braunsii</i>	Least Concern	Schedule 2
FABACEAE	<i>Indigofera heterotricha</i>	Least Concern	Schedule 3
FABACEAE	<i>Prosopis glandulosa</i>	Not Evaluated	Schedule 6
GERANIACEAE	<i>Monsonia crassicaulis</i>	Least Concern	Schedule 3
GERANIACEAE	<i>Monsonia umbellata</i>	Least Concern	Schedule 3
LORANTHACEAE	<i>Tapinanthus oleifolius</i>	Least Concern	Schedule 3
MOLLUGINACEAE	<i>Limeum aethiopicum</i>	Least Concern	Schedule 3
POACEAE	<i>Enneapogon cenchroides</i>	Least Concern	Schedule 3
POACEAE	<i>Stipagrostis uniplumis</i>	Least Concern	Schedule 3
SCROPHULARIACEAE	<i>Aptosimum lineare</i>	Least Concern	Schedule 3
SCROPHULARIACEAE	<i>Aptosimum spinescens</i>	Least Concern	Schedule 3
SOLANACEAE	<i>Lycium cinereum</i>	Least Concern	Schedule 3
VERBENACEAE	<i>Chascanum garipense</i>	Least Concern	Schedule 3
ZYGOPHYLLACEAE	<i>Zygophyllum lichtensteinianum</i>	Least Concern	Schedule 3
ZYGOPHYLLACEAE	<i>Tetraena simplex</i>	Least Concern	Schedule 3
ZYGOPHYLLACEAE	<i>Tribulus sp.</i>	Least Concern	Schedule 3



Figure 4.1: Two protected species were recorded within the project site (A) *Aloe hereroensis* and (B) *Euphorbia braunsii*

4.4. Species of Conservation Concern

A list of species of conservation concern that could occur within the project site was compiled during the desktop study. This list drew on records from the POSA database, the DFFE screener and records from iNaturalist. Only one vulnerable species (Sensitive species 144) was identified in the literature as possibly occurring on site. Sensitive species 144, a species that is easy to identify, was not recorded within the project site and the likelihood of occurrence is therefore low.

5. SENSITIVITY ASSESSMENT

5.1. Protected Areas and National Protected Area Expansion Strategy

The project does not fall within a formally protected area although Augrabies National Park is located 10.2 km north east of the proposed project site (Figure 5.2).

The project site occurs within a NPAES (DEA, 2016) (Figure 5.1). Within South Africa, not all 969 distinct ecosystems are equally protected. Of these, 21% are well protected, 13% are moderately protected, 30% are poorly protected and 37% are not protected at all (Department of Environmental Affairs, 2016). The goal of the National Protected Area Expansion Strategy (NPAES) “*is to achieve cost effective protected area expansion for improved ecosystem representation, ecological sustainability and resilience to climate change*”. Under this strategy, priority areas that are suitable for protected areas have been mapped.

The Red List of Ecosystems (2021) lists the project area and surrounds as Least Concern.

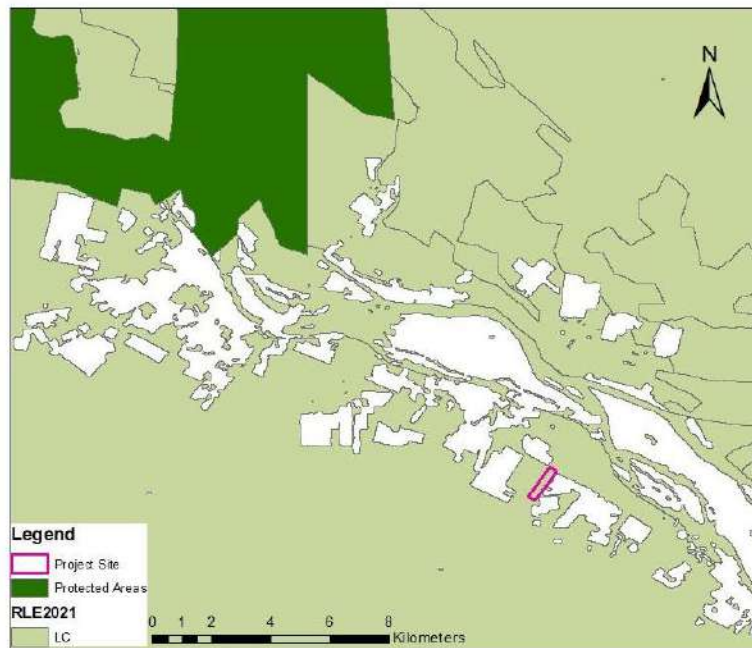


Figure 5.1: Map showing the project area in relation to protected areas and NPAES as well as illustrating the status of the ecosystem as Least Concern

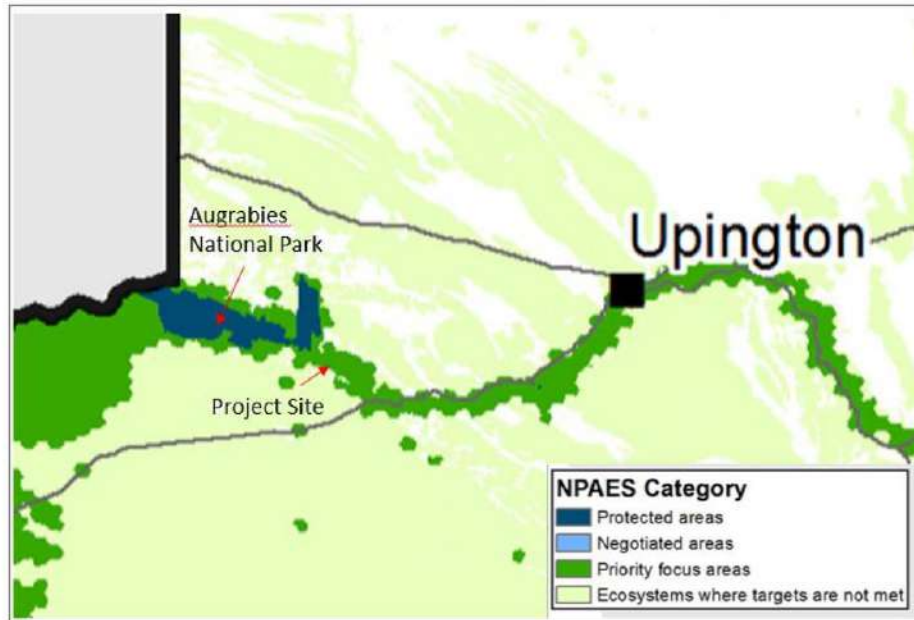


Figure 5.2: Map illustrating the project area in relation to the 2016 priority focus areas (Source: DEA, 2016).

5.2. Northern Cape Biodiversity Spatial Plan

The Northern Cape Critical Biodiversity Area Map (2016) maps biodiversity priority areas, including Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs) and Other Natural Areas (ONAs) which require safeguarding to ensure the persistence of biodiversity and ecosystems functioning, through a systematic conservation planning process.

Critical Biodiversity Areas are defined in the NBA (2018) as “areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan”. The provided map distinguishes between CBA 1 areas, which are those that are likely to be in a natural condition, and CBA 2 areas, which are areas that are potentially degraded or represent secondary vegetation.

ESA’s are “Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of Protected Areas (Pas) or CBAs and are often vital for delivering ecosystem services. They support landscape connectivity, encompass the ecological infrastructure from which ecosystem goods and services flow, and strengthen resilience to climate change” (WCBSP Handbook, 2017). ESA’s should be maintained in a functional and natural state although some habitat loss may be acceptable.

ONAs are “Areas that have not been identified as a priority in the current biodiversity spatial plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions.” (WCBSP Handbook, 2017). Habitat and species loss must be minimised in ONAs.

According to the Northern Cape CBA Map, the majority of the project site falls within a CBA 2 and a small portion in the southern section of the project area falls within an ESA (Figure 5.3).

The reason layer for the spatial data set was consulted to determine the reason given for the site being listed as a CBA2. The reasons for the planning unit in which the project site falls are listed in Table 5.1 and comment provided on the specific conditions within the site. Of the five reasons for the planning unit being listed as a CBA, only two are directly applicable to the project site itself; (1) the project site falls within Bushman Arid Grassland and (2) the project site falls within a NPAES focus area.

It should be noted that Bushman Arid Grassland is listed as Least Concern and the RLE (2021) indicates that 99% of this vegetation type remains intact suggesting that the conservation target for this vegetation type can still be met elsewhere. The loss of this vegetation type at the project site is equivalent to 0.07% (19.4ha) of the remaining extent.

Although the site occurs within a NPAES focus area, the land on either side of the property has been transformed for agriculture. The current Google Earth imagery is dated 2020 and does not reflect the changes within the general area. The field survey confirmed that the properties immediately to the east and west of the site have been planted with orchards. Given its location within an agricultural farming area, it is unlikely this parcel of land will be the preferred choice as a future protected area.

Based on the above it is unlikely the overall ecological functioning of the CBA would be compromised by the development. As such, the impact of the development on the CBA is considered acceptable.

Table 5.1: Reasons for the site occurring within a CBA2 and comment on the conditions specific to the project site

Reason	Comment specific to the site
Lower Gariep Alluvial Vegetation	Although the planning unit in which the project site falls may have some Lower Gariep Alluvial Vegetation, this vegetation type was not present within the site itself.
Bushman Arid Grassland	This vegetation type was present within the site. However, it is listed as Least Concern and the RLE (2021) indicates that 99% of this vegetation type remains intact suggesting that the conservation target for this vegetation type can still be met elsewhere. Further to the above, the project will only result in the loss of 0.07% (19.4ha) of this vegetation type.
All Natural Wetlands and all Natural Rivers	No NFEPA wetlands or rivers were present within the site.
PA distance buffers 5km and 10km	The site itself is 10.2km from a protected area.

<p>NPAES PA and Focus</p>	<p>The site occurs within a NPAES. However, it should be noted that the land on either side of the property has been transformed for agriculture. The Google Earth imagery is dated 2020 and does not reflect the current changes at the site. During the field survey it was noted that the properties immediately to the east and west have been planted with orchards. Given its location within an agricultural farming area, it is unlikely this parcel of land will be the preferred choice as a protected area in the future.</p>
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Figure 5.3: The project site in relation to identified CBAs and ESAs

5.3. Sensitivity Assessment

Based on a combination of the desktop assessment and field survey, it has been determined that Bushmanland Arid Grassland has a low conservation importance (CI) due to the unlikely occurrence of SCC. Functional Integrity (FI) was also determined to be high as the broader site to the south is comprised of natural vegetation and Receptor Resilience (RR) was medium. Based on these results, the overall SEI for this site is medium (Table 5.2).

For areas of medium sensitivity, the Species Environmental Guideline Document states that project activities are acceptable provided they are followed by appropriate restoration activities.

Table 5.2: Evaluation of Site Ecological Importance (SEI) of habitat and SCC

Habitat / Species	Conservation Importance (CI)	Functional Integrity (FI)	Receptor Resilience	SEI
Bushmanland Arid Grassland	Low	High	Medium	Medium
	No confirmed or highly likely populations of SCC or range restricted species are likely to occur within the site.	Large (>20 ha) of intact vegetation with good habitat connectivity and functional ecological corridors.	The site occurs within Arid Bushmanland of the Northern Cape, an area of low rainfall that is prone to droughts and dominated by the grass <i>Stipagrostis</i> . A study undertaken by Milton and Dean (2000) found that during periods of high rainfall ephemeral plants established throughout the area and during periods of drought the species died back. Given the habitats ability to recover relatively quickly after drought, resilience has been rated as Medium and it is likely that the vegetation will recover relatively quickly (5-10 years) to restore >70% of the original species composition.	

6. IMPACT ASSESSMENT

Four botanical impacts have been identified for the project site and have been rated in the tables below.

The loss of vegetation (Bushmanland Arid Grassland) will be permanent however this vegetation type is extensive and the project will only result in the loss of 0.07%. As such, the significance rating is low.

Since there are no confirmed or SCC with a high likelihood of occurrence, the loss of SCC will be of low significance

The development will contribute to further habitat fragmentation and edge effects as more land is cleared for farming. As such, this impact is of moderate significance.

While some alien invasive species were noted to occur within and adjacent to the site and can become problematic if not managed, this impact can be easily reduced to low negative if the recommended mitigation measures are implemented.

BASIC ASSESSMENT REPORT

Table 6.1: Impact assessment table

	DESIGN ALTERNATIVE 1	NO-GO ALTERNATIVE
Construction Phase		
Potential impact and risk:	Loss of Bushmanland Arid Grassland	
Nature of impact:	The clearance of indigenous vegetation will result in the loss of approximately 0.07 % (19.4 ha) of the remaining extent of Bushmanland Arid Grassland which is listed as Least Concern. Although this vegetation type is not protected, 99% of it remains intact. The loss of this vegetation within the site will be permanent.	Under the no-go alternative the vegetation at the site will remain intact with no change from its current state.
Extent and duration of impact:	Extent: Site specific	N/A
The consequence of impact or risk:	Low	N/A
The probability of occurrence:	Definite	N/A
The degree to which the impact may cause irreplaceable loss of resources:	Complete loss of resources within the site.	N/A
The degree to which the impact can be reversed:	Irreversible	N/A
Indirect impacts:	Negative impacts on the ecological environment and animal species.	N/A
Cumulative impact prior to mitigation:	This vegetation type is being lost within the immediate area as it is converted for farming practices. However, given that this is a small extent, the cumulative loss of this vegetation type will be low negative.	N/A
The significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
The degree to which the impact can be avoided:	Unmanageable	N/A
The degree to which the impact can be managed:	The resource will be permanently lost	N/A

BASIC ASSESSMENT REPORT

The degree to which the impact can be mitigated:	Low	N/A
Proposed mitigation:	<p>The clearing of vegetation is difficult to mitigate as it will be permanently lost. However, it is important that clearing is kept to a minimum and as such the following mitigation measures must be included in the EMPr.</p> <ul style="list-style-type: none"> • Project activities must remain within the designated footprint. • <i>Prosopis grandiflora</i> must be cleared and project activities must not contribute to further infestation. • Vegetation that is impacted by project activities but not required during the operational phase must be rehabilitated back to its original state. • All service infrastructure must be located within the same corridor and preferably along the same corridor as the access road. 	N/A
Residual impacts:	Low negative	N/A
Cumulative impact post-mitigation:	Low negative	N/A
The significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
OPERATIONAL PHASE		
Potential impact and risk:	N/A	None
DECOMMISSIONING AND CLOSURE PHASE		
Potential impact and risk:	N/A	None

BASIC ASSESSMENT REPORT

	DESIGN ALTERNATIVE 1	NO-GO ALTERNATIVE
Construction Phase		
Potential Impact and risk:	Loss of Species of Conservation Concern	
Nature of impact:	The likelihood of occurrence of SCC within the site is low and as such the loss of SCC will be negligible.	Under the no-go alternative, vegetation and thus SCC will remain intact and as such there will be no change if the project does not go ahead.
Extent and duration of impact:	Extent: Site specific	N/A
The consequence of impact or risk:	Low	N/A
The probability of occurrence:	Unlikely	N/A
The degree to which the impact may cause irreplaceable loss of resources:	Marginal Loss	N/A
The degree to which the impact can be reversed:	Partly reversible	N/A
Indirect impacts:	Indirect impacts will be low	N/A
Cumulative impact prior to mitigation:	Low	N/A
The significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
The degree to which the impact can be avoided:	Moderate	N/A
The degree to which the impact can be managed:	Moderate	N/A
The degree to which the impact can be mitigated:	Moderate	N/A

BASIC ASSESSMENT REPORT

Proposed mitigation:	<ul style="list-style-type: none"> In the event that SCC are found, permits for their removal must be applied for and these species must be translocated to a suitable nearby site. 	N/A
Residual impacts:	Low	N/A
Cumulative impact post-mitigation:	Low negative	N/A
The significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
OPERATIONAL PHASE		
Potential impact and risk:	N/A	None
DECOMMISSIONING AND CLOSURE PHASE		
Potential impact and risk:	N/A	None

BASIC ASSESSMENT REPORT

	DESIGN ALTERNATIVE 1	NO-GO ALTERNATIVE
Construction Phase		
Potential impact and risk:	Disruption of Ecosystem Function and Process	
Nature of impact:	Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when more and more areas are cleared, resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors. The development is situated within a corridor of existing farmland and will result in further habitat fragmentation through the clearance of 19.4 ha of indigenous vegetation.	Under the no go alternative, habitat fragmentation will be limited.
Extent and duration of impact:	Extent: Local Duration: Permanent	N/A
The consequence of impact or risk:	Moderate	N/A
The probability of occurrence:	Definite	N/A
The degree to which the impact may cause irreplaceable loss of resources:	Marginal loss	N/A
The degree to which the impact can be reversed:	Irreversible	N/A
Indirect impacts:	None	N/A
Cumulative impact prior to mitigation:	Moderate. The further loss of habitat will have a cumulative effect on the remaining natural habitat in the area.	N/A
The significance rating of impact prior to	Moderate negative	N/A

BASIC ASSESSMENT REPORT

mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)		
The degree to which the impact can be avoided:	Low	N/A
The degree to which the impact can be managed:	Moderate	N/A
The degree to which the impact can be mitigated:	Moderate	N/A
Proposed mitigation:	<p>The following mitigation measures must be included in the EMPr.</p> <ul style="list-style-type: none"> • Project activities must remain within the designated footprint. • Where feasible, existing infrastructure and access roads must be used. • Service infrastructure must be located within the same corridor, preferably along the access road. 	N/A
Residual impacts:	Moderate negative	N/A
Cumulative impact post-mitigation:	Low negative	N/A
The significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Moderate negative	N/A
OPERATIONAL PHASE		
Potential impact and risk:	N/A	None

BASIC ASSESSMENT REPORT

DECOMMISSIONING AND CLOSURE PHASE		
Potential impact and risk:	N/A	None

	DESIGN ALTERNATIVE 1	NO-GO ALTERNATIVE
Construction Phase		
Potential impact and risk:	Establishment of Alien Plant Species	
Nature of impact:	Disruption of habitats and disturbance often result in the infestation of alien invasive plant species which can displace natural vegetation from natural habitat. The species <i>Prosopis glandulosa</i> , a category 1b invasive species, is already present on site. Further disturbance could lead to further infestation if not managed properly.	Under the no go alternative, establishment of alien invasive species will continue if not managed.
Extent and duration of impact:	Extent: Local Duration: Long Term	Extent: Local Duration: Long Term
The consequence of impact or risk:	Moderate	Low
The probability of occurrence:	Probable	Probable
The degree to which the impact may cause irreplaceable loss of resources:	Significant Loss	Significant Loss
The degree to which the impact can be reversed:	Fully reversible	Fully reversible
Indirect impacts:	Further spread of alien invasive species within the adjacent area.	Further spread of alien invasive species within the adjacent area.
Cumulative impact prior to mitigation:	Moderate	N/A
The significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Moderate negative	Medium negative
The degree to which the impact can be avoided:	High	High

BASIC ASSESSMENT REPORT

The degree to which the impact can be managed:	High	High
The degree to which the impact can be mitigated:	High	High
Proposed mitigation:	<ul style="list-style-type: none"> • The site must be checked regularly for the presence of alien invasive species during and immediately after construction. • Alien invasive species must be removed, preferably by mechanical means. • Areas that are impacted during the construction phase but no longer required for operation must be rehabilitated back to their natural state and monitored for the presence of alien invasive until these areas are rehabilitated. 	N/A
Residual impacts:	Low negative	N/A
Cumulative impact post-mitigation:	Low negative	N/A
The significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
OPERATIONAL PHASE		
Potential impact and risk:	N/A	None
DECOMMISSIONING AND CLOSURE PHASE		
Potential impact and risk:	N/A	None

7. CONCLUSIONS AND RECOMMENDATIONS

7.1. Conclusions

The project site is located within Bushmanland Arid Grassland which is listed as Least Concern with 99% of its extent intact. If the project proceeds it will result in the loss of 0.07% of the remaining extent of this vegetation type.

SEI for the site was determined to be moderate since there are no confirmed or highly likely SCC that could occur within the site and receptor resilience is moderate.

Four impacts were identified for the project, three of which are of low significance after mitigation measures have been implemented and one of which is moderate significance.

7.2. Recommendations

It is recommended that the following conditions are included in the Final EMPr as well as the conditions of the Environmental Authorisation (EA), if granted:

- All necessary plant permits must be obtained prior to the commencement of any construction activities;
- A comprehensive Search and Rescue should be conducted prior to clearance of vegetation;
- All SCC must be relocated to the nearest appropriate habitat;
- Alien species occurring within and directly adjacent to the site must be removed; and
- Where feasible existing access roads must be used and all service infrastructure must be located within the same servitude and preferably along the access road.

7.3. Ecological Statement and Opinion of the Specialist

Given that the impacts on the project site are generally low and the SEI is medium, the specialist is of the opinion that the development can proceed provided that the above recommendations are implemented.

8. REFERENCES

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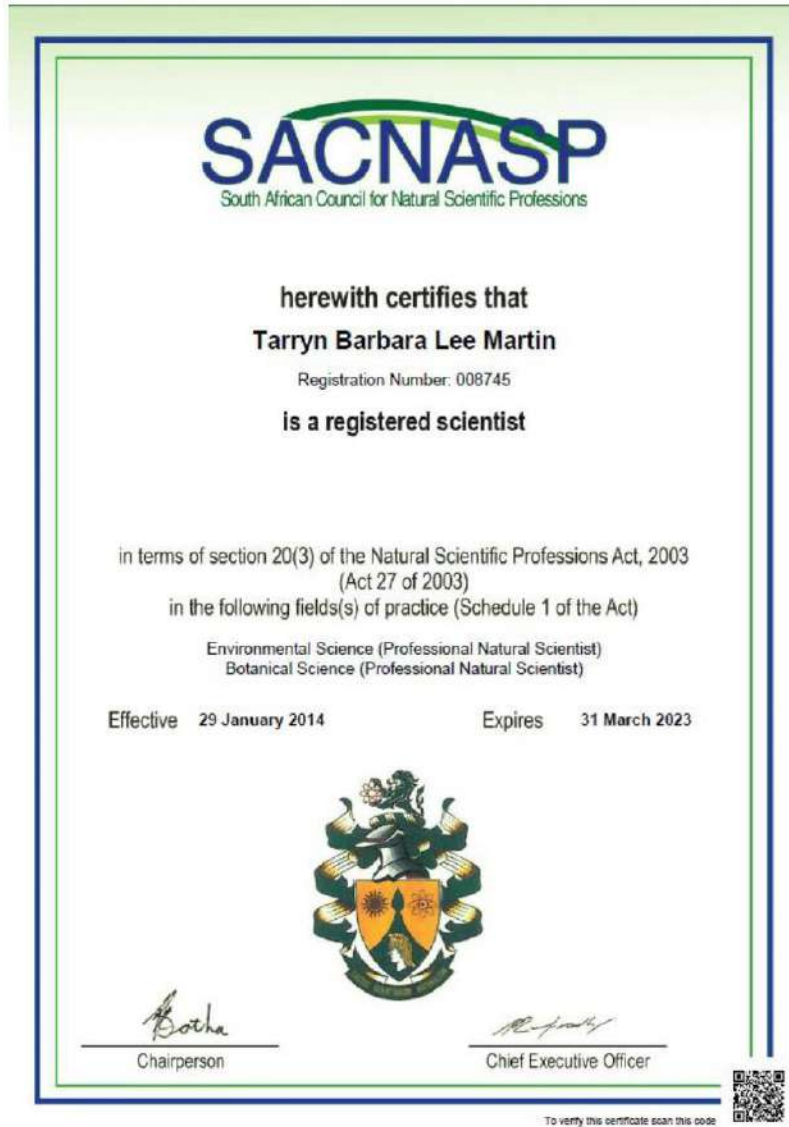
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Red List of terrestrial Ecosystems of South Africa. (2021). SANBI and DFFE.

South African National Biodiversity Institute (SANBI). 2020. *Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa*. South African National Biodiversity Institute, Pretoria. Version 2.1 2021.

**APPENDIX 1: PROOF OF SACNASP REGISTRATION AND
HIGHEST QUALIFICATION**





RHODES UNIVERSITY

THIS IS TO CERTIFY THAT

TARRYN BARBARA LEE MARTIN

WAS THIS DAY AT A CONGREGATION OF THE UNIVERSITY
ADMITTED TO THE DEGREE OF


MASTER OF SCIENCE

IN

BOTANY

WITH DISTINCTION

GRAHAMSTOWN
10 APRIL 2010



M. S. A. J. J. J.
VICE CHANCELLOR

R. J. J. J.
DEAN OF THE FACULTY OF SCIENCE

S. J. J. J.
REGISTRAR

APPENDIX 2: CV

CONTACT DETAILS

Name	Tarryn Martin
Name of Company	Biodiversity Africa
Designation	Director
Profession	Botanical Specialist and Environmental Manager
E-mail	tarryn@biodiversityafrica.com
Office number	+27 (0)71 332 3994
Education	2010: Master of Science with distinction (Botany) 2004: Bachelor of Science (Hons) in African Terrestrial Vertebrate Biodiversity 2003: Bachelor of Science
Nationality	South African
Professional Body	SACNASP: South African Council for Natural Scientific Profession: Professional Natural Scientist (400018/14) SAAB: Member of the South African Association of Botanists IAIASa: Member of the International Association for Impact Assessments South Africa Member of Golden Key International Honour Society
Key areas of expertise	<ul style="list-style-type: none"> • Biodiversity Surveys and Impact Assessments • Environmental Impact Assessments • Critical Habitat Assessments • Biodiversity Management and Monitoring Plans

PROFILE

Tarryn has over ten years of experience working as a botanist, nine of which are in the environmental sector. She has worked as a specialist and project manager on projects within South Africa, Mozambique, Lesotho, Zambia, Tanzania, Cameroon and Malawi.

She has extensive experience writing botanical impact assessments, critical habitat assessments, biodiversity management plans, biodiversity monitoring plans and Environmental Impact Assessments to International Standards, especially to those of the International Finance Corporation (IFC). Her experience includes working on large mining projects such as the Kenmare Heavy Minerals Mine, where she monitored forest health, undertook botanical impact assessments for their expansion projects and designed biodiversity management and monitoring plans. She has also project managed Environmental Impact Assessments for graphite mines in northern Mozambique and has a good understanding of the Mozambique Environmental legislation and processes.

Tarryn holds a BSc (Botany and Zoology), a BSc (Hons) in African Vertebrate Biodiversity and an MSc with distinction in Botany from Rhodes University. Tarryn's Master's thesis examined the impact of fire on the recovery of C₃ and C₄ Panicoid and non-Panicoid grasses within the context of climate change for which she won the Junior Captain Scott-Medal (Plant Science) for producing the top MSc of 2010 from the South African Academy of Science and Art as well as an Award for Outstanding Academic Achievement in Range and Forage Science from the Grassland Society of Southern Africa. Tarryn is a professional member of the South African Council for Natural Scientific Professionals (since 2014).

EMPLOYMENT EXPERIENCE

Director and Botanical Specialist, Biodiversity Africa

July 2021 - present

- Botanical and ecological assessments for local and international EIAs in Southern Africa
- Identifying and mapping vegetation communities and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Designing rehabilitation plans
- Designing alien management plans
- Critical Habitat Assessments
- Large ESIA studies
- Managing budgets

Principal Environmental Consultant, Branch Manager and Botanical Specialist, Coastal and Environmental Services

May 2012-June 2021

- Botanical and ecological assessments for local and international EIAs in Southern Africa
- Identifying and mapping vegetation communities and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Designing rehabilitation and biodiversity offset plans
- Designing alien management plans
- Critical Habitat Assessments
- Large ESIA studies
- Managing budgets
- Cape Town branch manager
- Coordinating specialists and site visits

Accounts Manager, Green Route DMC

October 2011-January 2012

- Project and staff co-ordination
- Managing large budgets for incentive and conference groups travelling to southern Africa
- Creating tailor-made programs for clients
- Negotiating rates with vendors and assisting with the ground management of inbound groups to ensure client satisfaction.

Camp Administrator and Project Co-ordinator, Windsor Mountain International Summer Camp, USA

April 2011 - September 2012

- Co-ordinated staff and camper travel arrangements, main camp events and assisted with marketing the camp to prospective families.

Freelance Project Manager, Green Route DMC

November 2010 - April 2011

- Project and staff co-ordination
- Managing large budgets for incentive and conference groups travelling to southern Africa

- Creating tailor-made programs for clients
- Negotiating rates with vendors and assisting with the ground management of inbound groups to ensure client satisfaction.

Camp Counsellor, Windsor Mountain Summer Camp, USA

June 2010 - October 2010

NERC Research Assistant, Botany Department, Rhodes University, Grahamstown in collaboration with Sheffield University, Sheffield, England

April 2009 - May 2010

- Set up and maintained experiments within a common garden plot experiment
- collected, collated and entered data
- Assisted with the analysis of the data and writing of journal articles

Head Demonstrator, Botany Department, Rhodes University

March 2007 - October 2008

Operations Assistant, Green Route DMC

September 2005 - February 2007

- Project and staff co-ordination
- Managing large budgets for incentive and conference groups travelling to southern Africa
- Creating tailor-made programs for clients
- Negotiating rates with vendors and assisting with the ground management of inbound groups to ensure client satisfaction

PUBLICATIONS

- Ripley, B.; Visser, V.; Christin, P.A.; Archibald, S.; Martin, T and Osborne, C. Fire ecology of C₃ and C₄ grasses depends on evolutionary history and frequency of burning but not photosynthetic type. *Ecology*. 96 (10): 2679-2691. 2015
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- South African Association of Botanists (SAAB) conference, Drakensberg. Title: Photosynthetic and Evolutionary determinants of the response of selected C₃ and C₄ (NADP-ME) grasses to fire. January 2008

COURSES

- Rhodes University and CES, Grahamstown
- EIA Short Course 2012
- Fynbos identification course, Kirstenbosch, 2015.
- Photography Short Course, Cape Town School of Photography, 2015.

CONSULTING EXPERIENCE

- Using Organized Reasoning to Improve Environmental Impact Assessment, 2018, International IAIA conference, Durban

International Projects

- 2020 – 2021: Project manager for the 2Africa subsea cable ESIA in Mozambique.
- 2020 – 2021: Project manager for the Category B EIA for the Wihinana Graphite Mine, Cabo delgado, Mozambique
- 2020 – 2021: Project manager for the category B exploration ESIA for Sofala Heavy Minerals Mine, Inhambane, Mozambique
- 2020: Critical Habitat Assessment for a graphite mine in Cabo Delgado, Mozambique. This assessment was to IFC standards.
- 2020: Analysed the botanical dataset for Lurio Green Resources and provided comment on the findings and gaps.
- 2020: Biodiversity Management Plan and Monitoring Plan for mine at Piliivilli in Nampula Province, Mozambique. This assessment was to IFC standards.
- 2019: Botanical Assessment for a cocoa plantation, Tanzania. This assessment was to IFC standards.
- 2019: Critical Habitat Assessment, Biodiversity Management Plan and Ecosystem Services Assessment for JCM Solar Farm in Cameroon. This assessment was to IFC standards.
- 2019: Undertook the Kenmare Road and Infrastructure Botanical Baseline Survey and Impact Assessment for an infrastructure corridor that will link the existing mine at Moma to the new proposed mine at Piliivilli in Nampula Province, Mozambique. This assessment was to IFC standards.
- 2012 – Present: Kenmare Terrestrial Monitoring Program Project Manager and Specialist Survey, Nampula Province, Mozambique.
- 2018: Conducted a field survey and wrote a botanical report to IFC standards for the proposed Balama Graphite Mine Environmental and Social Impact Assessment (ESIA) in Cabo Delgado Province, Mozambique.
- 2018: Co-authored the critical habitat assessment chapter for the proposed Kenmare Piliivilli Heavy Minerals Mine.
- 2018: Authored the Conservation Efforts chapter for the Kenmare Piliivilli Heavy Minerals Mine.
- 2017-2018: Co-authored and analysed data for the Kenmare Bioregional Survey of *Icuria dunensis* (species trigger for critical habitat) in Nampula Province, Mozambique. This was for a mining project that needed to be IFC compliant.
- 2017: Conducted a field survey and wrote a botanical report to IFC standards for the proposed Ancuabe Graphite Mine Environmental and Social Impact Assessment (ESIA) in Cabo Delgado Province, Mozambique.
- 2017-2018: Managed the Suni Resources Montepuez Graphite Mine Environmental Impact Assessment. This included the management of ten specialists, the co-ordination of their field surveys, regular client liaison and the writing of the Environmental Impact Assessment Report which summarised the specialists findings, assessed the impacts of the proposed mine on the environment and provided mitigation measures to reduce the impact. I was also the lead botanist for this baseline survey and impact assessment and undertook the required field work and analysed the data and wrote the report.

- 2017: Undertook the botanical baseline survey and impact assessment for the proposed Kenmare Piliwili Heavy Mineral Mine in Nampula Province, Mozambique. This was to IFC Standards.
- 2017: Ecological Survey for the Megaruma Mining Limitada Ruby Mine Exploration License, Cabo Delgado, Mozambique.
- 2016: Undertook the botanical baseline survey and impact assessment, wrote an alien invasive management plan and co-authored the biodeiversity monitoring plan for this farm. The project was located in Zambezia Province, Mozambique.
- 2015-2016: Conducted the Triton Minerals Nicanda Hills Graphite Mine Botanical Survey and Impact Assessment. Was also the project manager and specialist co-ordinator for this project. The project was located in Cabo Delgado Province, Mozambique.
- 2015: Was part of the team that undertook a Critical Habitat Assessment for the Nhangonzo Coastal Stream site at Inhassora in Mozambique that Sasol intend to establish drill pads at. This project needed to meet the IFC standards.
- 2014: Lurio Green Resources Wood Chip Mill and Medium Density Fibre-board Plant, Project Manager and Ecological Specialist, Nampula Province, Mozambique. 2014-2015.
- 2013-2014: LHDA Botanical Survey, Baseline and Impact assessment, Lesotho.
- 2014: Biotherm Solar Voltaic Ecological Assessment, Zambia.
- 2013-2014: Lurio Green Resources Plantation Botanical Assessment, Vegetation and Sensitivity Mapping, Specialist Co-ordination, Nampula Province, Mozambique.
- 2013: Syrah Resources Botanical Baseline Survey and Ecological Assessment, Cabo Delgado Mozambique.
- 2013-2014: Baobab Mining Ecological Baseline Survey and Impact Assessment, Tete, Mozambique.

South African Projects

- 2021 - Present: Project Manager for the Sturdee Energy Solar PV facility, Western Cape
- 2021: Ecological Assessment for the Sturdee Energy Solar PV facility, Western Cape
- 2021: Rehabilitation plan for a housing development (Hope Village)
- 2020: Ecological Assessment for the Eskom Juno-Gromis Powerline deviation, Western Cape
- 2020: Project Manager for the Basic Assessment for SANSA development at Matjiesfontein (Western Cape). Project received authorization in 2021.
- 2020: Ecological Assessment for construction of satellite antennae, Matjiesfontein, Western Cape
- 2019: Ecological Assessment for a wind farm EIA, Kleinsee, Northern Cape
- 2019: Ecological Assessment for two housing developments in Zeerust, North West Province
- 2019: Botanical Assessment in Retreat, Cape Town for the DRDLR land claim.
- 2019: Cape Agulhas Municipality Botanical Assessment for the expansion of industrial zone, Western Cape, South Africa, 2019.
- 2018: Ecological Assessment for the construction of a farm dam in Greyton, Western Cape.
- 2018: Conducted the Ecological Survey for a housing development in Noordhoek, Cape Town

- 2018: Conducted the field survey and developed an alien invasive management plan for the Swartland Municipality, Western Cape.
- 2017: Undertook the field survey and co-authored a coastal dune study that assesses the impacts associated with the proposed rezoning and subdivision of Farm Bookram No. 30 to develop a resort.
- 2017: Project managed and co-authored a risk assessment for the use of Marram Grass to stabilise dunes in the City of Cape Town.
- 2015-2016: iGas Saldanha to Ankerlig Biodiversity Assessment Project Manager, Saldanha.
- 2015: Innowind Ukomozeza Wind Energy Facility Alien Invasive Management Plan, Eastern Cape Province, South Africa.
- 2015: Savannah Nxuba Wind Energy Facility Powerline Ecological Assessment, ground truthing and permit applications, Eastern Cape South Africa.
- 2014: Cob Bay botanical groundtruthing assessment, Eastern Cape, South Africa.
- 2013-2016: Dassiesridge Wind Energy Facility Project Manager, Eastern Cape, South Africa.
- 2013: Harvestvale botanical groundtruthing assessment, Eastern Cape, South Africa.
- 2012: Tsitsikamma Wind Energy Facility Community Power Line Ecological Assessment, Eastern Cape, South Africa.
- 2012: Golden Valley Wind Energy Facility Power Line Ecological Assessment, Eastern Cape, South Africa.
- 2012: Middleton Wind Energy Facility Ecological Assessment and Project Management, Eastern Cape, South Africa.
- 2012: Mossel Bay Power Line Ecological Assessment, Western Cape, South Africa.
- 2012: Groundtruthing the turbine sites for the Waainek Wind Energy Facility, Eastern Cape, South Africa.
- 2012: Toliara Mineral Sands Rehabilitation and Offset Strategy Report, Madagascar.

APPENDIX D2: ARCHAEOLOGICAL ASSESSEMENT REPORT

Phase 1 Heritage Impact Assessment of a proposed
new agricultural development on Kakamas South
Settlement No. 2094, Augrabies, NC Province.



Report prepared by
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August 2022

SUMMARY

A Phase 1 Heritage Impact Assessment was carried out over a 19.7 ha area designated for new agricultural development on Kakamas South Settlement No. 2094, which is situated in the Kai! Garib Local Municipality near Augrabies in the Northern Cape Province. The study area lies on undulating terrain, about 12 km northwest of Kakamas, along the R64 (R369) provincial road on the way to Augrabies. The proposed footprint is underlain by metasedimentary rocks (Riemvasmaak Gneiss) that are capped by a thin veneer of bedrock – derived, gritty to gravelly top soils on the high ground, with sandy pediments and sandy dry stream beds predominating low-lying drainage lines to the south. An isolated piece of a polished grindstone (on basalt) was recorded, but there is no evidence of *in situ* Stone Age archaeological material, either as capped assemblages or distributed as *intact* surface scatters on the landscape within the boundaries of the proposed development footprint. A very low density (< 1 / 200 m) stone tool component included an assortment of debitage and crude flakes on crystalline quartz. There are no indications of rock art (fineline, scraped or pecked engravings), stonewalled structures or historically significant buildings older than 60 years, or aboveground evidence of graves or cairns within the boundary of the proposed footprint. The proposed development footprint is underlain by palaeontologically insignificant metamorphic rocks and geologically recent superficial sediments. The proposed development footprint and associated access road are not considered palaeontologically or archaeologically vulnerable and is assigned a site rating of Generally Protected C. It is advised that the proposed project can proceed with no further palaeontological or archaeological assessments required.

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INTRODUCTION

A Phase 1 Heritage Impact Assessment was carried out over a 19.7 ha area designated for new agricultural development on Kakamas South Settlement No. 2094, which is situated in the Kai! Garib Local Municipality near Augrabies in the Northern Cape Province (Fig. 1). The region's unique and non-renewable archaeological and palaeontological heritage sites are 'Generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. As many such heritage sites are threatened daily by development, both the environmental and heritage legislation require impact assessment reports that identify all heritage resources including archaeological and palaeontological sites in the area to be developed, and that make recommendations for protection or mitigation of the impact of the sites.

The primary legal trigger for identifying when heritage specialist involvement is required in the Environmental Impact Assessment process is the National Heritage Resources (NHR) Act (Act No 25 of 1999). The NHR Act requires that all heritage resources, that is, all places or objects of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, battlefields, graves, and structures over 60 years of age, living heritage and the collection of oral histories, historical settlements, landscapes, geological sites, palaeontological sites and objects.

The Act identifies what is defined as a heritage resource, the criteria for establishing its significance and lists specific activities for which a heritage specialist study may be required. In this regard, categories of development listed in Section 38 (1) of the NHR Act are:

- The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- The construction of a bridge or similar structure exceeding 50m in length;
- Any development or other activity which will change the character of the site;
- Exceeding 5000 m² in extent;
- Involving three or more existing erven or subdivisions thereof;
- Involving three or more subdivisions thereof which have been consolidated within the past five years;
- Costs of which will exceed a sum set in terms of regulations by the South African Heritage Resources Agency (SAHRA).
- The rezoning of a site exceeding 10 000 m².

- Any other category of development provided for in regulations by the South African Heritage Resources Agency (SAHRA).

The involvement of the heritage specialist in such a process is usually necessary when a proposed development may affect a heritage resource, whether it is formally protected or unprotected, known or unknown. In many cases, the nature and degree of heritage significance is largely unknown pending further investigation (e.g. capped sites, assemblages or subsurface fossil remains). It is also possible that a site may contain heritage resources (e.g. structures older than 60 years), with little or no conservation value. In most cases it will be necessary to engage the professional opinion of a heritage specialist in determining whether or not further heritage specialist input in an EIA process is required. This may involve site-significance classification standards as prescribed by SAHRA (2005).

Methodology

The significance of the affected area was evaluated using existing field data, database information and published literature. This was followed by a field assessment (site visit) of the affected areas. A Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera were used for recording purposes. Relevant archaeological and palaeontological information, maps, Google Earth images and site records were integrated with data acquired during the on-site inspection.

Terms of reference:

- Identify and map possible heritage sites and occurrences using available resources.
- Determine and assess the potential impacts of the proposed development on potential heritage resources;
- Recommend mitigation measures to minimize potential impacts associated with the proposed development.

Archaeological rating of the footprints followed SAHRA-prescribed field rating categories listed in **Table 1**.

LOCALITY DATA

1 : 50 000 scale topographic map

1 : 250 000 scale geological map

The study area is located on undulating terrain, about 12 km northwest of Kakamas, along the R64 (R369) provincial road on the way to Augrabies (**Fig. 2 & 3**).

General site coordinates of the proposed development footprint (see **Fig. 2**):

- A) 28°41'21.94"S 20°26'55.53"E
- B) 28°41'24.73"S 20°27'0.77"E
- C) 28°41'42.20"S 20°26'49.21"E
- D) 28°41'43.18"S 20°26'50.32"E
- E) 28°41'54.56"S 20°26'41.83"E
- F) 28°41'50.78"S 20°26'34.64"E

BACKGROUND

Palaeontology

Potential palaeontological occurrences: Late Neogene vertebrate fossils associated with intact (Orange River) river terrace gravels; Quaternary vertebrate fossils associated with well-developed Pleistocene alluvial deposits.

The study area is underlain by gneiss (Riemvasmaak Gneiss) of the tectono-stratigraphic Namaqua–Natal Province (Fig. 4). With an approximate age of ~ 1500 - 1000 Ma, these metamorphic rocks consists almost exclusively of a pink-weathering granite gneiss (Cornell et al. 2006, Fig. 6).

Archaeology

Potential archaeological occurrences: Intact Stone Age open sites; rock shelters, burial cairns (graves placed underneath raised, man-made stones piles), unmarked graves, kraals & historically significant stone – built structures

The Middle Orange River and Bushmanland regions have been populated more or less continuously during prehistoric times (Beaumont *et al.* 1995). According to Beaumont (1986) archaeological visibility in the region was high during the Last Glacial Maximum, a viewpoint that is in contrast to that indicated for southern Africa as a whole (Deacon and Thackeray 1984). Early Stone Age artefacts have been recorded *in situ* at Kalkgaten on the farm Ratel Draai, while Middle Stone Age and Later Stone Age sequences have been recorded from a number of cave sites on the farms Zoovoorbij, Droëgrond and Waterval in the Upington district (Beaumont et al. 1995) (Fig. 7). Archaeological and historical evidence also show that the region was extensively occupied by Khoi herders and San hunter-gatherers during the last 2000 years (Smith 1995). The principal Khoikhoi inhabitants of the Middle Orange River were the Einiqua who belonged to the same language group as the Namaqua and Korana, namely the Orange River Khoikhoi (Penn 2005). The Einiqua occupied the area around and east of the Augrabies Falls while the Korana occupied the Middle-Upper Orange River further to the east (Burchell 1822; Penn 2005). A large number of burial cairns were recorded on the Orange River in the Kakamas area on the farms Renosterkop, Rooipad and Augrabies Town and appear to be related to Khoekhoen people, specifically the

Einiqua, and historical data shows that a large number of the graves date to the 18th and early 19th centuries (Dreyer & Meiring 1937; Morris 1992, 1995) (Fig. 7).

FIELD ASSESSMENT

The proposed footprint lies on undulating terrain where metasedimentary rocks are capped by a thin veneer of bedrock – derived, gritty to gravelly top soils on the high ground, with sandy pediments and sandy dry stream beds predominating low-lying drainage lines to the south (Fig. 8). An isolated piece of a polished grindstone (on basalt) was recorded (Fig. 9), but there is no evidence of *in situ* Stone Age archaeological material, either as capped assemblages or distributed as *intact* surface scatters on the landscape within the boundaries of the proposed development footprint. A very low density (< 1 / 200 m) stone tool component included an assortment of debitage and crude flakes on crystalline quartz (Fig. 10). There are no indications of rock art (fineline, scraped or pecked engravings), stonewalled structures or historically significant buildings older than 60 years, or aboveground evidence of graves or cairns within the boundary of the proposed footprint.

IMPACT STATEMENT AND RECOMMENDATION

The proposed development footprint is underlain by palaeontologically insignificant metamorphic rocks and geologically recent superficial sediments (Kalahari Group sand & sandy soils). The field assessment provided no aboveground evidence of prehistoric structures, buildings older than 60 years, or material of cultural significance or *in situ* archaeological sites within the study area. Given the nature of the underlying geology, potential impact on rock engraving sites within the study area is considered unlikely. The proposed development footprint and associated access road are not considered palaeontologically or archaeologically vulnerable and is assigned a site rating of Generally Protected C (Table 1). It is advised that the proposed project can proceed with no further palaeontological or archaeological assessments required.

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DECLARATION OF INDEPENDENCE

Paleo Field Services act as an independent specialist consultant and do not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference. Paleo Field Services has no interest in secondary or downstream developments as a result of the authorization of this project.

TABLES AND FIGURES

Table 1. Field rating categories as prescribed by SAHRA.

Field Rating	Grade	Significance	Mitigation
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

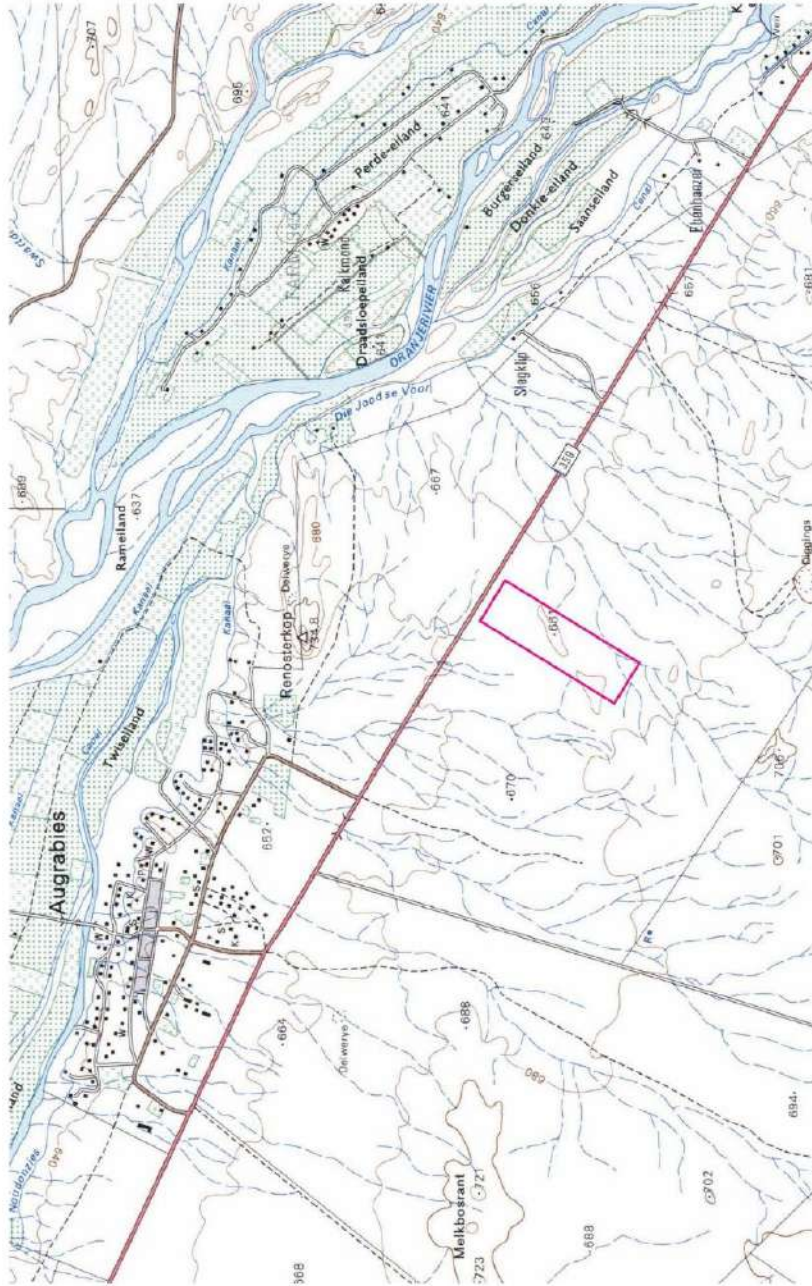


Figure 1. Map of the study area marked on portion of 1:50 000 scale topographic map 2820CB Augrabies.



Figure 2. Aerial view and layout of the proposed development.



Figure 3. General view of site: from left to right, looking south, west & north,

BASIC ASSESSMENT REPORT

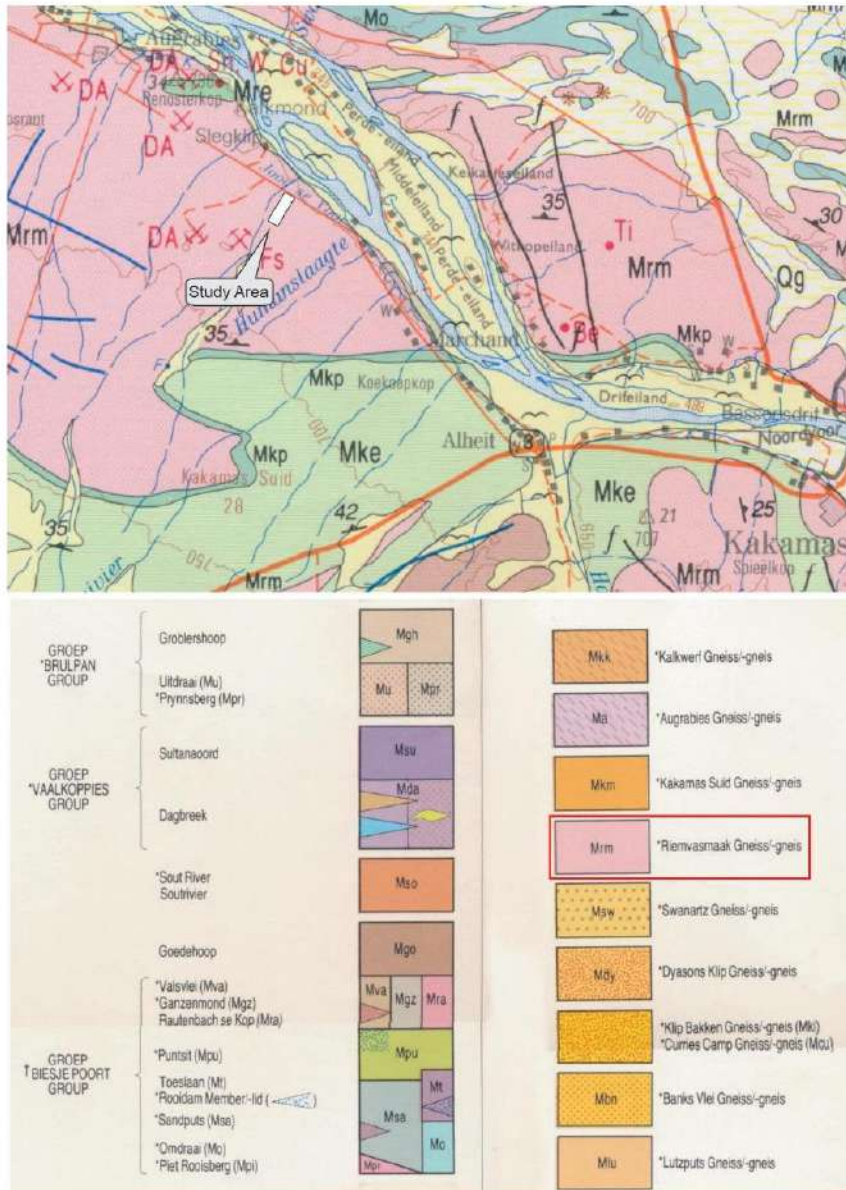


Figure 4. Portion of 1:250 000 scale geological map 2820 Upington. The study area is underlain by granite gneiss (*Mrm*) of the Namaqua-Natal geological Province.

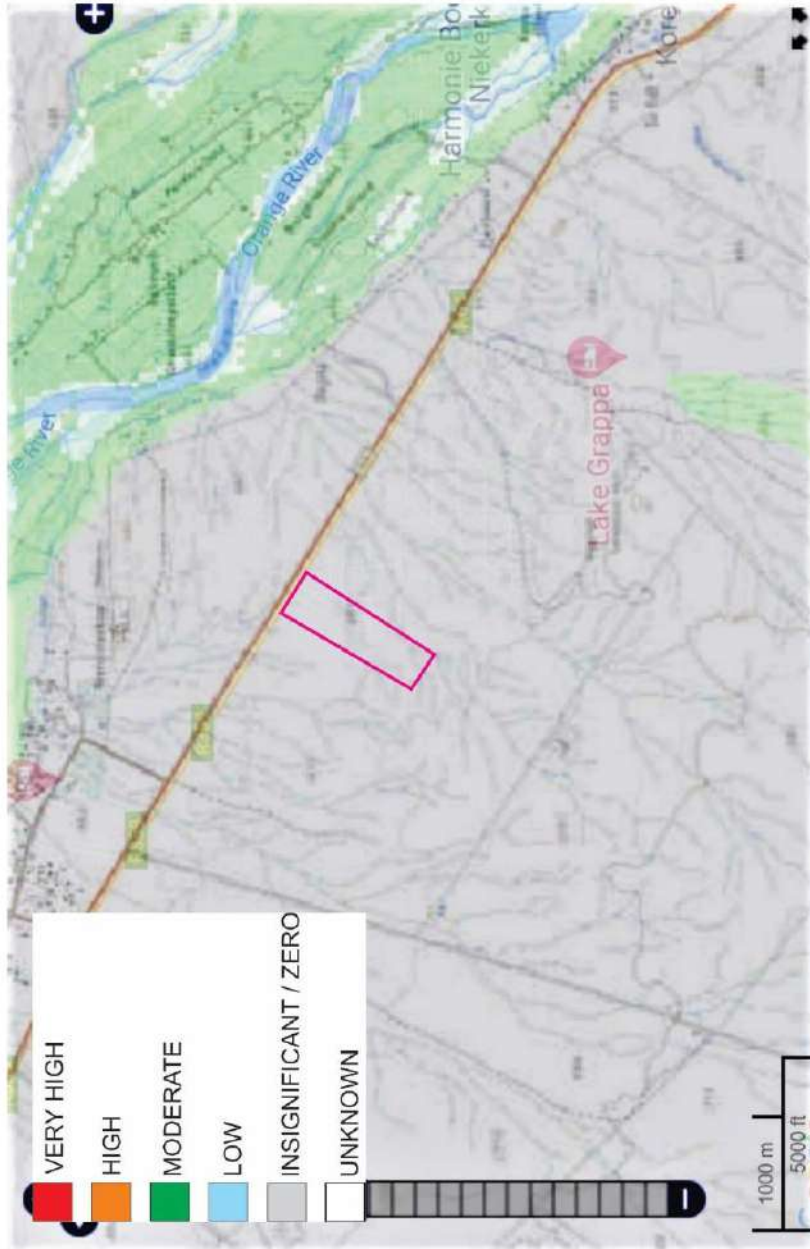


Figure 5. Study area marked on SAHRIS palaeosensitivity map (Sahrir 2022)



Figure 6. Granular textured, foliated gneiss outcrop.
Scale 1 = 10 cm

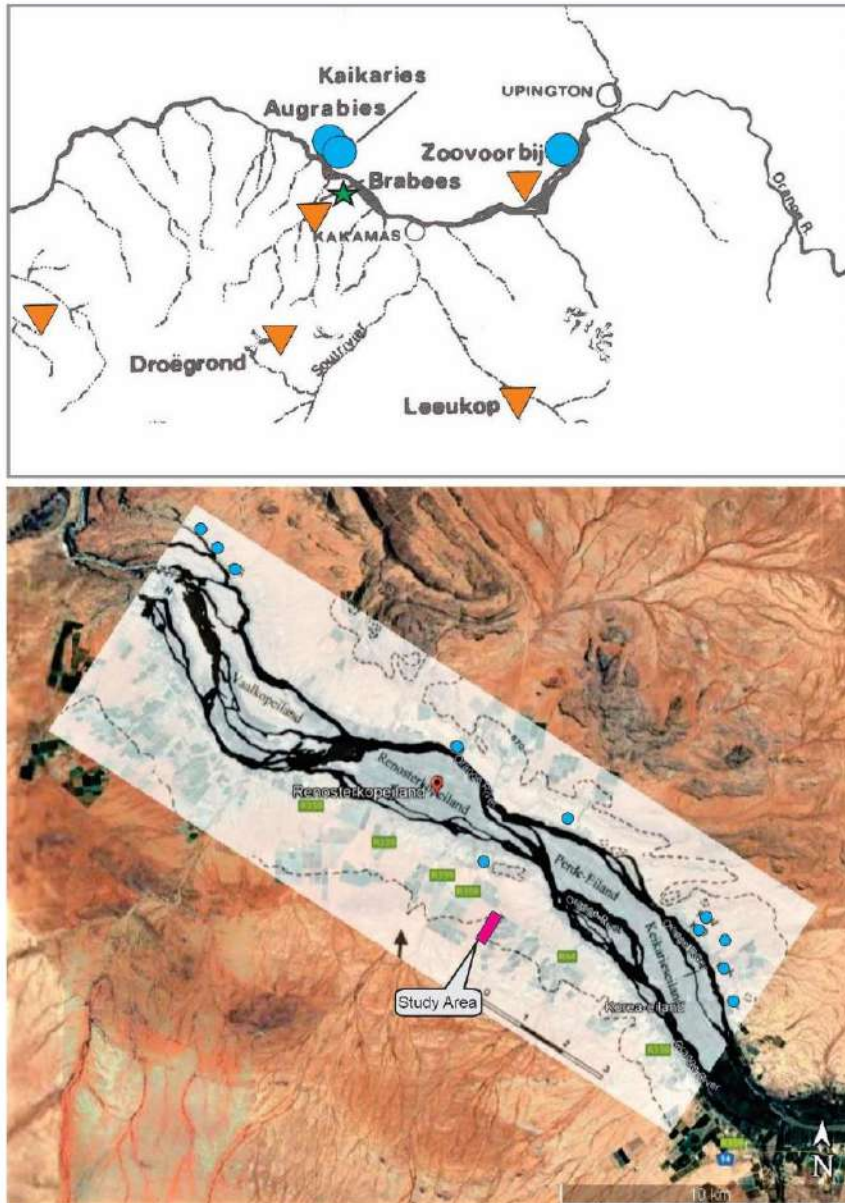


Figure 7. Location of known MSA, LSA & pastoralist sites (triangles) and burial sites (blue circles) in relation to position of study area (green star, above). Maps after Smith & Metelerkamp (1995) and Smith (1995).



Figure 8. The terrain is capped by a thin veneer of bedrock – derived, gritty to gravelly top soils on the high ground, with sandy pediments and sandy dry stream beds predominating low-lying drainage lines to the south.



Figure 9. Broken grindstone (above) and modern farm-related features recorded on site (below left & right).



Figure 10. Crude flake on crystalline quartz, proximal and ventral aspect (above & below respectively), showing characteristic morphological features.

APPENDIX 1: TRACK LOG

Index	Position
1	S28 41.450 E20 26.985
2	S28 41.579 E20 26.915
3	S28 41.644 E20 26.828
4	S28 41.725 E20 26.773
5	S28 41.819 E20 26.712
6	S28 41.922 E20 26.628
7	S28 41.854 E20 26.521
8	S28 41.822 E20 26.628
9	S28 41.760 E20 26.602
10	S28 41.693 E20 26.651
11	S28 41.714 E20 26.675
12	S28 41.779 E20 26.675
13	S28 41.668 E20 26.738
14	S28 41.558 E20 26.779
15	S28 41.585 E20 26.814
16	S28 41.512 E20 26.872
17	S28 41.488 E20 26.828
18	S28 41.437 E20 26.889
19	S28 41.534 E20 27.016



APPENDIX D3: PALEONTOLOGY ASSESSMENT

PALAEONTOLOGICAL ASSESSMENT: RECOMMENDED EXEMPTION FROM FURTHER PALAEONTOLOGICAL STUDIES

Proposed new citrus development on Farms Kakamas South Settlement No. 2185 & 2193 near Augrabies, Kai! Garib Municipality, Northern Cape

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January 2018

Executive summary

The proposed agricultural development comprises new citrus orchards and short buried pipelines on Farms Kakamas South Settlement No. 2185 & 2193 near Augrabies, c. 2.5 km south of the River Orange, Northern Cape. The development footprint is underlain by (1) ancient Precambrian igneous and metamorphic bedrocks that do not contain fossils as well as (2) sparsely fossiliferous or unfossiliferous superficial sediments (alluvium, aeolian sands, surface gravels) of probable Quaternary to Recent age. Diamond prospecting has occurred in the area previously, but substantial older alluvial terraces (potentially fossiliferous High Level Gravels) are not mapped in the study area. In view of the small development footprint and the generally low palaeontological sensitivity of the study region, no further specialist studies or mitigation are considered necessary for this project, as far as fossil heritage is concerned. However, should significant fossil remains (e.g. vertebrate bones and teeth) be encountered during construction, the responsible ECO should inform SAHRA at the earliest opportunity to consider possible mitigation, measures.

1. Project description

Oseiland Eiendomme (Pty) Ltd is proposing to develop new citrus orchards on Farms Kakamas South Settlement No. 2185 & 2193, situated on the south side of the R64 and c. 12 km NW of Kakamas, Kai! Garib Municipality, Northern Cape (Fig. 1). The proposed agricultural development will cover a footprint area of about 32 ha and is located about 2.5 km south of the River Orange and 2.4 km due southeast of Augrabies settlement. Water for the new citrus orchards will be supplied via buried pipelines alongside existing gravel farm roads leading from pump stations located on the banks of the Orange River. Existing access roads will be used, and no new access roads will need to be constructed. The property is currently zoned for Agriculture.

An EIA for this agricultural development proposal is being co-ordinated by Pieter Badenhorst Professional Services (PO Box 1058, Wellington, 7654. Cell: 0827763422. Fax: 0866721916. E-mail: pbps@iafrica.com). The present report contributes to the HIA component being compiled by Jonathan Kaplan of ACRM (5 Stuart Road, Rondebosch, 7700. Ph/Fax: 021 685 7589. Cell: 082 321 0172. E-mail: acrm@wcaccess.co.za). The proposed citrus project is an extension of a recently approved vineyard development on the Farm Renosterkop directly adjacent to the present property, for which a palaeontological assessment (PIA) has already, been submitted (Almond 2017).



Figure 1. Google earth® satellite image showing the new citrus orchard study site (red polygon) on Farms Kakamas South Settlement No. 2185 & 2193, situated on the southern side of the Orange River just east of Augrabies settlement and c. 12 km NW of Kakamas, Northern Cape (Image abstracted from the AIA for this project by Kaplan 2017).

2. Geological context

Field photos (Kaplan 2017) and satellite images (Fig. 1) show arid, sparsely-vegetated, fairly flat-lying terrain in the study area at 660-680 m amsl that is mantled in orange-brown sandy soils and gravels and drained by numerous dendritic ephemeral stream systems. These are tributaries of the Orange River that runs about 2.5 kilometres to the north, on the far side of a small, west-east trending hill called Renosterkop.

The geological setting of the study area is shown on the 1: 250 000 geology sheet 2820 Upington (Fig. 2; Council for Geoscience, Pretoria) (Moen 2007). The underlying bedrocks are ancient Precambrian granite-gneisses assigned to the **Riemvasmaak Gneiss** of the **Namaqua-Natal Province** that are some 1.5 billion years old and entirely unfossiliferous (Cornell *et al.* 2006, Almond & Pether 2008).

The study area lies well south of the present course of the River Orange (Gariep), so ancient (Tertiary - Quaternary), consolidated alluvial gravels of the Orange River system – which are known to be highly fossiliferous elsewhere along the Orange (*e.g.* Partridge *et al.* 2006) – are unlikely to be present here; High Level Gravels are not mapped in the Renosterkop region on the 1: 250 000 geological sheet (Fig. 2). However, it is noted that the broader region has been disturbed in part by trenching for alluvial diamonds (Red DA symbols on the geological map, Fig. 2), suggesting that significant thicknesses of alluvial sediments (relict terraces) may be present here, at least locally.

Superficial sediments away from the main drainage courses largely comprise surface gravels (mainly alluvial, sheetwash and deflation deposits), scree breccias derived from local elevated exposures of bedrock), reddish-hued aeolian and locally-derived sands and perhaps near-surface calcretes, the last especially over lime-rich bedrock. The red sands may in part be assigned to the

upper part of the **Kalahari Group (Gordonia Formation)** of late Caenozoic (Neogene / Quaternary) age and the remaining alluvial sediments are probably of a similar, geological youthful age. Although fossil remains are occasionally encountered in these younger fluvial and terrestrial units – for example reworked mammalian bones and teeth, freshwater molluscs, calcretised root casts, termitaria, ostrich egg shells, land snail shells (Almond 2008, Almond & Pether 2008 and refs. therein) - they are sparsely distributed and occur over a very wide area, so the chances of serious impacts on unique fossil heritage resources here are only slight.

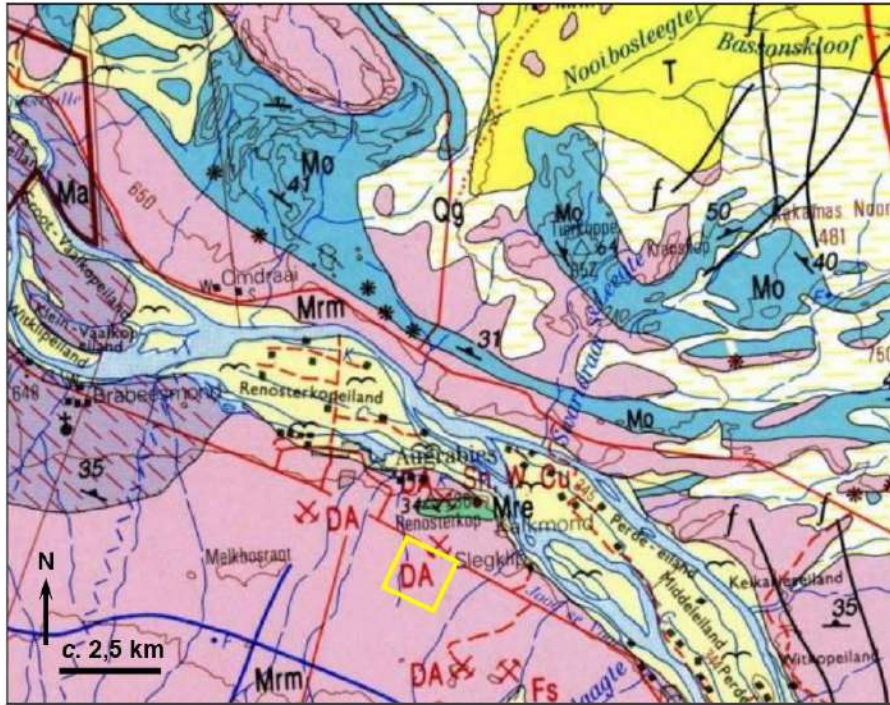


Figure 2. Extract from 1: 250 000 sheet 2820 Upington (Council for Geoscience, Pretoria) showing the geology of the Renosterkop citrus project study area (yellow rectangle) on the southern side of the Orange River and c. 12 km NW of Kakamas, Northern Cape. Bedrocks beneath the study area comprise Riemvasmaak Gneiss (Mrm, pink) forming part of the Precambrian (Proterozoic) Namaqua-Natal Metamorphic Province. Renosterkop ridge to the north is likewise built of gneissose Precambrian rocks (Mre, pale green, Renosterkop Gneiss). Thin surface sands and gravels overlying the basement bedrocks are evident from satellite images and field photographs (Kaplan 2017) but High Level Gravels are not mapped here. Note, however, evidence for previous trenching for diamonds (DA) in the region, suggesting that substantial alluvial deposits might be preserved locally.

3. Conclusions & recommendations

In view of the negligible palaeontological sensitivity of the ancient Precambrian bedrocks as well as the low sensitivity of the geologically recent superficial sediments along the Orange River in the Kakamas – Augrabies region, the proposed agricultural development – including new citrus orchards and buried pipelines - is not considered to pose a significant threat to palaeontological heritage. Although diamond prospecting has occurred in the Renosterkop region, substantial, potentially-fossiliferous older alluvial deposits are not mapped here.

Pending any significant new fossil discoveries in the area, no further specialist studies or mitigation are considered necessary for this agricultural project.

All South African fossil heritage is protected by the National Heritage Resources Act, 1999. Should substantial fossil remains - such as vertebrate bones and teeth, or petrified logs of fossil wood - be encountered at surface or exposed during construction, the ECO should safeguard these, preferably *in situ*. They should then alert the relevant provincial heritage management authority as soon as possible - *i.e.* SAHRA (Contact details: Dr Ragna Redelstorff, SAHRA, P.O. Box 4637, Cape Town 8000. Tel: 021 202 8651. Email: rredelstorff@sahra.org.za). This is to ensure that appropriate action (*i.e.* recording, sampling or collection of fossils, recording of relevant geological data) can be taken by a professional palaeontologist at the developer's expense.

These mitigation recommendations should be incorporated into the Environmental Management Programme (EMPr) for this agricultural project. Please note that:

- All South African fossil heritage is protected by law (South African Heritage Resources Act, 1999) and fossils cannot be collected, damaged or disturbed without a permit from SAHRA or the relevant Provincial Heritage Resources Agency;
- The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (*e.g.* museum or university collection);
- All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (*e.g.* data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).

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SAHRA 2013. Minimum standards: palaeontological component of heritage impact assessment reports, 15 pp. South African Heritage Resources Agency, Cape Town.

5. Qualifications & experience of the author

Dr John Almond has an Honours Degree in Natural Sciences (Zoology) as well as a PhD in Palaeontology from the University of Cambridge, UK. He has been awarded post-doctoral research fellowships at Cambridge University and in Germany, and has carried out palaeontological research in Europe, North America, the Middle East as well as North and South Africa. For eight years he was a scientific officer (palaeontologist) for the Geological Survey / Council for Geoscience in the RSA. His current palaeontological research focuses on fossil record of the Precambrian - Cambrian boundary and the Cape Supergroup of South Africa. He has recently written palaeontological reviews for several 1: 250 000 geological maps published by the Council for Geoscience and has contributed educational material on fossils and evolution for new school textbooks in the RSA.

Since 2002 Dr Almond has also carried out palaeontological impact assessments for developments and conservation areas in the Western, Eastern and Northern Cape, Limpopo, Mpumalanga, Northwest, Free State and KwaZulu-Natal under the aegis of his Cape Town-based company *Natura Viva* cc. He was a long-standing member of the Archaeology, Palaeontology and Meteorites Committee for Heritage Western Cape (HWC) and an advisor on palaeontological conservation and management issues for the Palaeontological Society of South Africa (PSSA), HWC and SAHRA. He is currently compiling technical reports on the provincial palaeontological heritage of Western, Northern and Eastern Cape for SAHRA and HWC. Dr Almond is an accredited member of PSSA and APHP (Association of Professional Heritage Assessment Practitioners – Western Cape).

Declaration of Independence

I, John E. Almond, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed project, application or appeal in respect of which I was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of my performing such work.



Dr John E. Almond
Palaeontologist (*Natura Viva* cc)

APPENDIX E: PUBLIC PARTICIPATION

APPENDIX E1: PUBLIC PARTICIPATION REPORT FOR DBAR

THE OFFICIAL PUBLIC PARTICIPATION PROCESS FOR THE DBAR INCLUDED THE FOLLOWING:

REGISTRATION AND ADVERTISEMENT (

BASIC ASSESSMENT REPORT

	Erf no	Surname	Initials	Representing	Tel	Fax	email	Post Box	Town	Code	Reg
1		Mac Kay	Mr.	Kai Garib Municipality: Municipal Manager	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
2		Ipinge	R	Kai Garib Municipality: Ward Councillor Ward 2	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
3		Klim	WD	Kai Garib Municipality: Ward Councillor	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
4		Toerien	N	Department of Agriculture and Land Reform and Rural Development.			nicotoerien@gmail.com	P. O. Box 52	Upington	8800	L
5		Cloete	S	Department of Water Affairs	0836333642/0543385827		CloeteS@dws.gov.za	Private Bag X5912	Upington	8800	L
6		Abrahams	N	Department of Transport: Environmental Coordinator	021 957 4602	021 910 1699	Abrahamsn@nra.co.za	Private Bag X19, Sanlamhof	Belville	7535	L
7		CEO		Kakamas Water Users Association	054 431 0725/6	054 431 0348	kakamaswgv@isat.co.za	Private Bag X4	Kakamas	8870	L
8		Seshupo	O	DAER&LR	053 631 0601		olebileseshupo@gmail.com	Private Bag X6102 SASKO Building	Kimberley	8300	L
9		CEO		Boegoeberg Water Users Association	054 841 0002	054 841 0000	info@boegoebergwater.co.za	P. O. Box 15	Groblershoop	8850	L
10		CEO		Kakamas Water Users Association	054 431 0725/6	054 431 0348	kakamaswgv@isat.co.za	Private Bag X4	Kakamas	8870	L
11		De la Fontaine	S	Nature Conservation	054 338 4800		sdelafontaine@gmail.com	Evelina De Bruin (former Provincial) Building, Corner of Rivier & Nelson Mandela Road	Upington	8800	L
12		Mans	J	Department of Agriculture Forestry and Fisheries	054 338 5909		jacolinema@daff.gov.za	P. O. Box 2782, Olien street 26, Louisvale Road	Upington	8800	L
13	Erf 2062, 2193, 2185			Burger Du Plessis Familie Trust			retha@oseiland.co.za	P. O. Box 45	Augrabies	8874	
14	Erf 2094, 2160, 2161			Eternal Flame Inv 104 Pty Ltd/ Directors the same as Burger du Plessis Familie Trust			retha@oseiland.co.za	P.O. Box105	Augrabies	8874	

BASIC ASSESSMENT REPORT

	Erf no	Surname	Initials	Representing	Tel	Fax	email	Post Box	Town	Code	Reg
15		Erf 2192		P J Dippenaar & Seuns Boerdery Pty Ltd			admin2@bloutputs.co.za	P. O. Box 43	Kakamas	8870	

APPENDIX E3: ADVERTISEMENT)

An advertisement was placed in the local paper, Die Gemsbok, on Friday 24 June 2022. An advertisement served as a notice for registration as an Interested and Affected Parties and provides comments on the dBAR as part of the official public participation process. The registration/comment period was from Monday 27 June 2022 until Tuesday, 02 August 2022. An additional commenting period was necessary, as comments from SAHRA requested for an Archaeological Assessment Report to be compiled. The second 30- day commenting period stretched from Monday 15 August 2022 until 15 September 2022.

NOTICE BOARD (APPENDIX E4: SITE NOTICE AND LOCALITY)

Notice Boards was placed at the site entrance and on the Farm on Friday 24 June 2020, during the first official public participation period.

INFORMATION AND REPORTING FOR THE FORMAL PROCESS

A notice that included the Executive Summary was made available and distributed by registered post to all registered I&AP's and neighbours for the 30-day commenting period, from Monday 27 June 2022 until Tuesday, 02 August 2022. The notice also informed all I&AP's of the availability of the draft Basic Assessment Report which could be obtained from the EAP. Comments were received, and included comments from SAHRA, with a request for an additional study for an Archaeological Assessment. The Final Basic Assessment Report was compiled and sent out for an additional 30-day commenting period from Monday 15 August 2022 until 15 September 2022. Digital copies of the dBAR and fBAR was made available to those who requested it.

Hard copies or digital copies of the report were sent to DAERD&LR, Department of Water and Sanitation, SAHRA, Nature Conservation, Local Municipality, DFF, District Municipality and District Roads Engineer.

I&AP'S DATABASE

The I&AP'S database in Appendix E2: I&AP'S List was compiled from identified & registered I&AP's. The database was continuously updated to include new I&AP's that have submitted comments on the Draft Basic Assessment Report.

COMMENTS AND RESPONSES

The actual comments received on the draft report and final report will be included in the fBAR. The comments and response sheet are included in Appendix E7: Comments and Response Table.

BASIC ASSESSMENT REPORT

APPENDIX E2: I&AP'S LIST

	Erf no	Surname	Initials	Representing	Tel	Fax	email	Post Box	Town	Code	Reg
1		Mac Kay	Mr.	Kai Garib Municipality: Municipal Manager	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
2		Ipinge	R	Kai Garib Municipality: Ward Councillor Ward 2	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
3		Klim	WD	Kai Garib Municipality: Ward Councillor	054 431 6328	054 461 6401	mm@kaigarib.gov.za	Private Bag X6	Kakamas	8870	L
4		Toerien	N	Department of Agriculture and Land Reform and Rural Development.			nicotoerien@gmail.com	P. O. Box 52	Upington	8800	L
5		Cloete	S	Department of Water Affairs	0836333642/0543385827		CloeteS@dws.gov.za	Private Bag X5912	Upington	8800	L
6		Abrahams	N	Department of Transport: Environmental Coordinator	021 957 4602	021 910 1699	Abrahamsn@nra.co.za	Private Bag X19, Sanlamhof	Belville	7535	L
7		CEO		Kakamas Water Users Association	054 431 0725/6	054 431 0348	kakamaswgv@isat.co.za	Private Bag X4	Kakamas	8870	L
8		Seshupo	O	DAER&LR	053 631 0601		olebileseshupo@gmail.com	Private Bag X6102 SASKO Building	Kimberley	8300	L
9		CEO		Boegoeberg Water Users Association	054 841 0002	054 841 0000	info@boegoebergwater.co.za	P. O. Box 15	Groblershoop	8850	L
10		CEO		Kakamas Water Users Association	054 431 0725/6	054 431 0348	kakamaswgv@isat.co.za	Private Bag X4	Kakamas	8870	L
11		De la Fontaine	S	Nature Conservation	054 338 4800		sdelafontaine@gmail.com	Evelina De Bruin (former Provincial) Building, Corner of Rivier & Nelson Mandela Road	Upington	8800	L
12		Mans	J	Department of Agriculture Forestry and Fisheries	054 338 5909		jacolinema@daff.gov.za	P. O. Box 2782, Olien street 26, Louisvale Road	Upington	8800	L
13	Erf 2062, 2193, 2185			Burger Du Plessis Familie Trust							
14	Erf 2094, 2160, 2161			Eternal Flame Inv 104 Pty Ltd/ Directors the same as Burger du Plessis Familie Trust							
15	Erf 2192			P J Dippenaar & Seuns Boerdery Pty Ltd							

APPENDIX E3: ADVERTISEMENT

Appendix E3.1: Advertisement Text

PUBLIC PARTICIPATION PROCESS/PUBLIEKE DEELNAME PROSES

ETERNAL FLAME - CULTIVATION OF VINEYARDS ON KAKAMAS SOUTH SETTLEMENT NO. 2094, NORTHERN CAPE PROVINCE

DAER&LR Ref.: to be provided.

Notice is hereby given of a public participation process in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended, and the Environmental Impact Assessment Regulations, 2014 (as amended), including the National Water Act, 1998 (Act No. 36 of 1998) as amended, and the "Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals", dated 2017.

English:

The project will require the clearance of approximately 19.7ha of natural vegetation for the establishment of an agricultural development on Kakamas South Settlement No. 2094, Augrabies.

This advertisement serves as notification of the proposed development and for I&APs to register should they wish to receive more information. The 30-day Public Participation Process will run from 27 June 2022 until 02 August 2022. This letter also serves as notification of the availability of the draft Basic Assessment Report (dBAR). More information of the development will be available from the EAP as per the details provided below and the dBAR may be accessed at GroenbergEnviro website.

As per the listed activity below the proposed development initiated a Basic Assessment Process.

The following National Environmental Management Act (NEMA) listed activities are triggered: **Listing Notice 1: Activity 12, 27; Listing Notice 3: Activity 12, 14.**

Afrikaans:

Die projek sal die opruiming van ongeveer 19.7ha natuurlike plantegroei vereis vir die vestiging van landbou aktiwiteite op perseel Kakamas South Settlement No 2094, Augrabies.

Hierdie advertensie dien as kennisgewing van die voorgestelde ontwikkeling en vir I&APs om te registreer indien hulle meer inligting wil ontvang. Die proses vir openbare deelname van 30 dae duur van 27 June 2022 tot 02 Augustus 2022. Hierdie advertensie dien ook as kennisgewing van die beskikbaarheid van die konsep Omvangbepaling verslag (dBAR – 30 dae). Meer inligting oor die ontwikkeling is beskikbaar by die OBP volgens die besonderhede hieronder en die dBAR kan op dieGroenbergEnviro webwerf.

Die volgende Nasionale Wet op die Omgewingsbestuur (NEMA) is onder die NEMA 2014-Regulasies van toepassing: **Noteringskennisgewing 1: Aktiwiteit 12, 27; Noteringskennisgewing 3: Aktiwiteit 12, 14.**

Date of this notice: 24 June 2022

Details of EAP/OBP: Elanie Kühn
GroenbergEnviro (Pty) Ltd
Environmental Assessment Practitioner
 P O Box 1058, Wellington, 7654
 Cell: 082 746 5627.
 Fax: 0864767139
 E-mail: elanie@groenbergenviro.co.za

To ensure that you are identified as an interested and/or affected party (I&APs) please submit your name, contact information and interest in the matter, as well as any comment to the EAP before 17:00 on 02 August 2022. Please note, the information submitted will be made public as part of the EIA process and no personal details are included. The personal details of comments received can only be made public if the affected party indicates with their comments that their input may be published.

Om te verseker dat u geïdentifiseer word as 'n belanghebbende en geïmpakteerde party, stuur asseblief u naam, kontak besonderhede, gekose metode van korrespondensie en belangstelling in die saak, sowel as kommentaar aan die OBP, voor 17:00 op 02 August 2022. Let wel, kommentaar en informasie wat beskikbaar is in hierdie verslag, word bekend gemaak sonder persoonlike besonderhede van I&APs. Met kommentare ontvang sal persoonlike kommentaar slegs bekend gemaak word mits die geïmpakteerde party toestemming gee daartoe.

Appendix E3.2: Proof of Advertisement
Will be included in the Final Basic Assessment Report.

BLADSY 14

ZF Mcgawu Sub-unie uitslae

Die afgelope Saterdag (07/05) het die 6 spanne van die ZF Mcgawu Sub-unie die volgende rondte gespeel.
In Kakamas het die tuisspan 'n sege van 48-3 behaal oor die Sunwolves van Upington.
In Upington het United RFC teen Defence Force Collegians uitgedraf en teen die blaas van die eindfluitjie, was die telboord op 13-10 in United se guns.
Op Die Eiland in Upington, het Upington Dorp hul kragte teen Kenhardt geneet. Die tuisspan het as weners uit die stryd getree met 29-26.
Die volgende rondte sal eers op 21 Mei gespeel word a.g.v. die plaaslike Klein Interjol tussen die Hoërskole Duneveld en Upington.

- Upington Dorp het as weners uit die stryd getree met 29-26 (geneem deur Chané le Roux)

GEMSBOK

13 MEI 2022



WINTERS DANS
SAAM MET
STEPHAN VISAGIE
Ten bate van Animal Welfare Society of Upington

19:00 28.05.22 R90
KARAKDEL SAAL - UPINGTON SKOOL GRONDE
KONTANT KROEG
KOS STALLETJIE
GEEN EIE DRINK GOED OF VERVERSINGS TOELAATBAAR NIE.



Uppies hokkie kook!
Die Hoërskool Upington se eerste hokkie seuns het onlangs in Kimberley deel geneem aan 'n "knock-out" toernooi. Hierdie toernooi was ook deel van die Noord-Kaap hokkie proewe. Uppies wen vir HTS 3-0 in die eerste rondte. Die Uppie manne wen toe in die Semi-finaal teen Boys High 2-1 en dring deur na die finale teen Hoërskool Noord-Kaap. Die seuns het baie goed gedoen en het naelkraap vasgeval in die finale.

Uppies Hokkie afrigters pronk behoorlik!



Min Sd Botes is tans die voorsitter van die Noord-Kaap platland komitee en is gekies as afrigter van die o/18 Noord-Kaap hokkiedogters wat die jaar aan die SA Interprovinciale hokkietoernooi gaan deelneem.
Mevrou Christelle Erasmus is tans die Noord-Kaap Hokkie Komitee se tesourier en is ook gekies as afrigter van die o/16 Noord-Kaap hokkiedogters wat ook aan die SA Interprovinciale hokkietoernooi gaan deelneem.



hokkiedogters, wat aan die Interprovinciale streeks-toernooi gaan deelneem.
Judith Riama de Witt is gekies as afrigter van die o/16 Noord-Kaap Platland hokkiedogters, wat ook aan die Interprovinciale streeks-toernooi gaan deelneem.

Sy rig nou Noord-Kaap Robyne af



Me. Jacqueline Kühn van die Hoërskool Duneveld op Upington is gekies om as afrigter te dien vir die Noord-Kaap Robyne o/18-span. Die Robyne en Diamante o/17 en o/18 spanne van die Noord-Kaap gaan saam met die ander provinsiale spanne in Suid-Afrika, aan die Telkom Netballing in Witbank vanaf 10 tot 15 Julie vanjaar deelneem.

PUBLIC PARTICIPATION PROCESS/PUBLIEKE DEELNAME PROSES
ORKANT - CULTIVATION OF VINEYARDS ACROSS SMALL STREAMS, ON KAKAMAS NORTH SETTLEMENT NO. 341, NORTHERN CAPE PROVINCE
DAERBLR Ref.: to be provided.

WU No: 20529
Notice is hereby given of a public participation process in terms of the National Environmental Management Act, 1989 (Act No. 107 of 1989) as amended, and the Environmental Impact Assessment Regulations, 2014 (as amended), including the National Water Act, 1956 (Act No. 36 of 1956) as amended, and the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals, dated 2017.

Ensluit:
The project will require the clearance of approximately 30% of natural vegetation for the establishment of an agricultural development on Kakamas North Settlement No. 341, Augrabes. A portion of the proposed development will be located within 32m of a watercourse located on the western boundary.

This advertisement serves as notification of the proposed development and for IAPs to register should they wish to receive more information. The 30-day Public Participation Process will run from 18 May 2022 until 18 June 2022. This letter also serves as notification of the availability of the draft Scoping Report (SR) and information on the Water Use License Application (WULA - 6) days, which ends on 16 July 2022. More information of the development will be available from the EIP as per the details provided below and the SR may be accessed at Groenber/Enviro website.

As per the listed activity below the proposed development initiated a Scoping & Environmental Impact Reporting Process.

The following National Environmental Management Act (NEMA) listed activities are triggered: **Listing Notice 1: Activity 12, 19, Listing Notice 2: Activity 18, Listing Notice 3: Activity 12, 14.**

Afrikaans:
Die projek sal die opruiing van ongeveer 30% natuurlike plantegroei verskaf vir die vestiging van landbou, afdelings op Noord Kakamas, Noord Settlement No. 341, Augrabes, in Oos-Kaap van die voorgeskrede ontwikkelings sal geleë wees binne 32m van 'n stroom geleë op die westelike grens.

Hierdie advertensie dien as kennisgewing van die voorgestelde ontwikkeling en vir IAPs om te registreer indien hulle meer inligting wil ontvang. Die proses is oopbare deelname van 30 dae duur van 18 Mei 2022 tot 18 Junie 2022. Hierdie advertensie dien ook as kennisgewing van die beskikbaarheid van die konsep Omringelingsverslag (OSR - 30) dae en inligting oor die Watergebruiktoelaaie-aansoek (WULA - 6) dae tot 16 Julie 2022, kan vermy word. Meer inligting oor die ontwikkeling is beskikbaar by die IEP volgens die besonderhede hierbo en die OSR op die Groenber/Enviro webwerf.

Die volgende Nasionale Wet op die Omgewingsbeheer (NEMA) in verband met die NEMA 2014 Regulasies is getriggereer: **Noteringsoortskrywing 1: Aktiviteite 12, 19; Noteringsoortskrywing 2: Aktiviteite 12, 14.**

Date of this notice: 13 May 2022

Details of EAP/OP: Elnis Kühn Groenber/Enviro (Pty) Ltd Environmental Assessment Practitioner P.O. Box 1159, Wellington, 7504 Cell: 082 746 5627 Fax: 0864761159 E-mail: elanis@groenberenviro.co.za	Details of WULA Consultant: Elnis Kühn Groenber/Enviro (Pty) Ltd Water Use License Assessor P.O. Box 1159, Wellington, 7504 Cell: 082 746 5627 Fax: 0864761159 E-mail: elanis@groenberenviro.co.za
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Tenure: that you are identified as an interested and/or affected party (IAP) please submit your name, contact information and interest in the matter, as well as any comment to the EAP before 17:00 on 15 June 2022. Please note: the information submitted will be made public as part of the EIP process and no personal details are included. The personal details of comments received can only be made public if the affected party indicates with their comments that their report may be published.

Om te verseker dat u geïdentifiseer word as 'n belanghebbende en/of geïnteresseerde party, stuur asseblief u naam, kontak besonderhede, gekose metode van kennisgewing en belangstelling in die saak, saam as kommentaar aan die OEP, voor 17:00 op 15 Junie 2022. Let wel, kommentaar en informasie wat beskikbaar is in hierdie verslag, word bekend gemaak onder persoonlike besonderhede van IAP's. Met kommentaar omring sal persoonlike kommentaar slegs bekend gemaak word mits die geïnteresseerde party toestemming gee daartoe.

KAI IGARIB MUNISIPALITEIT
Kennisgewing Nr. K06/2022
Begroting 2022/2023 // Geïntegreerde Ontwikkelingsplan (GOP) 2022/2023

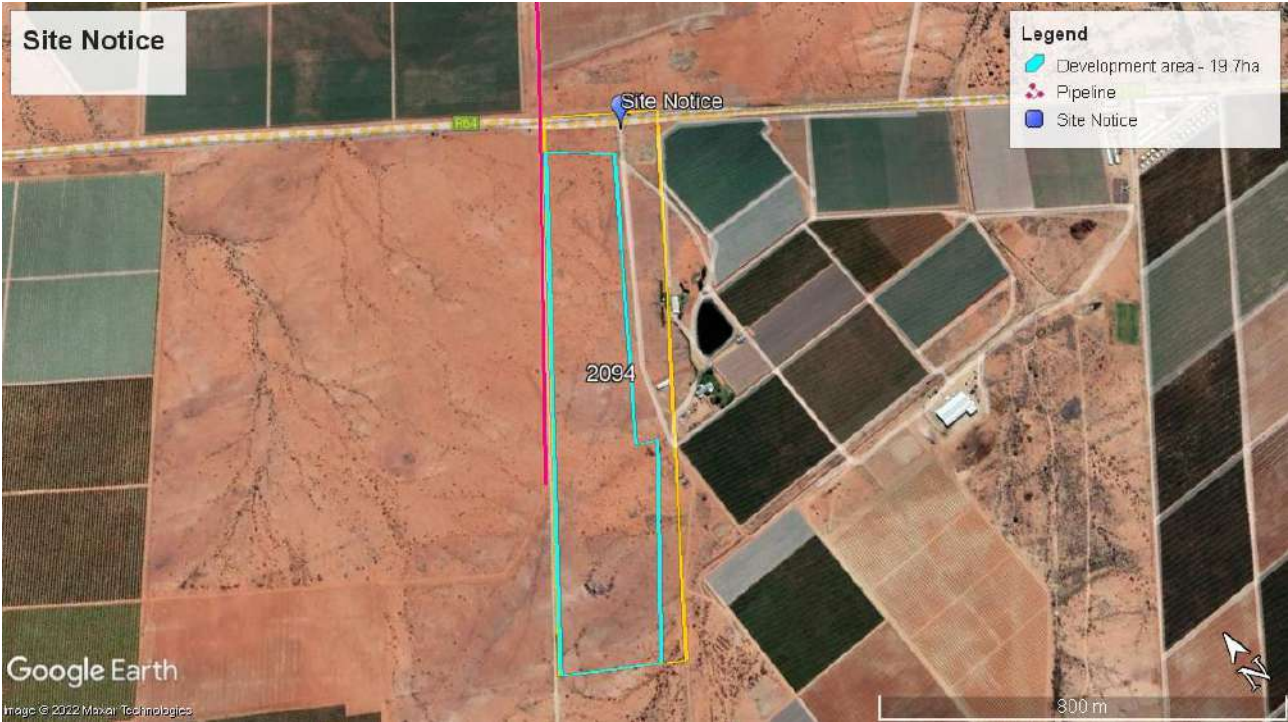
KAI I G A R I B
Kennis gekiesde henningsaanvragers Munisipale Struktuurwet, Art. 21 van Wet 32/2000 aangevrees met artikels 29 en 28 van gemidd. Wet. Art. 95(1) en 162(1) van Wet 56/2003 en Art. 129(3) van Wet 56/2003, dat die raad van Kai IGarib Munisipaliteit publieke deelname proses met die gemeenskap van Kai IGarib sal hou op die volgende datums:

Datum	Tyd	Wyk	Plaas	Lokaal
18 Mei 2022	10:00	9	Kenhardt (Belange Groep)	Kenhardt Raadsaal
18 Mei 2022	12:00	9	Kenhardt (Gemeenskap)	Gemeenskapsaal
18 Mei 2022	16:00	8	50 Heklaar	50 Heklaar
18 Mei 2022	16:00	8	Ekstrenskeul Plaas	Middel Lokasie
19 Mei 2022	16:00	5	Kemmoes (Belange Groep)	Stadsaal
22 Mei 2022	15:00	10	Ruimsmaak, Vredesvallei, Noudorsies	Ruimsmaak Gemeenskapsaal
23 Mei 2022	12:00	1 & 2	Alheit, Marchand, Augrabes	Marchand Gemeenskapsaal
23 Mei 2022	16:00	1,2,3,4	Kakamas (Belange Groep)	Kakamas Raadsaal
24 Mei 2022	12:00	2,3,4 & 7	Kakamas, Olie, Lubburg	Laerskool Kakamas Saal
24 Mei 2022	16:00	5,6 & 8	Kemmoes, Lemmetville & George, Eiland, Sovereity, Cuiterscamp, Boersfontein, Kameelstrand & McTaggerterklomp	Kemmoes Stadsaal

Enge nuwe kan skryflike gewone voor van die Munisipale Bestuurder, by admin@kaiigarib.gov.za of (054) 481 6400. U mag ook u name aanbring na die onderstaande adres:
Dr. J. MacKay, Munisipale Bestuurder, Kai IGarib Munisipaliteit, Postbus 174, Kakamas, 8070

APPENDIX E4: SITE NOTICE AND LOCALITY

Appendix E4.1: Site Notice Locality



Appendix E4.2: Text and proof of site notice

PUBLIC PARTICIPATION PROCESS/PUBLIEKE DEELNAME PROSES

ETERNAL FLAME - CULTIVATION OF VINEYARDS ON KAKAMAS SOUTH SETTLEMENT NO. 2094, NORTHERN CAPE PROVINCE

DAER&LR Ref.: to be provided.

Notice is hereby given of a public participation process in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended, and the Environmental Impact Assessment Regulations, 2014 (as amended), including the National Water Act, 1998 (Act No. 36 of 1998) as amended, and the "Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals", dated 2017.

English:

The project will require the clearance of approximately 19.7ha of natural vegetation for the establishment of an agricultural development on Kakamas South Settlement No. 2094, Augrabies.

This advertisement serves as notification of the proposed development and for I&APs to register should they wish to receive more information. The 30-day Public Participation Process will run from 27 June 2022 until 02 August 2022. This letter also serves as notification of the availability of the draft Basic Assessment Report (dBAR). More information of the development will be available from the EAP as per the details provided below and the dBAR may be accessed at GroenbergEnviro website.

As per the listed activity below the proposed development initiated a Basic Assessment Process.

The following National Environmental Management Act (NEMA) listed activities are triggered: **Listing Notice 1: Activity 12, 27; Listing Notice 3: Activity 12, 14.**

Afrikaans:

Die projek sal die opruiming van ongeveer 19.7ha natuurlike plantegroei vereis vir die vestiging van landbou aktiwiteite op perseel Kakamas South Settlement No 2094, Augrabies.

Hierdie advertensie dien as kennisgewing van die voorgestelde ontwikkeling en vir I&APs om te registreer indien hulle meer inligting wil ontvang. Die proses vir openbare deelname van 30 dae duur van 27 June 2022 tot 02 Augustus 2022. Hierdie advertensie dien ook as kennisgewing van die beskikbaarheid van die konsep Omvangbepaling verslag (dBAR – 30 dae). Meer inligting oor die ontwikkeling is beskikbaar by die OBP volgens die besonderhede hieronder en die dBAR kan op dieGroenbergEnviro webwerf.

Die volgende Nasionale Wet op die Omgewingsbestuur (NEMA) is onder die NEMA 2014-Regulasies van toepassing: **Noteringskennisgewing 1: Aktiwiteit 12, 27; Noteringskennisgewing 3: Aktiwiteit 12, 14.**

Date of this notice: 24 June 2022

Details of EAP/OBP: Elanie Kühn
GroenbergEnviro (Pty) Ltd
Environmental Assessment Practitioner
 P O Box 1058, Wellington, 7654
 Cell: 082 746 5627.
 Fax: 0864767139
 E-mail: elanie@groenbergenviro.co.za

To ensure that you are identified as an interested and/or affected party (I&APs) please submit your name, contact information and interest in the matter, as well as any comment to the EAP before 17:00 on 02 August 2022. Please note, the information submitted will be made public as part of the EIA process and no personal details are included. The personal details of comments received can only be made public if the affected party indicates with their comments that their input may be published.

Om te verseker dat u geïdentifiseer word as 'n belanghebbende en geïmpakteerde party, stuur asseblief u naam, kontak besonderhede, gekose metode van korrespondensie en belangstelling in die saak, sowel as kommentaar aan die OBP, voor 17:00 op 02 August 2022. Let wel, kommentaar en informasie wat beskikbaar is in hierdie verslag, word bekend gemaak sonder persoonlike besonderhede van I&APs. Met kommentare ontvang sal persoonlike kommentaar slegs bekend gemaak word mits die geïmpakteerde party toestemming gee daartoe.

APPENDIX E5: PROOF OF NOTIFICATIONS

Proof of emails sent

Proposed agricultural development of 19.7ha on Kakamas South Settlement No. 2094, Augrabies. Eternal Flame Farm. DAERD&LR Ref: Not available at thi...

An email header from elanie@groenbergenviro.co.za. The recipient list includes 'm.m@kaigarib.gov.za', 'nicotoerien@gmail.com', 'Cloete5@dws.gov.za', 'Abrahamsn@nra.co.za', 'kakamaswgv@isat.co.za', 'olebiteshupo@gmail.com', 'info@boegoebergwater.co.za', 'kakamaswgv@isat.co.za', 'sdelafontaine@gmail.com', 'jocclinema@daff.gov.za', 'retho@oseliland.co.za', 'admin2@bloutputs.co.za', and 'Sekwalek@dws.gov.za'. The email is dated Wednesday, 22 June 2022 at 10:13. A PDF attachment titled 'Letter to Auth and I&AP with draft BAR 22-06-2022 download.pdf' (702 KB) is shown.

Good day all

Herewith find attached the notification letter of the proposed abovementioned development. Please note further information is provided in the letter.

Kindest Regards

Elanie Kühn
EAP, Water Use License Consultant



GroenbergEnviro (PTY) Ltd
Cell: 082 746 5627
Fax: 086 476 7139

Proof of notices sent


BASIC ASSESSMENT REPORT

<p>REGISTERED LETTER GEREGISTREERDE BRIEF</p> <p style="text-align: right;">Post Office</p> <p><i>(with an insurance option/met 'n versekeringsopsie)</i></p> <p>Full tracking and tracing/Volledige volg en spoor</p> <p>Addressed to/Geadresseer aan Muntlan Krait Gat Mnt. P Bag X 6 Kakamas 8870 Postcode/Postkode</p> <p><small>The value of the contents of this letter is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100.00. No compensation is payable without documentary proof. Optional insurance up to R2000.00 is available and applies to domestic registered letters only. Die waarde van die inhoud van hierdie brief is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100.00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering tot R2 000.00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.</small></p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Postage paid R _____</td> <td style="width: 50%; text-align: right;">C</td> </tr> <tr> <td>Service fee/Diensgeld R _____</td> <td style="text-align: right;">C</td> </tr> <tr> <td>Insurance/Versekering R _____</td> <td style="text-align: right;">C</td> </tr> <tr> <td>Total/Totaal R _____</td> <td style="text-align: right;">C</td> </tr> </table> <p>Insured value of contents Versekerde waarde van inhoud R _____</p> <p>Enquiries/Navrae Toll-free number Tolvry nommer 0800 111 502</p> <p>Initial of accepting officer _____</p> <p>INTERNATIONAL INSURED PARCEL ShareCall 0800 111 502 www.sape.co.za CV 011 172 491 ZA CUSTOMER COPY 00000013 Kliëntafskrif</p> <p>Paraaf van aanneembampste _____</p> <p style="text-align: right;">Datumstempel</p> <div style="border: 2px solid black; padding: 5px; transform: rotate(-15deg); width: fit-content; margin: 10px auto;"> <p style="text-align: center;">Wellington 7654 Post Office</p> <p style="text-align: center;">Date stamp 22 JUN 2022</p> <p style="text-align: center;">Folio No: 2</p> </div>	Postage paid R _____	C	Service fee/Diensgeld R _____	C	Insurance/Versekering R _____	C	Total/Totaal R _____	C
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BASIC ASSESSMENT REPORT



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ACCOUNT NO. (Very Important) CLIENT REFERENCE DO DATE MM YR PARCELS MASS VOLUME ORIGIN DEST. OFFICE REFERENCE

TCG23456942

Barcode

Contact Name: C. Luhn Contact Phone Number (Very Important)

Company Name: GBE

Street Address: Matherbe street

City: Wellington Country: SA Postal Code: 7654

Special Instructions

To (Contact Name): S. de la Fontein Contact Phone Number (Very Important)

Company Name: Nature Conservation

Exact Street Address (We cannot deliver to Box Numbers): L. Lires & Nelson Mandela

City: Uppington Country: SA Postal Code: 8500

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By virtue of the clients signature hereto, the client acknowledges having read, understood, and agreed to be bound by the standard conditions of carriage of The Courier Guy (Pty) Ltd., which standard conditions are annexed hereto.

CLIENT SIGNATURE

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RECEIVER'S SIGNATURE

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APPENDIX E5.2: NOTIFICATION LETTERS SENT

APPENDIX E 5.2.1: NOTIFICATION LETTER SENT TO I&AP FOR OFFICIAL DBAR.

GroenbergEnviro (Pty) Ltd
PO Box 1058, Wellington 7654



Date: 22-06-2022

NEMA Reference: to be determined

Dear Interested and Affected Party (Authority, Owners and Tenants)

**ETERNAL FLAME FARM – DRAFT BASIC ASSESSMENT REPORT –
DEVELOPMENT OF 19.7HA DEVELOPEMNT ON KAKAMAS
SOUTH SETTLEMENT NO. 2094, AUGRABIES.**

This letter serves as notification that the draft Basic Assessment Report (dBAR) is available for comment. Note this report is available as part of the formal Assessment process under National Environmental Management Act (NEMA). The public participation process (**30 days**) will run from **Monday, 27 June 2022 until Tuesday, 02 August 2022.**

Herewith, please find attached a link to an electronic copy of the draft BAR for your consideration and easy access. The dBAR is electronically available on the website www.groenbergenviro.co.za (Projects/Basic Assessment Reports).

Also find attached a small Executive summary of the proposed development.
The development process to be undertaken is a Basic Assessment process.

The following National Environmental Management Act (NEMA) listed activities are triggered:

Listing Notice 1: Activity 12, 27.

Listing Notice 3: Activity 12, 14.

Yours sincerely

Elanie Kühn

GroenbergEnviro (Pty) Ltd

P. O. Box 1058

Wellington

7654

Tel: 076 584 0822

Email: elanie@groenbergenviro.co.za

Website: www.groenbergenviro.co.za

EXECUTIVE SUMMARY

Locality:

The Applicant is proposing the clearance of 19.7ha of indigenous vegetation for agricultural development on Kakamas South Settlement No. 2094. The farm is located 12km northwest of Kakamas, along the R64, and is situated in the Kai! Garib Local Municipality, which falls under the ZF Mgcawu District Municipality in the Northern Cape Province.

The location of the proposed area is shown in **Figure 1**.

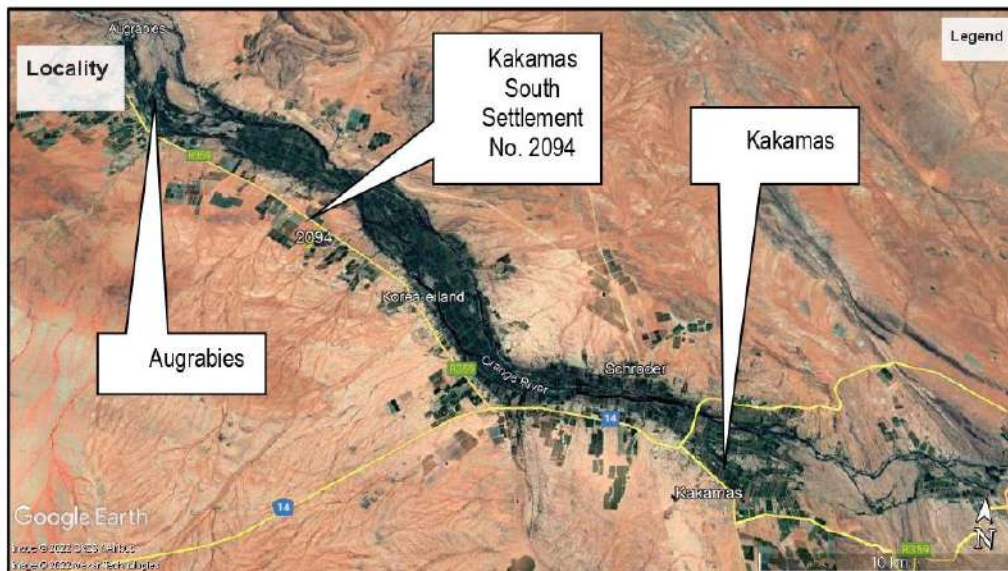


Figure 1: Locality Plan

Project Description:

This application is for the proposed development of 19.7ha for agricultural use on the Kakamas South Settlement No. 2094, Augrabies. The development consists of the following (see **Figure 2**):

- The proposal is for the establishment of an additional 19.7ha (turquoise area) of agricultural development, in order to fully utilise the property. Note no watercourses will be crossed or impacted by the development of this area. a small watercourse travels along the southern property boundary, but the proposed development will not impact on this watercourse.



Figure 2: Site Development Layout

Roads:

Access is achieved via an existing gravel road that has access to the R64, between Augrabies and Kakamas. The internal gravel roads consist of compacted earth, with no formal stormwater management control structures in place along the tracks. The reason for this is the low rainfall characteristic of the area negates the need to provide for formal stormwater control.

Pipelines:

Water is required to irrigate the established agricultural development by means of the drip irrigation method. The water is currently pumped from the Orange River through an existing pipeline. The water is then pumped from an existing booster pump station along the existing pipelines to the agricultural development (See **Figure 3** – pink lines). The proposed agricultural development will be irrigated by the same system.



Figure 3: Pipelines

Water:

There is an existing Licence in terms of the National Water Act, 1998 (NWA) that has been issued to the applicant, Eternal Flame Investments 104 (Pty) Ltd. The WUL No. 10/D81A/A/11331 was issued on 22 December 2021. The property has an Existing Lawful use for 10ha and the additional license for 10ha, which provides the property with 20ha (300 000m³/a) water rights.

Electricity:

There is existing electricity available on the property for the proposed development.

Public Participation Process:

Public participation included the following:

- **Pre-Application Public Participation**

No pre-application public participation has been conducted.

We are currently within this part of the process, the below to follow.

- **Registration and advertisement**

An advertisement will be placed in the Gemsbok on the Friday 24 June 2022. The advertisement serves as a notice for the registration as an Interested and Affected Party and to provide comment on the draft Basic Assessment Report as part of the public participation process. The registration/comment period will be from Monday 27 June 2022 until Tuesday 02 August 2022.

- **Notice Board**

Notice Boards will be displayed at the entrance of the farm from Monday 27 June 2022 until

Tuesday 02 August 2022.

- **Information and reporting for formal process**

Scoping:

A notice that includes an Executive Summary and the draft Basic Assessment Report (dBAR) will be made available and distributed by registered post or via email to all registered the I&APs and neighbours for the 30-day commenting period, from (Monday 27 June 2022 until Tuesday 02 August 2022). An internet link will also be provided to all I&AP's, where they will be able to download the Scoping Report. Comments received will be placed in the report.

Hard copies or digital copies of the report will be sent to DAER&LR, Department of Water and Sanitation, Kai! Garib Municipality, DAFF, Department of Transport and Nature Conservation.

- **I&AP database**

The I&AP's database will be updated to include new I&AP's that submit comments for the final Basic Assessment Report and the EIA Report.

APPENDIX E5.2.2: NOTIFICATION LETTER SENT TO AUTHORITIES FOR OFFICIAL DBAR

GroenbergEnviro (Pty) Ltd
PO Box 1058, Wellington 7654



Date: 22-06-2022

NEMA Reference: to be determined

Dear Interested and Affected Party (Authority, Owners and Tenants)

**ETERNAL FLAME FARM – DRAFT BASIC ASSESSMENT REPORT –
DEVELOPMENT OF 19.7HA DEVELOPEMNT ON KAKAMAS
SOUTH SETTLEMENT NO. 2094, AUGRABIES.**

This letter serves as notification that the draft Basic Assessment Report (dBAR) is available for comment. Note this report is available as part of the formal Assessment process under National Environmental Management Act (NEMA). The public participation process (**30 days**) will run from **Monday, 27 June 2022 until Tuesday, 02 August 2022.**

Herewith, please find attached a link to an electronic copy of the draft BAR for your consideration and easy access. The dBAR is electronically available on the website www.groenbergenviro.co.za (Projects/Basic Assessment Reports).

Also find attached a small Executive summary of the proposed development.
The development process to be undertaken is a Basic Assessment process.

The following National Environmental Management Act (NEMA) listed activities are triggered:

Listing Notice 1: Activity 12, 27.

Listing Notice 3: Activity 12, 14.

Yours sincerely

Elanie Kühn

GroenbergEnviro (Pty) Ltd

P. O. Box 1058

Wellington

7654

Tel: 076 584 0822

Email: elanie@groenbergenviro.co.za

Website: www.groenbergenviro.co.za

APPENDIX E6: COMMENTS RECEIVED

SAHRA

Eternal Flame - Proposed agricultural development of 19.7ha on Kakamas South Settlement No. 2094, Augrabies.

Our Ref:



an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Natasha Higgitt
Tel: 021 462 4502
Email: nhiggitt@sahra.org.za
CaseID: 18880

Date: Thursday July 14, 2022
Page No: 1

Interim Comment

In terms of Section 38(3), 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Eternal Flame

P. O. Box 45
Augrabies
8874

Eternal Flame - Proposed agricultural development of 19.7ha on Kakamas South Settlement No. 2094, Augrabies.

Groenberg Enviro (Pty) Ltd has been appointed by Eternal Flame Investments 104 (Pty) Ltd to conduct an Environmental Authorisation (EA) Application for the proposed agricultural development and associated infrastructure on Kakamas South Settlement No. 2094, near Augrabies, Northern Cape Province.

A draft Basic Assessment Report has been submitted in terms of the National Environmental Management Act, 1998 (NEMA) and the Environmental Impact Assessment (EIA) Regulations. The proposed activities include the establishment of 19.7 ha of agricultural development, water pipelines and pumpstation.

Heritage specialist reports conducted in 2018 for the adjacent property were submitted as part of the EA application (SAHRIS Case ID 12470 <https://sahris.sahra.org.za/cases/aia-proposed-construction-agricultural-development-kakamas-south-settlement-no-2185-and-2193>).

Interim Comment

The SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit does not accept the submitted heritage reports as they do not assess the activities or the location of the current proposed development.

A new Heritage specialist report must be conducted as part of the EA application, and must comply with section 38(3) of the National Heritage Resources Act, Act 25 of 1999 (NHRA). The HIA must include an archaeological component.

The archaeological component of the HIA must be conducted by a qualified archaeologist and must comply

Eternal Flame - Proposed agricultural development of 19.7ha on Kakamas South Settlement No. 2094, Augrabies.

Our Ref:



an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Natasha Higgitt
Tel: 021 462 4502
Email: nhiggitt@sahra.org.za
CaseID: 18880

Date: Thursday July 14, 2022
Page No: 2

with the SAHRA 2007 Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports (see www.asapa.co.za or www.aphp.org.za for a list of qualified archaeologists).

The proposed development is located within an area of very low Palaeontological Sensitivity as per the SAHRIS PalaeoSensitivity map. As such, no further assessment of the impact to palaeontological resources is required.

Any other heritage resources as defined in section 3 of the NHRA that may be impacted, such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewsapes must also be assessed.

The applicant is advised to extend the EA process in terms of section 19(1)b of the NEMA EIA regulations in order to comply with this comment. Further comments will be issued upon receipt of the above requested reports and revised DBAR that incorporates the results of the requested heritage study.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Natasha Higgitt
Heritage Officer
South African Heritage Resources Agency

Phillip Hine

BASIC ASSESSMENT REPORT

Eternal Flame - Proposed agricultural development of 19.7ha on Kakamas South Settlement No. 2094, Augrabies.

Our Ref:



an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Natasha Higgitt
Tel: 021 462 4502
Email: nhiggitt@sahra.org.za
CaseID: 18880

Date: Thursday July 14, 2022
Page No: 3

Manager: Archaeology, Palaeontology and Meteorites Unit
South African Heritage Resources Agency

ADMIN:

Direct URL to case: <https://sahris.sahra.org.za/node/599740>
(, Ref: Unknown at this stage)

BASIC ASSESSMENT REPORT

APPENDIX E7: COMMENTS AND RESPONSE TABLE

COMMENTS ON DBAR				
Date	Comments from	Comments received	Response by	Response received
14 July 2022	SAHRA – Natasha Higgitt	The SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit does not accept the submitted heritage reports as they do not assess the activities or the location of the current proposed development. A new Heritage specialist report must be conducted as part of the EA application and must comply with section 38(3) of the National Heritage Resources Act, Act 25 of 1999 (NHRA). The HIA must include an archaeological component. The archaeological component of the HIA must be conducted by a qualified archaeologist and must comply with the SAHRA 2007 Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports (see www.asapa.co.za or www.aphp.org.za for a list of qualified archaeologists). The proposed development is located within an area of very low Palaeontological Sensitivity as per the SAHRIS Palaeo Sensitivity map. As such, no further assessment of the impact to palaeontological resources is required. Any other heritage resources as defined in section 3 of the NHRA that may be impacted, such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewsapes must also be assessed. The applicant is advised to extend the EA process in	GBE	Find included in Appendix D2 the Archaeological Assessment conducted by Lloyd Rossouw from Paleo Field Services.

BASIC ASSESSMENT REPORT

		terms of section 19(1)b of the NEMA EIA regulations in order to comply with this comment. Further comments will be issued upon receipt of the above requested reports and revised DBAR that incorporates the results of the requested heritage study. Should you have any further queries, please contact the designated official using the case number quoted above in the case header.		
		No further comments received.		

APPENDIX E8: MEETING MINUTES AND ATTENDANCE REGISTERS

None

APPENDIX F: IMPACT ASSESSMENT

Find included the summary of impacts as per the Botanical Assessment Report.

	DESIGN ALTERNATIVE 1	NO-GO ALTERNATIVE
Construction Phase		
Potential impact and risk:	Loss of Bushmanland Arid Grassland	
Nature of impact:	The clearance of indigenous vegetation will result in the loss of approximately 0.07 % (19.4 ha) of the remaining extent of Bushmanland Arid Grassland which is listed as Least Concern. Although this vegetation type is not protected, 99% of it remains intact. The loss of this vegetation within the site will be permanent.	Under the no-go alternative the vegetation at the site will remain intact with no change from its current state.
Extent and duration of impact:	Extent: Site specific	N/A
The consequence of impact or risk:	Low	N/A
The probability of occurrence:	Definite	N/A
The degree to which the impact may cause irreplaceable loss of resources:	Complete loss of resources within the site.	N/A
The degree to which the impact can be reversed:	Irreversible	N/A
Indirect impacts:	Negative impacts on the ecological environment and animal species.	N/A
Cumulative impact prior to mitigation:	This vegetation type is being lost within the immediate area as it is converted for farming practices. However, given that this is a small extent, the cumulative loss of this vegetation type will be low negative.	N/A
The significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
The degree to which the impact can be avoided:	Unmanageable	N/A

BASIC ASSESSMENT REPORT

The degree to which the impact can be managed:	The resource will be permanently lost	N/A
The degree to which the impact can be mitigated:	Low	N/A
Proposed mitigation:	<p>The clearing of vegetation is difficult to mitigate as it will be permanently lost. However, it is important that clearing is kept to a minimum and as such the following mitigation measures must be included in the EMPr.</p> <ul style="list-style-type: none"> • Project activities must remain within the designated footprint. • <i>Prosopsis grandiflora</i> must be cleared and project activities must not contribute to further infestation. • Vegetation that is impacted by project activities but not required during the operational phase must be rehabilitated back to its original state. • All service infrastructure must be located within the same corridor and preferably along the same corridor as the access road. 	N/A
Residual impacts:	Low negative	N/A
Cumulative impact post-mitigation:	Low negative	N/A
The significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
OPERATIONAL PHASE		
Potential impact and risk:	N/A	None
DECOMMISSIONING AND CLOSURE PHASE		
Potential impact and risk:	N/A	None

BASIC ASSESSMENT REPORT

	DESIGN ALTERNATIVE 1	NO-GO ALTERNATIVE
Construction Phase		
Potential impact and risk:	Loss of Species of Conservation Concern	
Nature of impact:	The likelihood of occurrence of SCC within the site is low and as such the loss of SCC will be negligible.	Under the no-go alternative, vegetation and thus SCC will remain intact and as such there will be no change if the project does not go ahead.
Extent and duration of impact:	Extent: Site specific	N/A
The consequence of impact or risk:	Low	N/A
The probability of occurrence:	Unlikely	N/A
The degree to which the impact may cause irreplaceable loss of resources:	Marginal Loss	N/A
The degree to which the impact can be reversed:	Partly reversible	N/A
Indirect impacts:	Indirect impacts will be low	N/A
Cumulative impact prior to mitigation:	Low	N/A
The significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
The degree to which the impact can be avoided:	Moderate	N/A
The degree to which the impact can be managed:	Moderate	N/A
The degree to which the impact can be mitigated:	Moderate	N/A

BASIC ASSESSMENT REPORT

Proposed mitigation:	<ul style="list-style-type: none"> In the event that SCC are found, permits for their removal must be applied for and these species must be translocated to a suitable nearby site. 	N/A
Residual impacts:	Low	N/A
Cumulative impact post-mitigation:	Low negative	N/A
The significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
OPERATIONAL PHASE		
Potential impact and risk:	N/A	None
DECOMMISSIONING AND CLOSURE PHASE		
Potential impact and risk:	N/A	None

BASIC ASSESSMENT REPORT

	DESIGN ALTERNATIVE 1	NO-GO ALTERNATIVE
Construction Phase		
Potential impact and risk:	Disruption of Ecosystem Function and Process	
Nature of impact:	Fragmentation is one of the most important impacts on vegetation as it creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when more and more areas are cleared, resulting in the isolation of functional ecosystems, which results in reduced biodiversity and reduced movement due to the absence of ecological corridors. The development is situated within a corridor of existing farmland and will result in further habitat fragmentation through the clearance of 19.4 ha of indigenous vegetation.	Under the no go alternative, habitat fragmentation will be limited.
Extent and duration of impact:	Extent: Local Duration: Permanent	N/A
The consequence of impact or risk:	Moderate	N/A
The probability of occurrence:	Definite	N/A
The degree to which the impact may cause irreplaceable loss of resources:	Marginal loss	N/A
The degree to which the impact can be reversed:	Irreversible	N/A
Indirect impacts:	None	N/A
Cumulative impact prior to mitigation:	Moderate. The further loss of habitat will have a cumulative effect on the remaining natural habitat in the area.	N/A
The significance rating of impact prior to	Moderate negative	N/A

BASIC ASSESSMENT REPORT

mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)		
The degree to which the impact can be avoided:	Low	N/A
The degree to which the impact can be managed:	Moderate	N/A
The degree to which the impact can be mitigated:	Moderate	N/A
Proposed mitigation:	<p>The following mitigation measures must be included in the EMPr.</p> <ul style="list-style-type: none"> • Project activities must remain within the designated footprint. • Where feasible, existing infrastructure and access roads must be used. • Service infrastructure must be located within the same corridor, preferably along the access road. 	N/A
Residual impacts:	Moderate negative	N/A
Cumulative impact post-mitigation:	Low negative	N/A
The significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Moderate negative	N/A
OPERATIONAL PHASE		
Potential impact and risk:	N/A	None

BASIC ASSESSMENT REPORT

DECOMMISSIONING AND CLOSURE PHASE		
Potential impact and risk:	N/A	None

	DESIGN ALTERNATIVE 1	NO-GO ALTERNATIVE
Construction Phase		
Potential impact and risk:	Establishment of Alien Plant Species	
Nature of impact:	Disruption of habitats and disturbance often result in the infestation of alien invasive plant species which can displace natural vegetation from natural habitat. The species <i>Prosopis glandulosa</i> , a category 1b invasive species, is already present on site. Further disturbance could lead to further infestation if not managed properly.	Under the no go alternative, establishment of alien invasive species will continue if not managed.
Extent and duration of impact:	Extent: Local Duration: Long Term	Extent: Local Duration: Long Term
The consequence of impact or risk:	Moderate	Low
The probability of occurrence:	Probable	Probable
The degree to which the impact may cause irreplaceable loss of resources:	Significant Loss	Significant Loss
The degree to which the impact can be reversed:	Fully reversible	Fully reversible
Indirect impacts:	Further spread of alien invasive species within the adjacent area.	Further spread of alien invasive species within the adjacent area.
Cumulative impact prior to mitigation:	Moderate	N/A
The significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Moderate negative	Medium negative
The degree to which the impact can be avoided:	High	High

BASIC ASSESSMENT REPORT

The degree to which the impact can be managed:	High	High
The degree to which the impact can be mitigated:	High	High
Proposed mitigation:	<ul style="list-style-type: none"> • The site must be checked regularly for the presence of alien invasive species during and immediately after construction. • Alien invasive species must be removed, preferably by mechanical means. • Areas that are impacted during the construction phase but no longer required for operation must be rehabilitated back to their natural state and monitored for the presence of alien invasive until these areas are rehabilitated. 	N/A
Residual impacts:	Low negative	N/A
Cumulative impact post-mitigation:	Low negative	N/A
The significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative	N/A
OPERATIONAL PHASE		
Potential impact and risk:	N/A	None
DECOMMISSIONING AND CLOSURE PHASE		
Potential impact and risk:	N/A	None

APPENDIX G: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)



**CONSTRUCTION AND OPERATIONAL
ENVIRONMENTAL MANAGEMENT PROGRAMME**

**ETERNAL FLAME – DEVELOPMENT OF AGRICULTURAL AREA ON KAKAMAS
SOUTH SETTLEMENT NO. 2094, NORTHERN CAPE PROVINCE**

Reference No.: To be Determined

Draft Report

August 2022



BASIC ASSESSMENT REPORT

DOCUMENT NAME:

Proposed agricultural development on Kakamas South Settlement No. 2094, Augrabies.

PROJECT NUMBER:

N/A

DATE:

August 2022

REPORT STATUS:

DRAFT REPORT

CARRIED OUT BY:

GroenbergEnviro (Pty) Ltd

COMMISSIONED BY:

Eternal Flame Investments 104 (Pty) Ltd

AUTHOR(S):

Elanie Kühn

CLIENT CONTACT DETAILS:

Director: Piet Du Plessis
P.O. Box 45, Augrabies, 8874
Email: piet@oseiland.co.za
Cell: 073 848 7650

SYNOPSIS:

Not included in this report.

PREPARED BY:

GroenbergEnviro (Pty) Ltd



Revision Status

Rev No.	Issue Date	Author	Technical Review	Report Review
0	June 2022	E. Kühn		
1	August 2022	E. Kühn		

Disclaimer

The opinions expressed in this report have been based on the information supplied to GBE by the Applicant. GBE has exercised all due care in reviewing the supplied information, with conclusions from the review being reliant on the accuracy and completeness of the supplied data.

GBE does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them.

Professional environmental opinions presented in this report apply to the site conditions and features as they existed at the time of GBE's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this report, about which GBE had no prior knowledge nor had the opportunity to evaluate.

POPIA

Regulation 42 of the Environmental Impact Assessment Regulations, 2014, as amended (EIA Regulations) provides for the opening and maintenance of a register of interested and affected parties (I&APs), by the proponent or applicant, which must contain personal information (names, contact details and addresses). It is therefore the duty of the proponent or applicant to collect the information that must be contained in the register.

Regulation 42 further requires that these registers must be submitted to the Competent Authority (CA). There is no legal requirement in the EIA Regulations that such registers must be included in the reports that are published for public consultation purposes or be made publicly available as part of the EIA process. Since the information in the registers is personal/private information, it should not be included in or attached to reports and be made available in the public domain. CAs, applicants and environmental assessment practitioners (EAPs) should take note that, if this information was previously included in reports and shared in the public domain, this now requires reconsideration in accordance with the POPIA. The Department realises that EAPs may have included some personal information in these reports when they receive and compile them. Likewise, this information may reach CAs who also now need to be sensitive about the management of this information.

Section 11(1)(a) of POPIA provides further that personal information may only be processed if the data subject consents to the processing.

The requirements of section 18.1 of POPIA requires that if personal information is collected, the responsible party must take reasonably practicable steps to ensure that the data subject is aware of, amongst other things, the information being collected, the name and address of the responsible party (in this case the EAP and applicant), the purpose for which the information is collected, whether or not the supply of the information by the data subject is voluntary or mandatory, the consequence of the failure to provide the required information,

further information such as the recipient of the information, as well as the existence of the right to object to the processing of the personal information.

EAPs should obtain express consent from commenting parties to include their names with their comments in the reports. It is therefore recommended that the EAP, when requesting comment, should also request the persons who may comment to provide consent that their names may be included with their comments in the reports. Commenting parties should also be informed that they may opt to not have their names shared, as well as an indication of the consequences of such an option being exercised, in which case only the comments will be included. This will ensure that the requirements of section 11(1)(a) of POPIA, which provides that personal information may only be processed if the data subject consents to the processing, is given effect to. Even when consent is obtained it is recommended that only the minimum details (the names) should be included in reports and the inclusion of unnecessary and excessive information should be avoided.

Contact Information

Please contact the undermentioned should you require further information.

GroenbergEnviro PTY Ltd	
Address: Choose an office Office	Wellington Klein Opperhorst PO Box 1058 Wellington 7654 Fax: +27 86 476 7139
Website	www.groenbergenviro.co.za
Contact Person	<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;">  </div> <div style="flex: 2; padding-left: 10px;"> <p>Elanie Kühn</p> <p>I have 14 years' experience in project management and report writing. I have a BSc degree and gained my Honours Degree in Environmental Management from the Northwest University in Potchefstroom. My focus in GroenbergEnviro is primarily on Environmental Impact Assessments and Water Use License Applications.</p> <p>EAPASA Registration: Pending</p> </div> </div>
Contact number	-
Cell number	+27 82 746 5627
Fax Number	+27 86 476 7139
Email	elanie@groenbergenviro.co.za

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List of Abbreviations

AQA	Air Quality Act
BSc	Bachelor of Science (Latin Baccaureus Scientiae)
CBA	Critical Biodiversity Area
dba	A-weighted decibels
DEA&DP	Department of Environmental Affairs and Development Planning
DWS	Department of Water and Sanitation
EA	Environmental authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ECO	Environmental Control Officer as per the environmental authorisation
EMPr	Environmental Management Programme
EMS	Environmental Method Statement
EO	Environmental officer as appointed by the client or contractor
FEPA	Freshwater Ecosystem Priority Area
GN	Government Notice
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
I&AP	Interested and affected party
IAIASa	International Association for Impact Assessment South Africa
IEM	Integrated Environmental Management
NEMA	National Environmental Management Act
NEM:AQA	National Environmental Management: Air Quality Act
NEM:BA	National Environmental Management: Biodiversity Act
NEMWA	National Environmental Management: Waste Act
NHRA	National Heritage Resources Act
NWA	National Water Act
RE/Engineer	Resident Engineer Overseeing the Construction Activity
RP	Responsible person
SABS	South African Bureau of Standards
SANBI	South African National Biodiversity Institute
SDP	Site Development Plan

Definitions

For the purposes of this specification the following definitions shall apply:

Alien species - Plants and animals that do not arrive naturally in an area – they are brought in by humans. Alien plants often force indigenous species out of the area. *Rooikrans* is a good example of alien species in the Cape.

Alternative – A possible course of action in place of another that would meet the same purpose and need defined by the development proposal. Alternatives considered in the Environmental Impact Assessment (EIA) process can include location and/or routing alternatives, layout alternatives, process and/or design alternatives, scheduling alternatives or input alternatives.

Aspect – Element of an organisation’s activities, products or services that can interact with the environment.

Auditing – A systematic, documented, periodic and objective evaluation of how well the environmental management programme is performing to help safeguard the environment by facilitating the management control that would include meeting regulatory requirements. Results of the audit help the organisation to improve its environmental policies and management systems.

Biodiversity – The rich variety of plants and animals that live in their own environment. Fynbos is a good example of rich biodiversity in the Cape.

Built environment – Physical surroundings created by human activity, e.g. buildings, houses, roads, bridges and harbours.

Conservation – Protecting, using and saving resources wisely, especially the biodiversity found in an area.

Construction site, working area or site – Any area within the boundaries of the property(ies) where construction is taking place.

Contamination – Polluting or making something impure.

Corrective (or remedial) action – Response required to address an environmental problem that is in conflict with the requirements of the Environmental Management Programme Report (EMPr). The need for corrective action will be determined through monitoring, audits or management review.

Degradation – The lowering of the quality of the environment through human activities, e.g. river degradation, soil degradation.

Ecology – The scientific study of the relationship between living things (animals, plants and humans) and their environment.

Ecosystem – The relationship and interaction between plants, animals and the non-living environment.

Environment – Our surroundings, including living and non-living elements, e.g. land, soil, plants, animals, air, water and humans. The environment also refers to our social and economic surroundings and our effect on our surroundings.

Environmental Impact Assessment (EIA) – An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of a proposed development. The EIA includes an evaluation of alternatives, recommendations for appropriate management actions to minimised or avoid negative impacts and to enhance positive impacts, as well as proposed monitoring measures.

Environmental Management System (EMS) – Environmental Management Systems (EMS) provide guidance on how to manage the environmental impacts of activities, products and services. They detail the organisational structure, responsibilities, practices, procedures, processes and resources for environmental management. The International Standards Organisation. (ISO) ISO14001 EMS standard has been developed by the International Standards Organisation.

Environmental policy – Statement of intent and principles in relation to overall environmental performance, providing a framework for the setting of objectives and targets.

Fynbos – Low-growing and evergreen vegetation found only in the south Western Cape. Fynbos is known for its rich biodiversity.

Habitat – The physical environment that is home to plants and animals in an area. It is where they live, feed and reproduce.

Hazardous waste – Waste, even in small amounts, that can cause damage to plants, animals, their habitat and the well-being of human beings, e.g. waste from factories, detergents, pesticides, hydrocarbons, etc.

Impact – A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment, within a defined time and space.

Indigenous species – Plants and animals that are found naturally in an area.

Infrastructure – The network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewerage.

Integrated – Mixing or combining all useful information and factors into a joint or unified whole.

Integrated Environmental Management (IEM) – Managing the environment by including environmental factors in all stages of development. This includes thinking about physical,

social, cultural and economic factors and consulting with all the people affected by the proposed developments.

Land use – The use of land for human activities, e.g. residential, commercial, industrial use.

Mitigation – Measures designed to avoid, reduce or remedy adverse impacts

Natural environment – Our physical surroundings, including plants and animals, when they are unspoiled by human activities.

No-Go area – Any area where no access is allowed.

Over utilisation – Over-using resources. This affects their future use and the environment.

Policy – A set of aims, guidelines and procedures to help make decisions and manage an organisation or structure. Policies are based on people's values and goals. See also Integrated Environment Management.

Process – A number of planned steps or stages.

Proponent and/or Developer – Entity who applies for environmental approval and is ultimately accountable for compliance to conditions stipulated in the Environmental Authorisation (EA) and requirements of the EMPr.

Recycling – Collecting, cleaning and re-using materials.

Refuse – refers to all solid waste, including construction debris (cement bags, wrapping materials), waste and surplus food, food packaging, organic waste etc.

Resources – Parts of our natural environment that we use and protect, e.g. land, forests, water, wildlife, and minerals.

Scoping Report – A report presenting the findings of the scoping phase of the EIA. This report is primarily aimed at reaching closure on the issues and alternatives to be addressed in the EIA. See also Integrated Environmental Management.

Stakeholders - A subgroup of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term includes the proponent, relevant authorities and all interested and affected parties.

Stormwater management – Strategies implemented to control the surface flow of stormwater, such that erosion, sedimentation and pollution of surface and ground water resources in the immediate and surrounding environments, are mitigated. This is specifically important during the construction and decommissioning phases of a project.

Sustainability – Being able to meet the needs of present and future resources.

Sustainable development – Development that is planned to meet the needs of present and future generations, e.g., the need for basic environmental, social and economic services. Sustainable development includes using and maintaining resources responsibly.

Waste Management – Classification, recycling, treatment and disposal of waste generated during the activities on site.

Wetlands – An area of land with water mostly at or near the surface, resulting in a waterlogged habitat containing characteristic vegetation species and soil types, e.g., vleis and swamps.

Zoning – The control of land use by only allowing specific type development in fixed areas or zones.

Requirements as stated in GN 982 Environmental Impact Assessment Regulations, 2014, Appendix 4 and corresponding section:

Requirement	Section
1. (1) An EMPr must comply with section 24N of the Act and include -	
(a) details of (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	EAP Details, page v of the document
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Introduction, page 1
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Appendix F page 61
d) a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including- (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post-closure; and (v) where relevant, operation activities;	Aims and Objectives of the EMPr, page 11 Proposed Impact Management Actions for Non-Operational Phase, page 22 Proposed Impact Management Actions for Operational Phase, page 54
e) a description and identification of impact	Proposed Impact Management Actions for

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management outcomes required for the aspects contemplated in paragraph (d);	Non-Operational Phase, page 22 Proposed Impact Management Actions for Operational Phase, page 54
(f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding the closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	Proposed Impact Management Actions for Non-Operational Phase, page 22 Proposed Impact Management Actions for Operational Phase, page 54
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Proposed Impact Management Actions for Non-Operational Phase, page 22 Proposed Impact Management Actions for Operational Phase, page 54
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Proposed Impact Management Actions for Non-Operational Phase, page 22 Proposed Impact Management Actions for Operational Phase, page 54
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Aims and Objectives of the EMPr, page 11 Compliance with Applicable Laws, page 11. Roles and Responsibilities on page 12.
(j) the time periods within which the impact management actions contemplated in	Proposed Impact Management Actions for

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paragraph (f) must be implemented;	Non-Operational Phase, page 22 Proposed Impact Management Actions for Operational Phase, page 54 Monitoring and Auditing, page 16
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Proposed Impact Management Actions for Non-Operational Phase, page 22 Proposed Impact Management Actions for Operational Phase, page 54 Monitoring and Auditing, page 16
(l) a programme for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Monitoring and Auditing, page 16
m) an environmental awareness plan describing the manner in which - (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Environmental Awareness Training, page 16
(n) any specific information that may be required by the competent authority	Environmental Authorisation, page 54

Details of EAP

Company of Environmental Assessment Practitioner (EAP):	GroenbergEnviro (Pty) Ltd	
EAP name:	Elanie Kühn	
Postal address:	P. O. Box 1058	
	Wellington	Postal code: 7654
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EAP Qualifications:	Elanie Kühn - I have 14 years' experience in project management and report writing. I have a BSc degree and gained my Honours Degree in Environmental Management from the Northwest University in Potchefstroom. My focus in GroenbergEnviro is primarily on Environmental Impact Assessments and Water Use License Applications.
EAP registrations/Associations:	Elanie Kühn – IAIAAs, EAPASA Pending

1 Introduction

1.1 Project Description

The Applicant is proposing the clearance of 19.7ha of indigenous vegetation for agricultural development on Kakamas South Settlement No. 4092. The farm is located 12km northwest of Kakamas along the R64 and is situated in the Kai! Garib Local Municipality which falls under the ZF Mgcawu District Municipality in the Northern Cape Province.

The location of the proposed site is shown in **Figure 1**.

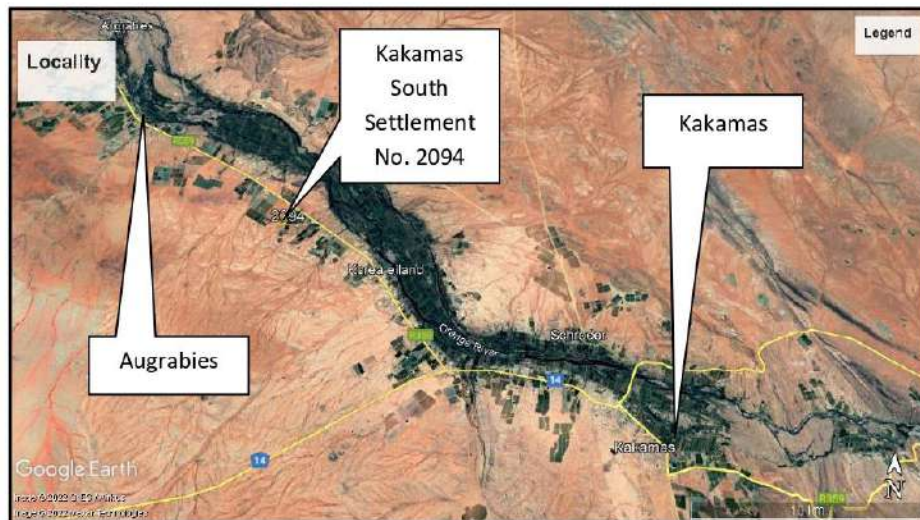


Figure 1: Locality Plan

This application is for the proposed development of 19.7ha for agricultural use on Kakamas South Settlement No. 2094, Augrabies. The development consists of the following (see **Figure 2**):

The proposal is for the develop of the property by establishing an additional 19.7ha (turquoise area) of vineyards to fully utilise the site. Note no tributaries will be crossed or impacted by the development. On the southern section of the development a small tributary run along the property boundary, but the development will not impact on this stream.



Figure 2: Site Development Layout

Roads:

Access is achieved via an existing gravel road that has access to the R64, between Augrabies and Kakamas. The internal gravel roads consist of compacted earth, with no formal stormwater management control structures in place along the tracks. The reason for this is the low rainfall characteristic of the area negates the need to provide for formal stormwater control.

Pipelines:

Water is required to irrigate the established agricultural development by means of the drip irrigation method. The water is currently pumped from the Orange River through an existing pipeline. The water is then pumped from an existing booster pump station along the existing pipelines to the agricultural development (See **Figure 3** – pink lines). The proposed agricultural development will be irrigated by the same system.



Figure 3: Pipelines

Water:

There is an existing Licence in terms of the National Water Act, 1998 (NWA) that has been issued to the applicant, Eternal Flame Investments 104 (Pty) Ltd. The WUL No. 10/D81A/A/11331 was issued on 22 December 2021. The property has an Existing Lawful use for 10ha and the additional license for 10ha, which provides the property with 20ha (300 000m³/a) water rights.

Electricity:

There is existing electricity available on the property for the proposed development.

Overall, the EMPr will aim to:

- Control the construction and operational activities in such a way that negative impacts on the physical environment, sensitive areas and surrounding residential areas are minimised or prevented.
- Ensure that mitigation and rehabilitation measures are implemented where required.

Please note that this document does not replace any other regulations, laws and bylaws that the contractor must adhere to. It specifically does not replace the regulations of the Occupational Health and Safety Act of 1993 (Act No. 85 of 1993).

Funding for the implementation of the Construction EMPr is the financial responsibility of the developer.

The project environmental issues are shown in Chapter 2 with the aim and objectives shown in Chapter 3 and compliance with applicable laws included in Chapter 4. Chapter 5 details the roles and responsibilities, while Chapter 6 discusses the monitoring and auditing, with the different schedules for auditing and monitoring shown in Chapter 7. The pre-construction and construction EMPr are shown in Chapter 8 and impact management actions included in Chapter 9. The operational management actions are included in Chapter 10.

Appendix A is earmarked for the environmental authorisation which will be included upon receipt. The tracking table is included in **Appendix B**, and the schedule of fines shown in **Appendix C**. The method statement forms are shown in **Appendix D** and **Appendix E**. The superimposed project map is shown in **Appendix F**.

2 Environmental Issues

2.1 Sensitive Environment

2.1.1 Botanical Impact Assessment (Appendix D1 of the BAR)

“The project site occurs within the Nama-Karoo Biome which is located on the central plateau of the western half of South Africa, extending into south-eastern Namibia (Mucina et al., 2006). Plant diversity in the Nama-Karoo is typically low compared to other biomes in South Africa and there are no centres of endemism and limited local endemic plant species. Dominant species in this biome typically include species from families such as Asteraceae, Fabaceae and Poaceae.

- *According to the National Vegetation Map (2018), which was compiled to provide a greater level of detail for floristically based vegetation units in South Africa, the project site occurs within Bushmanland Arid Grassland (Figure 4).*
- *Bushmanland Arid Grassland occurs in the Northern Cape Province between Aggenys and Prieska and is characterised by extensive and irregular plains on slightly sloping plateaus. It is typically sparsely vegetated by grasses such as Stipagrostis interspersed with low shrubs such as Salsola.*
- *This vegetation type is listed on the Red List of Terrestrial Ecosystems as Least Concern and has a conservation target of 21%. It is currently listed as not protected, however over 99% of the remaining natural extent is intact.”*

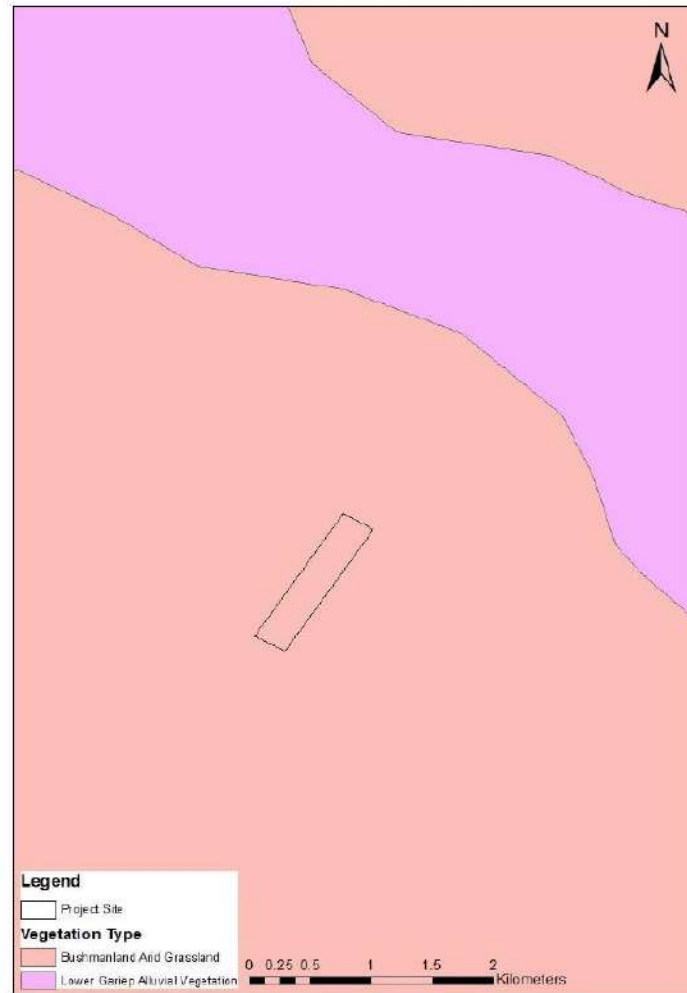


Figure 4: National Vegetation Map showing all three alternatives as occurring within Namaqualand Spinescent Grassland

“According to the Northern Cape CBA Map, the majority of the project site falls within a CBA 2 and a small portion in the southern section of the project area falls within an ESA (Figure 5).

The reason layer for the spatial data set was consulted to determine the reason given for the site being listed as a CBA2. The reasons for the planning unit in which the project site falls are listed in Table 5.1 and comment provided on the specific conditions within the site. Of the five reasons for the planning unit being listed as a CBA, only two are

directly applicable to the project site itself; (1) the project site falls within Bushman Arid Grassland and (2) the project site falls within a NPAES focus area.

It should be noted that Bushman Arid Grassland is listed as Least Concern and the RLE (2021) indicates that 99% of this vegetation type remains intact suggesting that the conservation target for this vegetation type can still be met elsewhere. The loss of this vegetation type at the project site is equivalent to 0.07% (19.7ha) of the remaining extent.

Although the site occurs within a NPAES focus area, the land on either side of the property has been transformed for agriculture. The current Google Earth imagery is dated 2020 and does not reflect the changes within the general area. The field survey confirmed that the properties immediately to the east and west of the site have been planted with orchards. Given its location within an agricultural farming area, it is unlikely this parcel of land will be the preferred choice as a future protected area.

Based on the above it is unlikely the overall ecological functioning of the CBA would be compromised by the development.”



Figure 5: The project site in relation to identified CBAs and ESAs

"Conclusions:

The project site is located within Bushmanland Arid Grassland which is listed as Least Concern with 99% of its extent intact. If the project proceeds it will result in the loss of 0.07% of the remaining extent of this vegetation type.

Site Ecological Importance (SEI) for the site was determined to be moderate since there are no confirmed or highly likely Species of Conservation Concern (SCC) that could occur within the site and receptor resilience is moderate.

Four impacts were identified for the project, three of which are of low significance after mitigation measures have been implemented and one of which is moderate significance."

2.1.2 Heritage Impact Assessment (Appendix D2 of the BAR)

The following is a summary taken from a baseline study conducted by Lloyd Rossouw from Paleo Field Services. This Archaeological Assessment (**Appendix D2**) was dated August 2022, with the following conclusion and recommendations:

"FIELD ASSESSMENT

The proposed footprint lies on undulating terrain where metasedimentary rocks are capped by a thin veneer of bedrock – derived, gritty to gravelly topsoils on the high ground, with sandy pediments and sandy dry stream beds predominating low-lying drainage lines to the south (Fig. 8). An isolated piece of a polished grindstone (on basalt) was recorded (Fig. 9), but there is no evidence of in situ Stone Age archaeological material, either as capped assemblages or distributed as intact surface scatters on the landscape within the boundaries of the proposed development footprint. A very low density (< 1 / 200 m) stone tool component included an assortment ofdebitage and crude flakes on crystalline quartz (Fig. 10). There are no indications of rock art (fineline, scraped or pecked engravings), stonewalled structures or historically significant buildings older than 60 years, or aboveground evidence of graves or cairns within the boundary of the proposed footprint.

IMPACT STATEMENT AND RECOMMENDATION

The proposed development footprint is underlain by paleontologically insignificant metamorphic rocks and geologically recent superficial sediments (Kalahari Group sand & sandy soils). The field assessment provided no aboveground evidence of prehistoric structures, buildings older than 60 years, or material of cultural significance or in situ archaeological sites within the study area. Given the nature of the underlying geology, potential impact on rock engraving sites within the study area is considered unlikely. The proposed development footprint and associated access road are not considered paleontologically or archaeologically vulnerable and is assigned a site rating of

Generally Protected C (Table 1). It is advised that the proposed project can proceed with no further palaeontological or archaeological assessments required.”

2.1.3 Palaeontology Impact Assessment (Appendix D3 of the BAR)

The following is a summary taken from a baseline study conducted for the directly adjacent site, with the same vegetation elevations etc. This Palaeontology Assessment (Appendix D3) was dated December 2017, with the following conclusion and recommendations:

“Conclusions & recommendations:

In view of the negligible palaeontological sensitivity of the ancient Precambrian bedrocks as well as the low sensitivity of the geologically recent superficial sediments along the Orange River in the Kakamas – Augrabies region, the proposed agricultural development – including new citrus orchards and buried pipelines - is not considered to pose a significant threat to palaeontological heritage. Although diamond prospecting has occurred in the Renosterkop region, substantial, potentially fossiliferous older alluvial deposits are not mapped here.

Pending any significant new fossil discoveries in the area, no further specialist studies or mitigation are considered necessary for this agricultural project. All South African fossil heritage is protected by the National Heritage Resources Act, 1999. Should substantial fossil remain - such as vertebrate bones and teeth, or petrified logs of fossil wood - be encountered at surface or exposed during construction, the ECO should safeguard these, preferably in situ. They should then alert the relevant provincial heritage management authority as soon as possible - i.e., SAHRA (Contact details: Dr Ragna Redelstorff, SAHRA, P.O. Box 4637, Cape Town 8000. Tel: 021 202 8651. Email: rredelstorff@sahra.org.za). This is to ensure that appropriate action (i.e., recording, sampling or collection of fossils, recording of relevant geological data) can be taken by a professional palaeontologist at the developer’s expense. These mitigation recommendations should be incorporated into the Environmental Management Programme (EMPr) for this agricultural project.

Please note that:

- *All South African fossil heritage is protected by law (South African Heritage Resources Act, 1999) and fossils cannot be collected, damaged or disturbed without a permit from SAHRA or the relevant Provincial Heritage Resources Agency.*
- *The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g. museum or university collection).*

-
- *All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g. data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013).*

3 Aims and Objectives of the EMPr

The aim of the EMPr is to:

- Identify those construction activities identified for the proposed project that may have a negative impact on the environment;
- Outline the mitigation measures that will need to be taken and the steps necessary for their implementation; and
- Describe the reporting system to be undertaken during construction.

The objectives of the EMPr are to:

- Identify a range of mitigation measures to reduce and mitigate the potential adverse impacts to minimal or insignificant levels;
- Provide a pro-active and practical working mechanism to enable the measurement and monitoring of environmental performance on site; and,
- Ensure that the environmental specifications are identified, effective and contractually binding to ensure compliance on site.

4 Compliance with Applicable Laws

The supreme law of the land is the Constitution of the Republic of South Africa, which states: *“Every person shall have the right to an environment which is not detrimental to his or her health or well-being.”* Laws applicable to the protection of the environment in terms of Environmental Management (and relating to construction activities) include, but are not restricted to:

- National Environmental Management Act (NEMA), No. 107 of 1998, as amended;
- National Environmental Management: Air Quality Act (NEM:AQA), No. 39 of 2004;
- National Environmental Management: Biodiversity Act (NEM:BA), No. 10 of 2004;
- National Environmental Management: Waste Act (NEMWA), No. 59 of 2008;
- National Heritage Resources Act (NHRA), No. 25 of 1999;
- National Water Act (NWA), No. 36 of 1998 and amendments;
- National Veld and Forest Fire Act, No. 101 of 1998;
- Occupational Health and Safety Act, No. 85 of 1993;
- City of Cape Town: By-Law Relating to Stormwater Management, Approved by Council : 30 August 2005;
- City of Cape Town: Management of Urban Stormwater Impacts Policy, Approved By Council : 27 May 2009
- City of Cape Town: Floodplain and River Corridor Management Policy, Approved by council: 27 May 2009

Of particular importance is Section 28 (1) of the NEMA, which places an obligation on all individuals to take due care of the environment and to ensure remedial action is instituted to minimise and mitigate environmental impact.

The EMPr forms part of the contract documentation and is thus a legally binding document. In terms of this Act, an individual responsible for environmental damage to both the environment and human health must pay for the costs, and for the preventative measures to reduce or prevent additional pollution and/or environmental damage from occurring. This is referred to as the Polluter Pays Principle.

5 Roles and Responsibilities

The key role players during the proposed work are anticipated to be as follows:

- Applicant (Holder of the EA) – Eternal Flame Investments 104 (Pty) Ltd;
- Responsible Person (RP), who will oversee the activities of the contractors on site;
- Environmental Control Officer (ECO);
- Contractor responsible for the construction and maintenance activities; and
- Any sub-contractors hired by the contractor.

The anticipated management structure (organogram) is presented in **Figure 6** below and shows the proposed lines of communication for construction and maintenance activities. The applicant retains overall responsibility for construction and maintenance and the implementation of the EMPr.

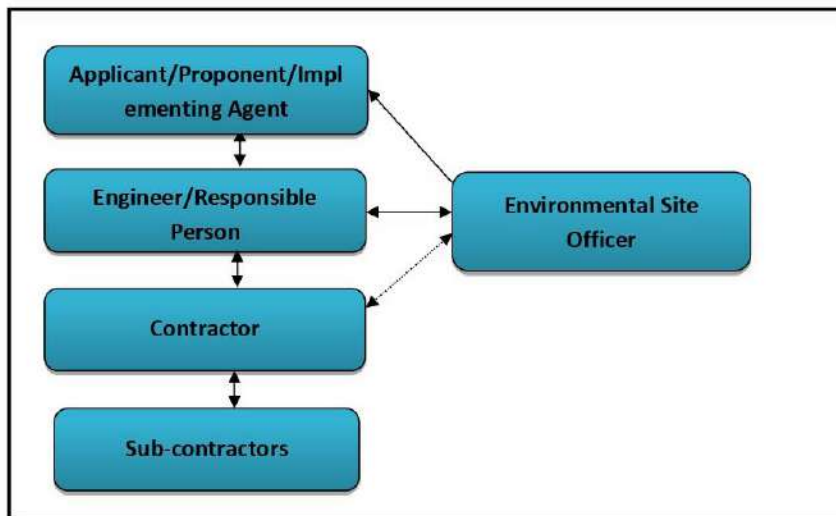


Figure 6: Management reporting structure

Key roles and responsibilities with respect to the implementation of an EMPr are outlined below.

5.1 Applicant – Eternal Flame Investments 104 (Pty) Ltd

The applicant has overall responsibility for management of activities. In terms of environmental management, the applicant/proponent will:

- Appoint suitably experienced engineers, if required, who will be responsible for the overall management of activities on site;
- Identify any activities not covered by the scope of this EMPr, and determine the need for, and where required, obtain relevant authorisations;
- Ensure that the engineers are aware of the requirements of the EMPr, implement the EMPr and monitor the contractor's activities on site;
- Ensure that the contractor is aware of and contractually bound to the provisions of this EMPr by including the relevant environmental management requirements in tender and contract documents, as appropriate;
- Appoint a suitably qualified and experienced ECO to oversee environmental management of the required works;
- Ensure that the contractor remedies environmental problems timeously and to the satisfaction of the engineer and authorities (where necessary); and
- Notify the authorities, should problems not be remedied timeously.

5.2 Responsible Person

The applicant will appoint suitably qualified engineers (if necessary), who in turn will designate a Responsible Person (RP) to oversee activities of the contractor. This role will be fulfilled either by the Resident Engineer (RE) or a suitably qualified representative of the applicant, if applicable. The RP shall:

- Ensure that the contractor is duly informed of the EMPr and associated responsibilities and implications of this EMPr prior to commencement of construction and maintenance activities;
- Identify the need for, and request/provide method statements (MS) for future maintenance and repair works;
- Monitor the contractor's activities with regard to the requirements outlined in the EMPr;
- Report any environmental emergencies/concerns to the applicant immediately; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the relevant authorities.

5.3 Environmental Control Officer

The ECO shall be a suitably qualified/experienced environmental professional or professional firm appointed by the applicant/proponent (developer) for the duration of repair or maintenance works. The ECO shall:

- Request method statements (MS) from the contractor prior to the start of relevant activities, where required, and approve these (as appropriate) without causing undue delay;
- Monitor, review and verify compliance with the EMPr by the main contractor, as well as any sub-contractors and specialist contractors;
- Identify areas of non-compliance and recommend corrective actions (measures) to rectify them in consultation with the applicant, the RP and the contractor, as required;
- Compile a checklist highlighting areas of non-compliance following each ECO inspection;
- Ensure follow-up and resolution of all non-compliances;
- Provide feedback for continual improvement in environmental performance;
- Respond to changes in project implementation or unanticipated activities which are not addressed and which could potentially have environmental impacts, and advise the applicant, the RP and contractor as required.

5.4 Contractor

The contractor will be required to appoint or designate a Contractor's Environmental Representative (CER) who will assume responsibility for the contractor's environmental management requirements on site and be the point of contact between the contractor, the ECO and the RP. The CER shall:

- Ensure that all activities on site are undertaken in accordance with the CEMPr and OEMPr and/or an approved MS;
- Monitor all sub-contractor(s)' activities with regard to the requirements outlined in the EMPr;
- Ensure that all employees and sub-contractors comply with the EMPr;
- Immediately notify the RP and ECO of any non-compliance with the EMPr, or any other issues of environmental concern; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the RP and ECO.

The contractors have a duty to demonstrate respect and care for the environment. The contractors will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the EMPr, environmental regulations and relevant legislation.

5.5 Sub-contractors

All sub-contractors will be required to:

- Ensure that all employees are duly informed of the EMPr and associated responsibilities and implications of this EMPr prior to maintenance activities;

-
- Ensure that all activities on site are undertaken in accordance with the EMPr;
 - Monitor employees' activities with regard to the requirements outlined in the EMPr;
 - Immediately notify the RP and ECO of any non-compliance with the EMPr, or any other issues of environmental concern; and
 - Ensure that non-compliance is remedied timeously and to the satisfaction of the RP and ECO.

The sub-contractor(s) has/have a duty to demonstrate respect and care for the environment. The sub-contractors will be responsible for the cost of rehabilitation of any environmental damage that may result from his/their presence on site, and thus his/their non-compliance with the EMPr, environmental regulations and relevant legislation.

6 Monitoring and Auditing

6.1 Monitoring

The holder of the EA must appoint a suitably experienced Environmental Control Officer (ECO), for the duration of the construction phase of implementation.

The ECO must –

- be appointed prior to commencement of any vegetation clearing or construction activities commencing;
- ensure compliance with the EMPr and the conditions contained herein;
- keep a record of all activities on site, problems identified, transgressions noted, and task schedule of tasks undertaken by the ECO; and
- Remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.

An ECO will implement and monitor environmental control of the development. The ECO duties will be as follows:

- Ensure implementation and monitoring of the EMPr;
- Make changes to the EMPr as required;
- Visit the site prior to the commencement of activities to ensure that the correct method statements are prepared. The site must be visited within ten (10) days after the commencement of activities, and once a month thereafter;
- Prepare ECO reports as required by mitigation measures or by the EA;
- Maintain a photographic record of the work and environmental issues;
- ECO visits must take place 1) prior to construction and site clearing, 2) monthly after construction has commenced;
- Site visit reports must be compiled and include photographic evidence and recommendations. The report must be made available to the contractor, applicant and applicable authorities;
- An audit report must be compiled within six (6) months after completion of construction.

6.1.1 Documentation

A copy of the Environmental Authorisation, EMPr, any independent assessments of financial provision for rehabilitation and environmental liability, closure plans, audit reports and compliance monitoring reports must be kept at the site of the authorised activities.

Access to the site must be granted, and the environmental reports mentioned above must be produced to any authorised official representing the competent authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein.

The ECO will maintain a file containing the following:

- Copy of the EMPr;
- Methodology statement(s) by the contractor(s);
- Site establishment plan;
- Letter from the contractor(s) indicating that he has familiarised himself with the contents of the EMPr;
- Letter from the contractor(s) on environmental awareness training;

The applicant must ensure that complaints received are documented.

The contractor shall maintain a copy of the following documents on-site:

- Operational Plan;
- Emergency response and remedial action plan;
- Environmental Management Programme (EMPr) and other documents related to the operation in the file.
- Tracking table (see Appendix B).

6.2 Auditing

The holder must, for the period during which the environmental authorisation and EMPr remain valid-

- Ensure that compliance with the conditions of the environmental authorisation and the EMPr is audited.
- The auditing report will address the requirements of the Environmental Impact Assessment Regulations, 2014 (as amended).
- During the non-operational phase (construction phase), the holder must undertake an annual environmental audit. This shall not exceed intervals of five (5) years. The holder must submit these audit reports to the competent authority.
- A final audit report must be compiled within six (6) months after completion of construction and must be submitted to the competent authority within sixty (60) days of completion of construction;
- The holder must, within 7 days of the submission of the environmental audit report to the competent authority, notify all registered I&APs of the submission and make the report available to anyone on request and where the holder has such a facility, be placed on a publicly accessible website.

- The environmental audit report must be prepared and submitted to the competent authority, by an independent person with the relevant environmental auditing expertise;
- The Environmental Audit Report, must-
 - Provide verifiable findings, in a structured and systematic manner, on
 - The level of compliance with the conditions of the environmental authorisation and the EMPr and whether this is sufficient or not; and
 - The ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.
 - identify and assess any new impacts and risks as a result of undertaking the activity;
 - evaluate the effectiveness of the EMPr;
 - identify shortcomings in the EMPr;
 - identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;
 - indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;
 - indicate the date on which the operational phase was commenced with and the progress of the rehabilitation;
 - include a photographic record of the site applicable to the audit; and
 - be informed by the ECO reports (where applicable to the construction phase).

7 Environmental Monitoring and Auditing Schedule

Environmental auditing and monitoring schedule			
Non-operational phases			
Activity	Frequency	Record & duties to be fulfilled	Report
ECO site visits	Once Monthly	<ul style="list-style-type: none"> • Ensure compliance with the EMPr and the conditions contained herein; • Keep a record of all activities on site; problems identified; transgressions noted, and a task schedule of tasks undertaken by the ECO; • Remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation. • ECO must submit a hard copy of the monthly ECO Reports to the competent authority, if required by the competent authority. 	Site visit report to the holder of EA as well as other conditions that might be prescribed in the EA.
Final construction phase Environmental Audit Report	Within sixty (60) days of completion of construction	Ensure the compliance with the conditions of the environmental authorisation and The EMPr.	Auditing
Operational phases			
Environmental audit(s)	The frequency of the auditing of compliance with the conditions of the environmental authorisation and of compliance with the	<ul style="list-style-type: none"> • The holder must ensure that environmental audit(s) are performed when required; • The Report must comply with the EA. 	<ul style="list-style-type: none"> • Submit these Environmental Audit Report(s) to the competent authority, • The environmental audit report must be prepared and submitted to the competent authority, by an independent person with the relevant environmental auditing expertise; • The holder must, within seven (7) days of the submission

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	EMPR shall not exceed intervals of five (5) years		of the environmental audit report to the competent authority, notify all registered I&APs of the submission and make the report available to anyone on request and, where the holder has such a facility, be placed on a publicly accessible website
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8 Non-Operational Management Programme – Pre-Construction and Construction

Please note that the EMPr must be included in any tender documentation and all sub-contractors on the site must be made aware of this EMPr and they must at all times adhere to the procedures specified.

Only those sections applicable to the specific construction activity are relevant and to be implemented.

8.1 Specific Conditions as Stated in EA

To be included after issue of EA.

8.2 Contractual Obligations

- The contractor shall acknowledge receipt of copies of the EMPr and confirm in writing that he has familiarised himself with the contents thereof;
- The contractor shall comply with all environmental obligations imposed by the RE/ECO/EO.
- The contractor shall co-operate fully with the RE/ECO/EO and use his best endeavours to ensure that the objectives of the EMPr are fulfilled in the course of the contractor's execution of the works or the relevant part thereof.
- The contractor shall erect an information board containing background information for the construction activity and listing the relevant contact details for complaint.
- The contractor must ensure that all workers are given environmental awareness training on the requirements of the EMPr. This must form part of the contractor's contract agreement. The RE/ECO/EO must be informed in writing of implementation.
- The working hours will be from 7:00 am to 18:00 pm Monday to Saturday. No work will be allowed on Sundays or public holidays.
- Deliveries will only be allowed between 8:00 am and 17:00 pm.
- Preference must be given to local labour.
- Workers (except security guards) shall not be housed on-site.

8.3 Penalties

Penalties must be instituted for non-compliance. The penalty is over and above the cost of rectifying the problem and/or damage. Penalties vary on a sliding scale from R 500 to R 5 000 for non-serious to serious issues as determined by the RE/ECO/EO.

These penalties must be paid into a separate account to be administered by the developer. The RE/ECO/EO will decide how the penalties, if any, are to be spent. Refer to **Appendix C** for the Schedule of Fines.

9 Proposed Impact Management Actions for Non-Operational Phase

The environmental management and mitigation measures that must be implemented during all construction activities, as well as responsibilities and timelines for the implementation of these measures are presented in the table below. The monitoring there-of is discussed in Chapter 6.1 - Monitoring, page 16.

Highlighted Method Statement sections applicable for this application:

Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
Method Statements	<p>Method Statements must be compiled by the contractor(s) before any construction or activity shall commence. The statement must include a site establishment plan indicating all relevant areas. The ECO must approve the MS. Refer to Appendix E.</p> <p>The ECO must identify method statements that will be required as part of the project implementation. The list provided below is generic (to ensure any possible occurrence is covered), and only that which is applicable to the proposed development will be required, as per the recommendation of the ECO.</p> <p>Access routes</p> <ul style="list-style-type: none"> • Upgrading and construction of access routes. • Rehabilitation of temporary access routes. • Location of proposed access routes. <p>Alien plant clearing</p> <ul style="list-style-type: none"> • Method of control to be used for the eradication or control of alien vegetation. <p>Blasting</p> <ul style="list-style-type: none"> • Details of all methods and logistics associated with blasting. <p>Bunding</p>	Holder of EA or representative	Before commencement of activities	<p>Relevant Method Statements should be identified by the ECO and communicated with the contractor.</p> <p>To ensure that the contractor prepare the Method Statements in line with the EMP and submit them to the ECO before construction commences.</p>

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> • Method of bunding for the static plant. <p>Camp Establishment</p> <ul style="list-style-type: none"> • Layout and preparation of the construction camp. • Method of installing fences required for No Go areas, working areas and construction camp areas. • Preparation of the working area. <p>Cement /concrete batching</p> <ul style="list-style-type: none"> • Location, layout and preparation of cement/concrete batching facilities including the methods employed for the mixing of concrete including the management of run-off water from such areas. <p>Contaminated water</p> <ul style="list-style-type: none"> • The contaminated water management plan, including the containment of run-off and polluted water. <p>Demolition</p> <ul style="list-style-type: none"> • The proposed method(s) of demolition. <p>Drilling and jack hammering</p> <ul style="list-style-type: none"> • Method of drill coring with water or coolant lubricants. • Methods to prevent pollution during drilling operations. <p>Dust</p> <ul style="list-style-type: none"> • Dust control. <p>Earthworks</p>			

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> • Method for the control of erosion during bulk earthwork operations. • Method of undertaking earthworks, including hand excavation and spoil management. <p>Emergency</p> <ul style="list-style-type: none"> • Emergency construction method statements. <p>Environmental awareness course</p> <ul style="list-style-type: none"> • Logistics for the environmental awareness course for all the contractor's employees. • Logistics for the environmental awareness course for the contractor's management staff. <p>Erosion Control</p> <ul style="list-style-type: none"> • Method of erosion control, including erosion of spoil material. <p>Exposed aggregate finishes</p> <ul style="list-style-type: none"> • The method of control, treatment and disposal with respect to exposed aggregate finishes. <p>Fire, hazardous and poisonous substances</p> <ul style="list-style-type: none"> • Handling and storage of hazardous wastes. • Emergency spillage procedures and compounds to be used. • Emergency procedures for fire. • Use of herbicides, pesticides and other poisonous substances. • Methods for the disposal of hazardous building materials including asbestos, fibre claddings, refrigerants and coolants. 			

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>Fuels and fuel spills</p> <ul style="list-style-type: none"> • Methods of refuelling vehicles. • Details of methods for fuel spills and clean-up operations. • Refuelling of construction vehicles in high flow areas (or in the 1-in-50-year floodplain). • Method of refuelling dredger during dredging operations. • Piling, jacking and thrust boring • The method of piling operation (e.g. driven or bored) or in situ casting or pre-cast pile structures. <p>Rehabilitation</p> <ul style="list-style-type: none"> • Rehabilitation of disturbed areas and revegetation after construction is complete. • Rehabilitation of street or hardened surfaces after construction is complete. • Retaining walls and gabions. • Method for construction and installation of retaining walls/ gabion baskets. <p>Riverine corridors</p> <ul style="list-style-type: none"> • Method for all construction activities within the 1-in-50-year floodplain. <p>Rock breaking</p> <ul style="list-style-type: none"> • Details of chemical applications to be used for rock breaking. <p>Settlement ponds and sumps</p> <ul style="list-style-type: none"> • Layout and preparation of settlement ponds and sumps. 			

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>Solid waste management</p> <ul style="list-style-type: none"> • Solid waste control and removal of waste from the site. • Methods for the disposal of vegetation cuttings, building materials or rubble generated by construction. <p>Sources of materials</p> <ul style="list-style-type: none"> • Details of materials imported to the site (where applicable). • Sensitive environments • Proposed construction methods within any sensitive environments. These can include, but are not limited to, wetlands, dams and rivers. <p>Traffic</p> <ul style="list-style-type: none"> • Traffic safety measure for entry exit onto/off public roads. • Traffic control when crossing roads or pedestrian routes with construction activities. <p>Vegetation clearing</p> <ul style="list-style-type: none"> • Method of vegetation clearing during site establishment. <p>Wash areas</p> <ul style="list-style-type: none"> • Location, layout, preparation and operation of all wash areas, including vehicle wash, workshop washing and paint washing and clearing. 			
Environmental awareness	<ul style="list-style-type: none"> • All the contractor's employees, sub-contractors' employees and any suppliers' employees that spend more than 1 day a week or four days in a month on site, must attend an Environmental 	Holder of EA or representative	Within one week of the commencement	Limiting environmental degradation or pollution as a

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
training	<p>Awareness Training course presented by the contractor – the first of which shall be held within one week of the commencement date. Subsequent courses shall be held as and when required.</p> <ul style="list-style-type: none"> The contractor shall supply the ECO with a monthly report indicating the number of employees that will be present on site during the following month and any changes in this number that may occur during the month. The contractor shall submit a Method Statement detailing the logistics of the environmental awareness training course. 		<p>date. Subsequent courses shall be held as and when required.</p>	<p>result of ignorance or accidents.</p>
Demarcation and protection	<ul style="list-style-type: none"> The development footprint must be kept to an absolute minimum. The property must be fenced prior to the start of construction to determine the construction/work area. Proper access control must be implemented to ensure that only authorised people obtain access to the site. No-Go areas must be clearly demarcated prior to commencing of demolition and/or earthworks/building operations. The construction area must be demarcated by an appropriate method (drop lines, danger tape, fence, pegs etc) as agreed between the contractor and ECO. The contractor must ensure that fencing and/or demarcations are maintained for the duration of the project. No work outside of the property boundary will be allowed. Special features shall be marked on a site layout plan prior to any works commencing on site. These areas shall be designated No Go areas. 	Holder of EA or representative	<p>Before construction commences and maintained throughout.</p>	<ul style="list-style-type: none"> Ensure there are no illegal entries. Prevent entry into no-go areas and thereby environmental degradation. Ensure there is no degradation of the natural environment. Ensure no unauthorised vegetation cleared or disturbed. Containment of footprint.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> Outcrops, rock faces, trees and natural vegetation or any other natural or special features inside and outside the site shall not be defaced, painted for benchmarks for the survey or any other purposes, or otherwise damaged in any way without the prior approval of the ECO. These features shall be demarcated as No Go areas and shall be fenced or similarly protected, as determined by the ECO. 			
Aesthetics	<p>The aesthetics measures indicated below must be implemented as required by the specific site and situated and as agreed with the ECO.</p> <ul style="list-style-type: none"> The contractor shall be required to visually screen the site. Visual screening shall be aesthetically pleasing and shall be erected by the contractor prior to commencing any activities. Visual screening shall be maintained by the contractor for the duration of the contract. Visual screening must be of the following types: <ul style="list-style-type: none"> Shade cloth; Hessian; Berms. 	Holder of EA or representative	Before construction commences and maintained throughout.	<ul style="list-style-type: none"> Ensuring that the construction site is aesthetically pleasing. Ensuring reduced possible visual impact. Limiting possibility of complaints from I&APs.
Camp	<ul style="list-style-type: none"> The contractor's camp, offices, and storage facilities shall not be located within an environmentally sensitive area or the No-Go areas. The camp's position must be approved by ECO. The camp must be fenced as agreed with the ECO unless it is situated inside an existing building on the property. Water from the kitchens, showers, sinks, etc., shall be discharged in a manner approved by the ECO. 	Holder of EA or representative	Before construction commences and maintained throughout.	<ul style="list-style-type: none"> Ensuring that all construction infrastructure etc. is located within a demarcated camp, within which possible impacts on the environment can be mitigated. Ensuring that the site is not

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> • The contractor must ensure that all temporary structures, equipment, materials, and facilities used or created on-site during the construction phase are removed and appropriately disposed of. • No littering by the contractor’s employees shall be tolerated under any circumstances, anywhere in the demarcated area for construction. <p>Site of the construction camp</p> <ul style="list-style-type: none"> • The choice of site for the contractor’s camp requires the ECO’s permission and must consider the location of local residents and/or ecologically sensitive areas, including flood zones and slip/unstable zones. A site plan must be submitted to the ECO and project manager for approval. • The size of the construction camp must be minimised (especially where natural vegetation or grassland has had to be cleared for its construction). • The contractor must attend to drainage of the campsite to avoid standing water and/or sheet erosion. • Suitable control measures over the contractor’s yard, plant and material storage to mitigate any visual impact of the construction activity must be implemented. <p>Storage of materials (including hazardous materials) at site camp.</p> <ul style="list-style-type: none"> • The choice of location for storage areas must consider prevailing winds, distances to water bodies, general on-site topography and water erosion potential of the soil. • Storage areas must be designated, demarcated and fenced. 			<p>located close to any environmentally sensitive areas.</p> <ul style="list-style-type: none"> • Preventing water or soil pollution. • Ensuring that there does not occur any environmental pollution or littering. • Creating a neat workplace area.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> • Storage areas must be secure to minimise the risk of crime. They must also be safe from access by unauthorised persons. • Fire prevention facilities must be present at all storage facilities. • Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials used must be provided to prevent the migration of spillage into the ground and groundwater around the temporary storage area(s). These pollution prevention measures for storage must include a bund wall high enough to contain at least 150% of any stored volume, and this must be sited away from drainage lines with the approval of the ECO. • These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of stormwater from surrounding areas in order to ensure that accidental spillage does not pollute local soil or water resources. • Clear signage must be placed at all storage areas containing hazardous substances/materials. Staff dealing with these materials/substances must be aware of their potential impacts and follow the appropriate safety measures. • A waste disposal contractor must be employed to remove waste oil. These wastes must only be disposed of at licensed landfill sites designed to handle hazardous wastes. A disposal certificate must be obtained from the waste disposal contractor. • The contractor must ensure that its staff are made aware of the health risks associated with any hazardous substances used, have been provided with the appropriate protective clothing/equipment in case of spillages or accidents, and have 			

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>received the necessary training.</p> <ul style="list-style-type: none"> All excess cement and concrete mixes are to be contained on the construction site prior to the disposal off-site. Any spillage that may occur, shall be investigated and immediate action must be taken. This must also be reported to the ECO and DEA&DP, as well as local authorities if so required. <p>Drainage of the construction camp</p> <ul style="list-style-type: none"> Run-off from the campsite must not discharge into neighbours' properties. <p>End of construction</p> <ul style="list-style-type: none"> Once construction has been completed on site and all excess material has been removed, the storage area shall be rehabilitated. If the area was badly damaged, reseeding shall be done. Such areas shall be rehabilitated to their natural state. Any spilled concrete shall be removed, and soil compacted during construction shall be ripped, levelled and re-vegetated. 			
Sensitive environments and buffer area	<p>Rocks and vegetation debris should not be dumped onto adjacent natural vegetation.</p> <p>Any animals encountered during the land clearing activities should be left unharmed and relocated to adjacent natural areas where appropriate (e.g., tortoises).</p> <p>Botanical Specialist recommendations:</p> <ul style="list-style-type: none"> <i>The following mitigation measures must be included in the</i> 	Holder of EA or representative	Before construction commences and maintained throughout, if and when required.	<ul style="list-style-type: none"> Preventing destruction, degradation or pollution of sensitive environments. Limiting the impact on the indigenous fauna and flora other than outlined and approved.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p><i>EMPr.</i></p> <ul style="list-style-type: none"> • <i>Project activities must remain within the designated footprint.</i> • <i>Where feasible, existing infrastructure and access roads must be used.</i> • <i>Service infrastructure must be located within the same corridor, preferably along the access road.</i> • <i>The site must be checked regularly for the presence of alien invasive species during and immediately after construction.</i> • <i>Alien invasive species must be removed, preferably by mechanical means.</i> • <i>Areas that are impacted during the construction phase but no longer required for operation must be rehabilitated back to their natural state and monitored for the presence of alien invasive until these areas are rehabilitated.</i> • <i>Project activities must remain within the designated footprint.</i> • <i>Prosopsis grandiflora must be cleared, and project activities must not contribute to further infestation.</i> • <i>Vegetation that is impacted by project activities but not required during the operational phase must be rehabilitated back to its original state.</i> • <i>All service infrastructure must be located within the same corridor and preferably along the same corridor as the access road.</i> • <i>In the event that SCC are found, permits for their removal</i> 			

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<i>must be applied for and these species must be translocated to a suitable nearby site.</i>			
Surface and groundwater pollution	<ul style="list-style-type: none"> The contractor shall take all reasonable steps to prevent pollution of surface and groundwater as a result of their activities. Such pollution could result from release (accidental or otherwise) of chemicals, oils, fuels, paint, and sewage, water from excavations, construction water, water carrying soil particles or waste products. On completion, stormwater catch pits must be closed with geotextile (bidim) or similar material to prevent sand or other contaminants from entering the system. The contractor shall provide water and/or washing facilities at the construction camp for personnel. In the event of any pollution entering any water body, the contractor shall inform the ECO immediately. The contractor will be responsible for any clean-up costs involved, should pollution, erosion or sedimentation have taken place. 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> Preventing degradation or deterioration of ground and surface water due to construction activities. Preventing siltation into the water resource.
Air pollution	<p>Air Pollution</p> <p>During the construction phase, and due to the nature of the project, a small amount of smoke (from machines) and dust could be generated. Dust pollution may have an impact on operational workers.</p> <ul style="list-style-type: none"> In order to minimise the effect of dust pollution, the construction area must be kept wet as far as possible, and the workers must wear the necessary safety clothing. 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> Ensuring dust associated with construction activities are mitigated to limit air pollution. Manage and prevent any degradation to the natural environment.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> The applicant is referred to Section 19 of the National Water Act No. 36 of 1998 with regard to the prevention of, and remedies for, the effects of pollution. In terms of this section of the Act, the person who owns, controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources and property. 			
Noise control	<ul style="list-style-type: none"> Working hours will be restricted to normal daily working hours. The use of heavy vehicle machinery and construction activities associated with high-level noise will be limited to between 07:00 and 18:00 from Mondays to Saturdays, particularly to where residential areas or sensitive institutions are situated close to the site. All noise and sounds generated by plant or machinery must adhere to South African Bureau of Standards (SABS) 0103 specifications for the maximum permissible noise levels for residential areas. All plant and machinery to be fitted with adequate silencers. No sound amplification equipment such as sirens, loud hailers or hooters shall be used on-site, after normal working hours, except in emergencies. If work is to be undertaken outside of normal work hours, permission must be obtained from the local authority. Prior to commencing any such activity, the contractor is also to advise the potentially affected neighbouring residents. Dates, times and the nature of the work to be undertaken are to be provided. Notification may include letter-drops. The acceptable noise level according to SANS 10103 Code of 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> Ensuring adequate noise control so that there are no noise levels above the standard. Mitigating possible noise in the receiving environment. Ensuring that complaints from I&APs are limited.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>Practice is 45 dBA in the rural district during the day and 35 dBA at night. The applicant must comply/adhere to this requirement.</p> <ul style="list-style-type: none"> The contractor shall make adequate provisions to prevent or minimise the possible effects of air and noise pollution. Should the noise from the construction work be found to cause problems, work hours in these areas must be restricted between 07:00 and 18:00, or as otherwise agreed between the parties involved. Strict measures shall, therefore, be enforced, especially in terms of the contract specifications, to prevent any negative impacts in this regard. 			
Pipe testing and cleaning	<ul style="list-style-type: none"> Cleaning/flushing of pipelines shall not impair (downgrade) baseline water quality. Materials used in the sterilisation of pipelines, viz. chlorine solutions shall be treated as hazardous substances and disposed of at an approved landfill site. Litter traps shall be installed and maintained at the outflow of all pipelines. 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> Prevent pollution of water resources. Ensuring no visible or measurable signs of pollution of the environment (soils, ground and surface water).
Erosion control and stormwater management, trenching	<ul style="list-style-type: none"> The contractor must take all reasonable precautions to prevent soil erosion resulting from a diversion, restriction or increase in the flow of stormwater or water resulting from its operations and activities to the satisfaction of the ECO. Possible measures that can be considered include the following: <ul style="list-style-type: none"> Brush cut packing Mulch or chip cover Straw stabilising (at the rate of one bale/m² and rotated into the top 100mm of the completed earthworks) 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> Limiting erosion on site. Ensuring possible erosion is controlled and mitigated. Ensuring that stormwater is managed on site. Ensuring no degradation of the natural environment occurs due to erosion. Prevent disturbance/ damage

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> ○ Watering ○ Planting / sodding ○ Hand seeding sowing ○ Hydroseeding ○ Soil binders and anti-erosion compounds ○ Mechanical cover or packing structures ○ Gabions & mattresses ○ Geofabric ○ Hessian cover ○ Armourflex ○ Log/pole fencing ○ Retaining walls • The contractor shall take reasonable measures to control the erosive effects of stormwater run-off. • The contractor shall use silt screens to prevent overland flowing water from causing erosion. • Straw bales as filters that are placed across the flow of overland stormwater flows, shall be used as an erosion protection measure. • The ploughing-in of straw offers limited protection against stormwater run-off induced erosion and shall be used as an erosion protection measure. • The contractor shall be liable for any damage to downstream property caused by the diversion of overland stormwater flows. • At all times it must be considered that an open trench will guide stormwater like a river, and the overflow point must be protected against erosion and silt deposition. 			of vegetation due to erosion.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> It is the responsibility of the contractor working inside any trench at any specific time to ensure that their works are protected from damage which may be caused through run-off of rainwater inside the trench. The use of sandbags, mulch bags or any other appropriate methods of slowing down the flow of water within a trench is required. Where water is directed out of a trench by the contractor, they are responsible for the prevention of erosion at the discharge point and of preventing the movement of any silt (which may be carried in such water or result from the erosion caused by such water) beyond the work area. In the event of erosion damage or silt movement, the contractor is responsible for the clean-up required to reinstate the conditions to normal as determined by the ECO. The area of open ground at any time should be limited to the minimum, in order to avoid excessive risk. The area of open trench at any time should be limited to the minimum, in order to avoid excessive risk. 			
Dust control	<p>DUST - generated by works</p> <ul style="list-style-type: none"> Sand stockpiles are to be covered with hessian, shade cloth or DPC plastic. Stockpiles are to be located in sheltered areas and the usable/cut face orientated away from the direction of the prevailing wind for that season. Excavating, handling or transporting erodible materials in high wind or when dust plumes are visible, shall be avoided. If high winds prevail, the engineer shall decide whether water 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> Ensuring proper dust suppression. Limiting air pollution potential during construction activities.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>dampening measures or cessation of activities is required, and if necessary, they shall have the authority to temporarily stop some of the works until wind conditions become more favourable.</p> <p>Dust – generated by roads and vehicle movement</p> <ul style="list-style-type: none"> • Vehicle speeds shall not exceed 40 km/h along gravel roads or 20 km/h on unconsolidated or non-vegetated areas. Dust plumes created by vehicle movement are to be monitored. • If access roads are generating dust beyond acceptable levels, dust suppression measures must be initiated. These include, but are not limited to the following: <ul style="list-style-type: none"> ○ Reduction of travelling speeds along the road. ○ Restriction of vehicle or plant usage. ○ Application of chemical soil binders. ○ Application of a suitable sacrificial road surfacing. ○ If water is to be used for dust suppression, then only the critical areas shall be watered. The use of water carts or hand watering is preferable. Overhead sprayers shall not be permitted in windy conditions, as the evaporation loss is too high. Watering is to be supervised to prevent unnecessary water wastage, and run-off into potentially sensitive areas. Preferable watering times are early morning and late afternoon/evening. Water restrictions are to be observed if in place. 			
Fire prevention	<ul style="list-style-type: none"> • No open fires or naked flames for heating or cooking shall be allowed on site. Stoves and other electrical equipment shall only 	Holder of EA or representative	Continuously throughout the	<ul style="list-style-type: none"> • Prevent any open fires. • Ensuring that prevention

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
and management	<p>be permitted in the contractor’s camp and never be left unattended.</p> <ul style="list-style-type: none"> ○ The contractor shall take all reasonable and active steps to avoid increasing the risk of fire through their activities on site. No fires shall be lit except at places approved by the ECO. ○ The contractor shall ensure that the basic firefighting equipment is to the satisfaction of the local officials (where applicable). ○ The contractor shall supply all living quarters, site offices, kitchen areas, workshop areas, materials, stores and any other areas identified by the ECO with tested and approved firefighting equipment. ○ Fire and “hot work” shall be restricted to a site approved by the ECO. ○ A braai facility shall be considered at the discretion of the ECO. The area shall be away from stores containing flammable materials. All events shall be under management supervision and a fire extinguisher shall be immediately available. “Low smoke” fuels shall be used. Smoke-free zoning regulations shall be considered. ○ Fires within national parks, nature reserves and natural areas are prohibited. ○ Cooking shall be restricted to bottled gas facilities under strict control and supervision. The sensitivity of the surrounding land uses, and the occurrence of natural indigenous vegetation must be considered when assessing 		construction phase. If and when required.	<p>measures are in place if any accidental fires do take place.</p> <ul style="list-style-type: none"> • Ensuring that no fires are started by the contractors’ workforce.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>the risk of fires.</p> <ul style="list-style-type: none"> ○ The contractor shall take precautions when working with welding or grinding equipment near potential sources of combustion. Such precautions include having a suitable, tested and approved fire extinguisher immediately at hand, as well as the use of welding curtains. ○ The contractor shall identify the authorities responsible for fighting fires in the area and shall liaise with them regarding procedures in the event that a fire starts. The contractor shall ensure that his staff are aware of the fire danger at all times, and of the procedure to be followed in the event of a fire. The contractor shall also ensure that all the necessary telephone numbers etc. are posted at conspicuous and relevant locations in the event of an emergency. The contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. ○ If and when a contractor is found responsible for the outbreak of a fire, he shall be liable for any associated costs. 			
Water management	<ul style="list-style-type: none"> • The contractor shall provide water for drinking and construction purposes until such time as it is available from the local system. Water from the local system must be used carefully and sparingly, with the view of not wasting water. • Taps are to be attached to secure supports and leaking taps and hosepipes are to be repaired immediately. • Watering as dust suppression must be undertaken as a last resort. It is preferable that sand stockpiles be covered rather 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> • Ensure potable water is available to workers during the construction phase. • Management of water during construction activities. • Ensuring water is only used for dust suppression as a last

BASIC ASSESSMENT REPORT

Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>than watered.</p> <ul style="list-style-type: none"> Any abstraction from natural water sources such as a stream or groundwater will require a Method Statement for approval by the ECO. An adequate supply of potable water that complies with bacteriological and chemical quality must be available at all times. 			<p>resort.</p>
Waste management	<ul style="list-style-type: none"> A waste minimisation approach must be followed. This requires recycling wherever possible. All waste, therefore, to be suitably contained and removed regularly from the site in accordance with the municipal waste management procedures. Other examples shall include the use of rubble as fill, minimisation of waste concrete and the use of brush cuttings for mulching on rehabilitated areas. The contractor shall be responsible for the establishment of a refuse control and removal system that prevents the spread of refuse within and beyond the construction sites. The contractor shall ensure that all refuse is deposited in refuse bins. He shall supply the bins and arrange for them to be emptied on a weekly basis. Refuse bins shall be of such a design that the refuse cannot be blown out and that animals or birds are not attracted to the waste and spread it around. Refuse bins shall be watertight, wind-proof and scavenger-proof and shall be appropriately placed throughout the site. Refuse must also be protected from rain, which may cause pollutants to leach out. Refuse bins shall be placed at appropriate places throughout the site and shall be conspicuous (e.g. painted bright yellow). 	Holder of EA or representative	Continuously throughout the construction phase. If and when required.	<ul style="list-style-type: none"> Ensuring proper waste management and removal takes place. Ensure that the site is kept free of litter and deposited in bins. Ensuring that waste is stored in the correct manner on site before it is removed. Ensuring legal waste removal takes place.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> Refuse shall be disposed of at an approved waste site (site and method to be agreed with the local authority). Refuse shall not be burnt or buried on or near the site. The contractor shall provide labourers to clean up the contractor's camp and site on a weekly basis. The contractor shall also clean the contractor's camp and site of all structures, equipment, residual litter and building materials at the end of the contract. Any solid waste must be disposed of at a landfill licensed in terms of section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) or the National Environmental Management: Waste Act (Act No. 59 of 2008). 			
Toilets	<ul style="list-style-type: none"> The contractor shall be responsible for providing all sanitary arrangements for construction and supervisory staff on the site. A minimum of one chemical toilet shall be provided per 15 persons. Toilets provided by the contractor must be easily accessible and within a practical distance from the workers. Toilets shall be located within areas of low environmental importance. The toilets shall be of a neat construction and shall be provided with doors and locks and shall be secured to the ground to prevent them from blowing over. Toilets shall be placed outside areas susceptible to flooding. The location for construction camps and toilets must be approved by the ECO. The contractor shall keep the toilets in a clean, neat and hygienic condition. The contractor shall supply toilet paper at all toilets. 	Holder of EA or representative	Continuously throughout the construction phase if and when required.	<ul style="list-style-type: none"> Ensuring that appropriate sewerage management takes place to reduce the possibility of an impact on soil and groundwater resources. Ensuring that sufficient and clean ablution facilities are provided.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> • The contractor shall be responsible for the cleaning, maintenance, servicing and emptying of the toilets on a regular basis (by chemical contractor). No waste may be dumped in the bush or wetland. • The contractor shall ensure that the toilets are emptied before a builder’s holiday or other public holidays, and the waste be stored and disposed of at an appropriate place off-site. • The contractor shall ensure that no spillage occurs when chemical toilets are cleaned and emptied. • The contractor shall supply a contingency plan for spills from toilets. • Performing ablutions in any other area are strictly prohibited. 			
Fuel and chemical management	<ul style="list-style-type: none"> • Fuel may be stored on-site provided the following is strictly adhered to: • All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities. • The ECO (or as applicable) must be informed and consulted in terms of the fire regulations. • The contractor shall ensure that all liquid fuels and oils are stored in tanks with lids that are kept firmly shut and under lock and key at all times. • The contractor shall stand any equipment that may leak and does not have to be transported regularly, on watertight drip trays to catch any pollutants. The drip trays shall be of a size large enough that the equipment can be placed inside it. Drip trays shall be cleaned regularly and shall not be allowed to overflow. 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> • Ensuring the proper use/storage/handling and management of fuel on-site. • Ensuring minimal to no impact on the natural environment. • Limiting pollution potential due to spillages and mismanagement.

BASIC ASSESSMENT REPORT

Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> • All hazardous material (e.g., oils, petrol or diesel) used on site must be disposed of at an approved hazardous waste facility or via the services of a licensed waste transportation company. All certificates of disposal and weighbridge slips (if applicable) have to be signed by all relevant officials and kept as records on the premises. • The contractor will be responsible for the cleaning up of any spill and associated costs. <p>Location</p> <ul style="list-style-type: none"> • The ECO shall be advised of the area that the contractor intends using for the storage of fuel. • The location of the fuel storage area will be determined by the ECO. • The tank shall be erected at least 3.5 meters away from buildings, boundaries and any other combustible or flammable materials. <p>Signs/good practice/safety precautions</p> <ul style="list-style-type: none"> • Symbolic safety signs depicting “No Smoking”, “No Naked Lights” and “Danger” conforming to the requirement of SABS 1186 are to be prominently displayed in and around the fuel storage area. • No smoking shall be allowed in the vicinity of the stores. • The capacity of the tank shall be clearly displayed, and the product contained within the tank clearly identified using the emergency information system detailed in SABS 0232 part 1. • There shall be adequate firefighting equipment at the fuel storage and dispensing area or areas. 			

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> • Fuel shall be kept under lock and key at all times. <p>Tanks</p> <ul style="list-style-type: none"> • The storage tank shall be on the premises only for as long as the contract lasts. • The storage tank shall be removed on completion of the works. • All such tanks are to be designed and constructed in accordance with a recognised code. • The rated capacity of tanks shall provide sufficient capacity to permit expansion of the product contained therein by the rise in temperature during storage. <p>Bunds/storage areas</p> <ul style="list-style-type: none"> • Tanks shall be situated in a bunded area, the volume of which shall be at least 150% of the volume of the largest tank. The floor of bund shall be smooth and impermeably constructed of concrete or plastic sheeting with impermeable joints with a layer of sand over to prevent perishing. The bund walls shall be of concrete or formed of well-packed earth with the impermeable lining extending to the crest. The floor of the bund shall be sloped towards an oil trap or sump to enable any spilled fuel and/or fuel-soaked water to be removed. • A bacterial hydrocarbon digestion agent that is effective in water approved by the ECO shall be installed in the sump. • The tanks and bunded areas shall be covered by a roofed structure to prevent the bunded area from filling with rainwater. This structure shall be constructed in such a way, and to the approval of the ECO, to ensure that it is wind resistant. 			

BASIC ASSESSMENT REPORT

Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> Any water that collects in the bund shall not be allowed to stand and shall be removed within one day and taken off-site to a disposal site approved by the ECO, and the bacterial hydrocarbon digestion agent shall be replenished. <p>Empty containers</p> <ul style="list-style-type: none"> Only empty and externally clean tanks shall be stored on the bare ground. All empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected. <p>Filling/dispensing methods</p> <ul style="list-style-type: none"> Any electrical or petrol-driven pump shall be equipped and positioned so as not to cause any danger of ignition of the product. If fuel is dispensed from 200-litre drums, the proper dispensing equipment shall be used. The drum shall not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage tank shall be stored in a waterproof container when not in use. Adequate precautions shall be provided to prevent spillage during the filling of a tank and the dispensing of its contents. 			
Litter and oil traps	<ul style="list-style-type: none"> Refuse screens and oil traps shall be installed at run-off concentration points from large parking facilities, wash bays, stormwater outlets, inlets to detention ponds, workshop forecourt drainage points, ablution and eating areas. These facilities shall be serviced and monitored at the discretion of the ECO. 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> Ensuring that water resources are not polluted by litter and oil. Limiting pollution potential due to spillages and mismanagement.
Contaminated	General	Holder of EA or	Continuously	<ul style="list-style-type: none"> Managing the disposal of

BASIC ASSESSMENT REPORT

Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
water	<ul style="list-style-type: none"> • The ECO’s approval will be required prior to the discharge of contaminated water to the municipal sewer system. • The contractor shall prevent discharge of any pollutants, such as cement, concrete, lime, chemicals and fuels into any water sources. • Water from kitchens, showers, laboratories, sinks, etc. shall be discharged into a conservancy tank for removal from the site. • Run-off from fuel depots/workshops/truck washing areas and concrete swills shall be directed into a conservancy tank and disposed of at a site approved by the ECO and local authority. • The contaminated water, contaminated run-off, or effluent released into a water body requires analysis in terms of the National Water Act. Contaminated water must not be released into the environment without authorisation from the relevant authority. <p>Washing areas</p> <ul style="list-style-type: none"> • Wash areas shall be placed and constructed in such a manner that it ensures that the surrounding areas, which include groundwater, are not polluted. • A Method Statement shall be required for all wash areas where hydrocarbons, hazardous materials and pollutants are expected to be used. This includes, but is not limited to, vehicle washing, workshop wash bays, paint wash and cleaning. • Wash areas for domestic use shall ensure that the disposal of contaminated “grey” water is sanctioned by the ECO. 	representative	throughout the construction phase if and when required.	<p>contaminated water.</p> <ul style="list-style-type: none"> • Mitigating and managing the storage of contaminated water until it can be disposed. • Preventing the contamination of water or to reduce the impact on the soil and groundwater resources.
Traffic,	<ul style="list-style-type: none"> • The movement of any vehicles and/or personnel outside of the 	Holder of EA or	Continuously	<ul style="list-style-type: none"> • Ensuring proper vehicle

BASIC ASSESSMENT REPORT

Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
vehicles and access roads	<p>designated working areas shall not be permitted without the written authorisation of the ECO.</p> <ul style="list-style-type: none"> • If and when the contractor does not exercise sufficient control to restrict all work to the area within the marker boundaries, then these shall be replaced on the instruction of the ECO by fencing. The relevant additional costs shall be borne by the contractor. • Dust control measures such as dampening with water shall be implemented where necessary, as indicated by the ECO. • Access and haul roads shall be maintained by the contractor. • Maintenance includes adequate drainage and side drains, dust control and restriction of edge use. • All temporary access routes shall be rehabilitated at the end of the contract to the satisfaction of the ECO. • All public roads shall be kept clear of mud and sand. Mud and sand that has been deposited through construction activities shall be cleared regularly. • Any materials used for layer works shall be approved by the engineer/ECO prior to the activity commencing. • Damage to the existing access roads as a result of construction activities shall be repaired to the satisfaction of the engineer/ECO/EO, using material similar to that originally used. The cost of the repairs shall be borne by the contractor. • Traffic safety measures shall be considered to the satisfaction of the engineer/ECO in determining entry/exit onto public roads. • All users of haul roads shall not exceed 45 km/h (cars)/ 15 km/h (trucks). Note that the standard specification places a site speed 	representative	throughout the construction phase. If and when required.	<p>movement on-site and surrounding areas.</p> <ul style="list-style-type: none"> • Ensuring that no vehicles area allowed in no-go areas. • Management of potential damage to existing roads during construction. • Traffic management to ensure safety on roads. • Ensuring that erosion is limited and managed on site. • Pedestrian safety.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>limit of 45 km/h for all vehicles.</p> <ul style="list-style-type: none"> • Appropriate traffic warning signs shall be erected and maintained. • Attention shall be paid to minimising disruption of the flow of traffic and reducing the danger to other road users and pedestrians. • Method statements are required for the following: <ul style="list-style-type: none"> ○ Traffic safety measures with regard to entry and exit on public roads and the control of construction traffic. ○ The proposed route for new access roads, tracks, or haul roads, the proposed construction of new roads, the method of upgrading existing roads, and the proposed methods of rehabilitation on completion. 			
Stockpiling of materials	<ul style="list-style-type: none"> • The contractor shall temporarily stockpile topsoil materials in such a way that the spread of materials is minimised, and thus the impact on the natural vegetation. The stockpiles must be placed within areas demarcated for this purpose. The ECO shall approve stockpile areas. 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> • Ensuring the safe stockpiling of topsoil, so that it can be re-used at a later stage. • Limiting erosion and siltation potential due to run-off. • Maximise the re-use of material. • Reduce or minimise the impact on vegetation. • Minimise the impact area.
Topsoil stripping	<ul style="list-style-type: none"> • As topsoil is a valuable resource, it should be stripped from all construction areas before work commences. This topsoil should be stockpiled for use in rehabilitation and landscaping and must 	Holder of EA or representative	Before construction commences.	<ul style="list-style-type: none"> • Ensuring that topsoil is stored correctly to be re-used during construction and landscaping.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p>not be contaminated with other building materials.</p> <ul style="list-style-type: none"> The vegetation to be removed together with the top 20cm of topsoil is to be stockpiled for use during the rehabilitation phase. This topsoil is to be stockpiled in the designated topsoil stockpile areas, to be agreed by the ECO. The relatively sensitive nature of most soils on the property means that earthmoving operations and topsoil stockpiling should be carried out with consideration of the nature of the soils, since rutting and compaction damage can occur. 			<ul style="list-style-type: none"> Limiting erosion and siltation potential due to run-off. Reduce or minimise the impact on vegetation. Minimise the impact area.
Heritage remains	<p>With regard to the proposed development, the following recommendations are made:</p> <ul style="list-style-type: none"> No mitigation is required prior to proposed development activities commencing. Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during proposed activities, these must immediately be reported to the archaeologist (Jonathan Kaplan 0823210172), or the South African Heritage Resources Agency (Ms Natasha Higgitt 021 4624502). Burials, particularly, must not be removed or disturbed until inspected by a professional archaeologist. All South African fossil heritage is protected by law (South African Heritage Resources Act, 1999) and fossils cannot be collected, damaged or disturbed without a permit from SAHRA or the relevant Provincial Heritage Resources Agency. 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> To ensure the proper management of heritage remains.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> • The palaeontologist concerned with potential mitigation work will need a valid fossil collection permit from SAHRA and any material collected would have to be curated in an approved depository (e.g., museum or university collection). • All palaeontological specialist work should conform to international best practice for palaeontological fieldwork and the study (e.g., data recording fossil collection and curation, final report) should adhere as far as possible to the minimum standards for Phase 2 palaeontological studies developed by SAHRA (2013). 			
Contingency planning	<ul style="list-style-type: none"> • In the event of a spill or leak of product into the ground and/or watercourses (e.g. that of hazardous substances used for the construction phase), such incidents must be reported (within 14 days) to all the relevant authorities including the Directorate: Pollution Management in accordance with Section 30(10) of the National Environmental Management Act No. 107 of 1998 (NEMA) and Section 20 (3) of the National Water Act No.36 of 1998 (NWA), that pertains to the control of emergency incidents and the remediation of the affected area. All necessary documentation must be completed and submitted within the prescribed timeframes. • Containment, clean-up, and remediation must commence immediately. 	Holder of EA or representative	Continuously throughout the construction phase, if and when required.	<ul style="list-style-type: none"> • Ensuring that the contractor on site is prepared in the event of a spill or incident. • Management tools and emergency contacts should be available in the event of a spillage or incident.
Outdoor advertising	<ul style="list-style-type: none"> • All outdoor advertising associated with this activity, whether on or off the property concerned, must comply with the applicable 	Holder of EA or representative	Continuously throughout the	<ul style="list-style-type: none"> • Ensure advertising complies with relevant local authority by-

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	local authority by-law for control of outdoor advertising or in the absence of local legislative controls, must comply with the South African Manual for Outdoor Advertising Control.		construction phase. If and when required.	law for control of outdoor advertising or the South African Manual for Outdoor Advertising Control.
Energy efficiency & waste minimization measures	<p>The following design measures will be considered for energy and water-saving measures:</p> <ul style="list-style-type: none"> • Household waste to be separated and re-cycled (glass, paper, green/garden waste). 	Holder of EA or representative	Continuously throughout the construction phase. If and when applicable and required.	<ul style="list-style-type: none"> • Ensuring that energy and water-saving mechanisms are implemented.
Construction site break down and closure: Removal of equipment and rehabilitation	<ul style="list-style-type: none"> • All structures comprising the construction camp are to be removed from the site. • The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. • All hardened surfaces within the construction camp area should be ripped, all imported materials removed, and the area shall be top soiled and rehabilitated. 	Holder of EA or representative	Once construction concludes.	To ensure proper decommissioning of the camp site and rehabilitation of the site after the equipment is removed.
Construction site break down and closure: Associated infrastructure	<ul style="list-style-type: none"> • Surfaces are to be checked for waste products from activities such as concreting or asphaltting and cleared in a manner approved by the ECO. • All surfaces hardened due to construction activities are to be ripped and imported material thereon removed. • All rubble is to be removed from the site to an approved disposal site as approved by the engineer. Burying of construction rubble on site is prohibited. 	Holder of EA or representative	Once construction concludes.	To ensure proper decommissioning of the camp site and rehabilitation of the site after the associated infrastructure is removed.

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Activity	Proposed impact management action and procedures/mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<ul style="list-style-type: none"> • The site is to be cleared of all litter. • Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the engineer. • All residual stockpiles must be removed to spoil or spread on site as directed by the ECO. • All leftover building materials must be returned to the depot or removed from the site. • The contractor must repair any damage that the construction works have caused to neighbouring properties, specifically, but not limited to, damage caused by poor stormwater management. 			

10 Proposed Impact Management Actions for Operational Phase

Activity	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
General	<ul style="list-style-type: none"> All applicable measures as indicated under the Construction EMPR must be implemented. 	Holder of EA or representative.	Continuously throughout the operational phase. If and when applicable and required.	<ul style="list-style-type: none"> Management of general aspects of the facility. Ensuring that complaints from I&APs are limited.
Emergency Preparedness Plan	<ul style="list-style-type: none"> The emergency preparedness plan must be ready for implementation, at all times, should an emergency situation arise. 	Holder of EA or representative.	Continuously throughout the operational phase.	<ul style="list-style-type: none"> To ensure preparedness for emergencies.
Alien Vegetation	<ul style="list-style-type: none"> Effective measures should be implemented for the eradication and long-term control of alien vegetation within the site and immediate surrounding areas. 	Holder of EA or representative.	Maintained throughout the project lifetime.	<ul style="list-style-type: none"> No exotic plants used for rehabilitation. Area successfully rehabilitated. No alien plants visible. Preventing destruction, degradation or pollution of sensitive environments.
Fauna	<ul style="list-style-type: none"> No faunal species must be harmed by workers during any routine maintenance. 	Holder of EA or representative.	Continuously throughout the operational phase. If and when applicable and required.	<ul style="list-style-type: none"> No measurable or visible signs of harmed faunal species.
Botanical	<ul style="list-style-type: none"> <i>The site must be checked regularly for the presence of alien invasive species during and immediately after construction.</i> <i>Alien invasive species must be removed, preferably by</i> 	Holder of EA or representative.	Continuously throughout the operational phase. If and when applicable	<ul style="list-style-type: none"> No exotic plants used for rehabilitation. Area successfully rehabilitated. No alien plants visible.

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Activity	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	<p><i>mechanical means.</i></p> <ul style="list-style-type: none"> • <i>Prosopsis grandiflora must be cleared, and project activities must not contribute to further infestation.</i> 		and required.	<ul style="list-style-type: none"> • Preventing destruction, degradation or pollution of sensitive environments.
Water Use Management	<ul style="list-style-type: none"> • No abstraction or any use of surface water or groundwater shall be done without prior authorisation from the Department of Water and Sanitation, unless it is a Schedule 1 Use or an Existing Lawful Use if water is taken from a water resource. • All the requirements of the National Water Act. 1998 (Act 36 of 1998) regarding water use and pollution management must be adhered to at all times. • No pollution of surface water or ground water resources shall occur due to activities on the property. 	Holder of EA or representative.	Continuously throughout the operational phase. If and when applicable and required.	<ul style="list-style-type: none"> • Limiting environmental degradation or pollution as a result of ignorance or accidents. • Preventing destruction, degradation or pollution of sensitive environments.
Dust and Noise Management	<ul style="list-style-type: none"> • It is not expected that dust and exhaust emissions will be generated in large quantities during the operational phase of the proposed development and shall therefore not be a significant nuisance. • The Department of Environmental Affairs has gazetted dust regulations. The applicant must comply with the NEM: AQA National Dust Control Regulations (GN No. R. 827) of 01 November 2013. • Noise generated from the operation of the facility must conform to the Western Cape Noise Control Regulations of 2013 (P.N. 200/2013). <ul style="list-style-type: none"> ○ These regulations prohibit a person from conducting any activity in such a way as to give rise to dust in such 	Holder of EA or representative.	Continuously throughout the operational phase. If and when applicable and required.	<ul style="list-style-type: none"> • Ensuring proper dust suppression and control of noise generated. • Minimizing the potential dust and noise impacts during the operational phase. • Ensuring that complaints from I&APs are limited.

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Activity	Proposed impact management action and Procedures / Mitigation measures to achieve it	Responsible person for implementation	Implementation timeframe and frequency	Outcome
	quantities and concentrations so that the dust, or dust fall, has a detrimental effect on the environment including health.			

Appendix A: Environmental Authorisation

Appendix B: Tracking Table

Required	Received		Date	Comment
	Yes	No		
Methodology statement				
Site establishment plan				
Letter re contents of EMPr				
Letter re awareness training				

Appendix C: Schedule of Fines

SCHEDULE OF FINES FOR ENVIRONMENTAL DAMAGE OR EMPr TRANSGRESSIONS

(Based on City of Cape Town: Standard Environmental Specifications – Ver. 5 (03/2002))

Note: The maximum fine for any environmental damage will never be less than the cost of applicable environmental rehabilitation.

EMPr TRANSGRESSION OR RESULTANT ENVIRONMENTAL DAMAGE	MIN. FINE	MAX. FINE
Failure to comply with prescriptions regarding appointment of an ESO and monitoring of EMPr compliance.	R500	R2000
Failure to comply with prescriptions regarding environmental awareness training.	R500	R5000
Failure to comply with prescriptions regarding method statements.	R500	R5000
Failure to report environmental damage or EMPr transgressions to the ESO.	R500	R1000
Failure to carry out instructions of the ESO regarding the environment or the EMPr.	R500	R1000
Failure to comply with prescriptions posting of emergency numbers.	R500	R5000
Failure to comply with prescriptions regarding a complaint register.	R500	R1000
Failure to comply with prescriptions regarding information boards.	R500	R1000
Failure to comply with prescriptions regarding site demarcation and enforcement of 'no go' areas.	R500	R5000
Failure to comply with prescriptions regarding site clearing.	R500	R5000
Failure to comply with prescriptions for supervision for loading and off-loading of delivery vehicles.	R500	R1000
Failure to comply with prescriptions for securing of loads to ensure safe passage of delivery vehicles.	R500	R1000
Failure to comply with prescriptions for the storage of imported materials within a designated contractor's yard.	R500	R1000
Failure to comply with prescribed administration, storage or handling of hazardous substances.	R500	R1000
Failure to comply with prescriptions regarding equipment maintenance and storage.	R500	R1000
Failure to comply with fuel storage, refuelling, or clean-up prescriptions.	R500	R1000
Failure to comply with prescriptions regarding procedures for emergencies (spillages and fires).	R1000	R5000
Failure to comply with prescriptions regarding construction camp.	R500	R5000
Failure to comply with prescriptions for the use of ablution facilities.	R500	R1000
Failure to comply with prescriptions regarding water provision.	R500	R1000

For each subsequent similar offence committed by the same individual, the fine shall be doubled in value to a maximum value of R50,000.

Appendix D: Method Statement Proforma

METHOD STATEMENT PROFORMA

METHOD STATEMENT FOR THE:

This method statement is to be completed by the contractor (in consultation with the Resident Engineer and EO) at least 5 working days prior to the proposed commencement date of the said work and represents a binding agreement to the method statement by all site contractors and sub-contractors involved in the work for which the method statement is submitted.

DATE OF SUBMISSION:

LEAD CONTRACTOR:

OTHER CONTRACTORS AND/OR SUB-CONTRACTORS: _____

Describe in detail what work is to be undertaken?

Describe in detail where on the site the works are to be undertaken and the extent? Provide a sketch plan and grid block reference.

Lead supervisor/foreman name and contact details:

Number of personnel:

Construction activities:

Plant and machinery to be used:

Other:

What environmental impacts are anticipated and what precautions are proposed to prevent these impacts? (Refer to the relevant sections of the EMPr for guidance and provide general site camp layout).

Toilet facilities:

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Litter:

Security:

Plant/machinery (operation, servicing, management, storage, refueling, etc.).

Emergencies and fire:

Hazardous materials (handling, management, storage):

Have all personnel involved been through an environmental induction course?

Petrochemical spill remediation and containment measures:

Other:

BASIC ASSESSMENT REPORT

DECLARATION BY PARTIES

Contractor:

I understand the contents of the method statement and the scope of the works required of me. I further understand that the method statement may be amended on application to the above signatories and that the Environmental Officer will audit my compliance with the contents of this method statement.

Print Name

Date

Signed

Environmental Officer (EO):

The work described in this method statement, if carried out according to the methodology described, is satisfactory mitigation to prevent avoidable environmental harm.

Print Name

Date

Signed

Resident Engineer:

The work described in this method statement, if carried out according to the methodology described, is satisfactory mitigation to prevent avoidable environmental harm.

Print Name

Date

Signed

Appendix E: Method Statement Control Sheet

METHOD STATEMENT CONTROL SHEET

(This control sheet is to be attached to all methods statements)

CONTRACT NO: _____

MS Number:

THIS SECTION TO BE COMPLETED BY THE CONTRACTOR/METHOD STATEMENT AUTHOR ONLY

TITLE:
DESCRIPTION:
SUBMITTED BY:

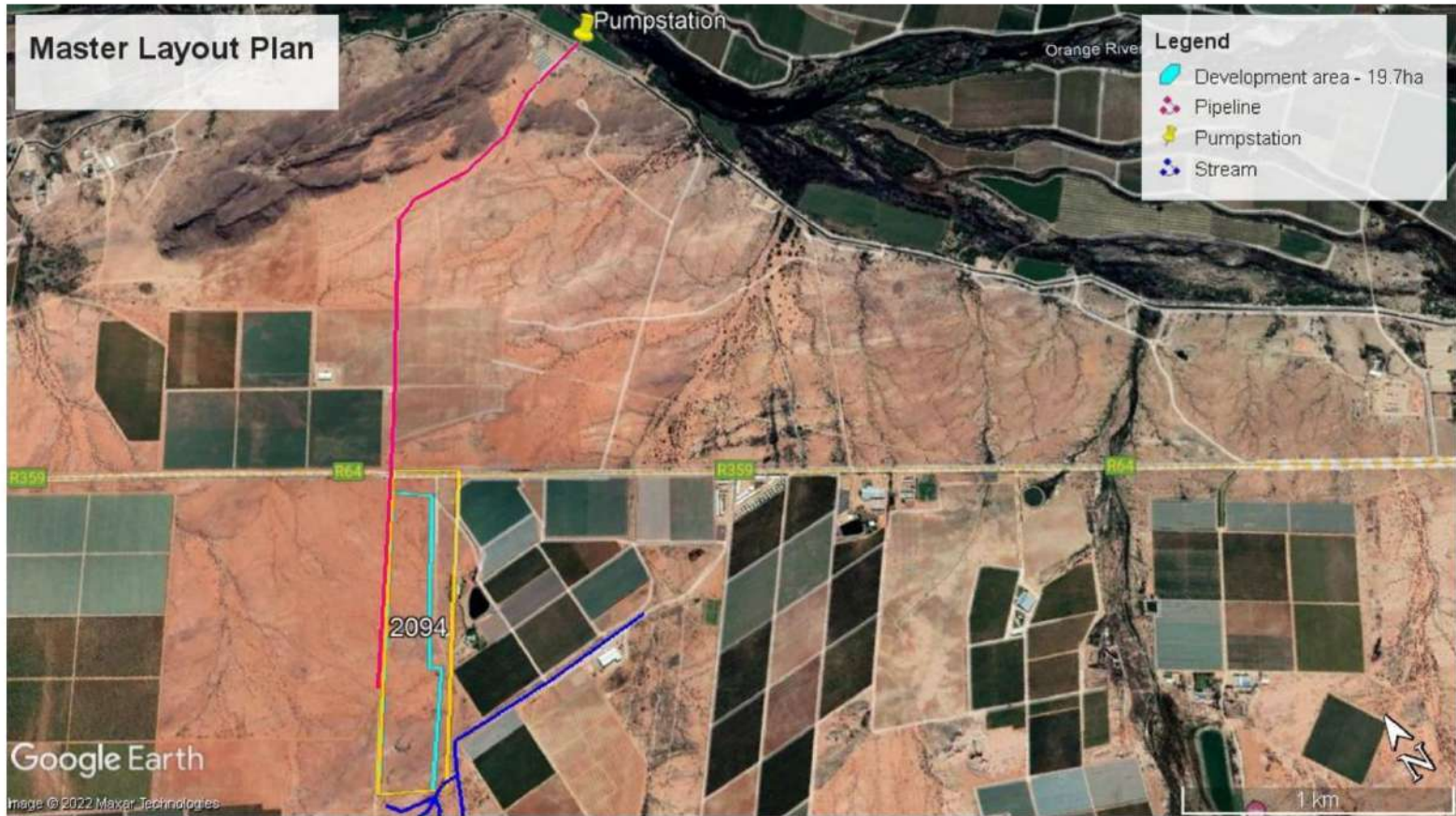
Date requested by: _____ Date submitted: _____

Date response required by: _____ Date work start: _____

REVIEW SCHEDULE		
Date	Authority	Comments

DISTRIBUTION AND AUTHORISATION			
	APPLICANT	EO	CONTRACTOR
Name			
Signature			
Date			

Appendix F: Project Map



Appendix G: EAP Curriculum Vitae

Appendix H: Fossil Find Protocol

Included if deemed necessary.

APPENDIX H: DETAILS OF EAP AND EXPERTISE

Elanie Kühn

Groenberg Enviro (Pty) Ltd
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Wellington 7654

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Nationality	South African		
Date of birth	20 February 1983		
Qualifications	B.Sc. Degree (Zoology & Physiology) B Sc. Hons. (Environmental Management)	North West University – Potchefstroom North West University – Potchefstroom	2004 2005
Special courses	None additional to the above.		
Professional membership	IAIA South Africa		
Career	2010 - current 2006 - 2009 2005	Groenberg Enviro (Pty) Ltd - Wellington Doug Jeffrey Environmental Consultants - Paarl DERA Environmental Consultancy – Klerksdorp (Part time while completing Hons.)	
Current position	Environmental Assessment Practitioner at Pieter Badenhorst Professional Services cc. As a private consultant now provide consultancy services in Environmental Management, Public Participation and Project Management.		
Professional experience	The consultant has 14 years' experience in project management and report writing. She has worked for two other environmental assessment companies prior to the present. She completed her BSc degree and gained an Honours Degree in Environmental Management from the North West University in Potchefstroom. She has been working with Pieter Badenhorst for the last nine years working on Environmental Impact Assessments and Water Use License Applications.		
Publications/ Contracts (A full list is available on request)	Projects and work experience range from: <ul style="list-style-type: none"> ● Project Management ● Basic Assessment Reports ● Scoping and Environmental Impact Assessment reports. ● Environmental Management Programmes –construction/operational/decommissioning. ● S24G Applications ● Waste License Applications ● Water Use License Applications ● Mining EMP's ● Mining Rights and Prospecting Rights applications ● Environmental Control Officer (ECO) ● Auditing Report 		

APPENDIX I: SPECIALIST'S DECLARATION OF INTEREST

See specialist reports.

APPENDIX J: ADDITIONAL INFORMATION

[Appendix J1: Site Sensitivity and Verification Report and Screening Report](#)



SITE SENSITIVITY VERIFICATION REPORT

**ETERNAL FLAME – DEVELOPMENT OF AGRICULTURAL
AREA ON KAKAMAS SOUTH SETTLEMENT NO. 2094,
NORTHERN CAPE PROVINCE**

Reference No.: To be Determined

Final Report



BASIC ASSESSMENT REPORT

DOCUMENT NAME:

Proposed agricultural development on Kakamas South Settlement No. 2094, Augrabies.

PROJECT NUMBER:

N/A

DATE:

June 2022

REPORT STATUS:

FINAL REPORT

CARRIED OUT BY:

GroenbergEnviro (Pty) Ltd

COMMISSIONED BY:

Eternal Flame Investments 104 (Pty) Ltd

AUTHOR(S):

Elanie Kühn

CLIENT CONTACT DETAILS:

Director: Piet Du Plessis

P.O. Box 45, Augrabies, 8874

Email: piet@oseiland.co.za

Cell: 073 848 7650

SYNOPSIS:

Not in this report.

PREPARED BY:

GroenbergEnviro (Pty) Ltd





Revision Status

Rev No.	Issue Date	Author	Technical Review	Report Review
0	June 2022	Elanie Kühn	H. Badenhorst	H.Badenhorst

Contact Information

Please contact the undermentioned should you require further information.

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Website	www.groenbergenviro.co.za
<p>Contact Person</p> 	<p>Elanie Kühn</p> <p>I have 14 years' experience in project management and report writing. I have a BSc degree and gained my Honours Degree in Environmental Management from the Northwest University in Potchefstroom. My focus in GroenbergEnviro is primarily on Environmental Impact Assessments and Water Use License Applications.</p>
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Disclaimer

The opinions expressed in this report have been based on the information supplied to GBE by the Applicant. GBE has exercised all due care in reviewing the supplied information, with conclusions from the review being reliant on the accuracy and completeness of the supplied data.

GBE does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them.

Professional environmental opinions presented in this report apply to the site conditions and features as they existed at the time of GBE's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this report, about which GBE had no prior knowledge nor had the opportunity to evaluate.

POPIA

Regulation 42 of the Environmental Impact Assessment Regulations, 2014, as amended (EIA Regulations) provides for the opening and maintenance of a register of interested and affected parties (I&APs), by the proponent or applicant, which must contain personal information (names, contact details and addresses). It is therefore the duty of the proponent or applicant to collect the information that must be contained in the register.

Regulation 42 further requires that these registers must be submitted to the Competent Authority (CA). There is no legal requirement in the EIA Regulations that such registers must be included in the reports that are published for public consultation purposes or be made publicly available as part of the EIA process. Since the information in the registers is personal/private information, it should not be included in or attached to reports and be made available in the public domain. CAs, applicants and environmental assessment practitioners (EAPs) should take note that, if this information was previously included in reports and shared in the public domain, this now requires reconsideration in accordance with the POPIA. The Department realises that EAPs may have included some personal information in these reports when they receive and compile them. Likewise, this information may reach CAs who also now need to be sensitive about the management of this information.

Section 11(1)(a) of POPIA provides further that personal information may only be processed if the data subject consents to the processing.

The requirements of section 18.1 of POPIA requires that if personal information is collected, the responsible party must take reasonably practicable steps to ensure that the data subject is aware of, amongst other things, the information being collected, the name and address of the responsible party (in this case the EAP and applicant), the purpose for which the information is collected, whether or not the supply of the information by the data subject is voluntary or mandatory, the consequence of the failure to provide the required information, further information such as the recipient of the information, as well as the existence of the right to object to the processing of the personal information.

EAPs should obtain express consent from commenting parties to include their names with their comments in the reports. It is therefore recommended that the EAP, when requesting comment, should also request the persons who may comment to provide consent that their names may be included with their comments in the reports. Commenting parties should also be informed that they may opt to not have their names shared, as well as an indication of the consequences of such an option being exercised, in which case only the comments will be included. This will ensure that the requirements of section 11(1)(a) of POPIA, which provides that personal information may only be

BASIC ASSESSMENT REPORT

processed if the data subject consents to the processing, is given effect to. Even when consent is obtained it is recommended that only the minimum details (the names) should be included in reports and the inclusion of unnecessary and excessive information should be avoided.

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List of Abbreviations

BAR	Basic Assessment Report
BGIS	Biodiversity Geographic Information System
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
NEMA	National Environmental Management Act
SA	South Africa
SANBI	South African National Biodiversity Institute
SSVR	Site Sensitivity Verification Report

Requirements for Initial Site Sensitivity Verification

Requirement	Compliance with Requirement
1. The Initial Site Sensitivity Verification must be undertaken by an environmental assessment practitioner or a registered specialist with expertise in the relevant environmental theme being considered.	Undertaken by an Environmental Assessment Practitioner (EAP): EAP: Elanie Kühn Qualification: Honours Degree in Environmental Management. EAPASA Registration Number: Still pending.
2. The Initial Site Sensitivity Verification must be undertaken through the use of: (a) a desktop analysis, using satellite imagery; (b) a preliminary on-site inspection; and (c) any other available and relevant information.	(a) A desktop analysis was done. (b) A pre-liminary on-site inspection was conducted on 03/06/2021 by Pieter Badenhorst and Elanie Kühn. (c) Google Earth, South African National Biodiversity Institute's Biodiversity Geographic Information System (SANBI's BGIS) are some of the additional sources used.
3. The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that- (a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web-based environmental screening tool; (b) contains a motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivity; and	This document serves as the Site Sensitivity Verification Report (SSVR), which complies with the criteria as stated in point 3.



<p>(c) is submitted together with the relevant reports prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.</p>	
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1 Project Description

1.1 Locality

The Applicant is proposing the clearance of 19.7ha of indigenous vegetation for agricultural development on Kakamas South Settlement No. 2094. The farm is located 12km northwest of Kakamas, along the R64, and is situated in the Kai! Garib Local Municipality, which falls under the ZF Mgcawu District Municipality in the Northern Cape Province.

The location of the proposed area is shown in **Figure 1**.

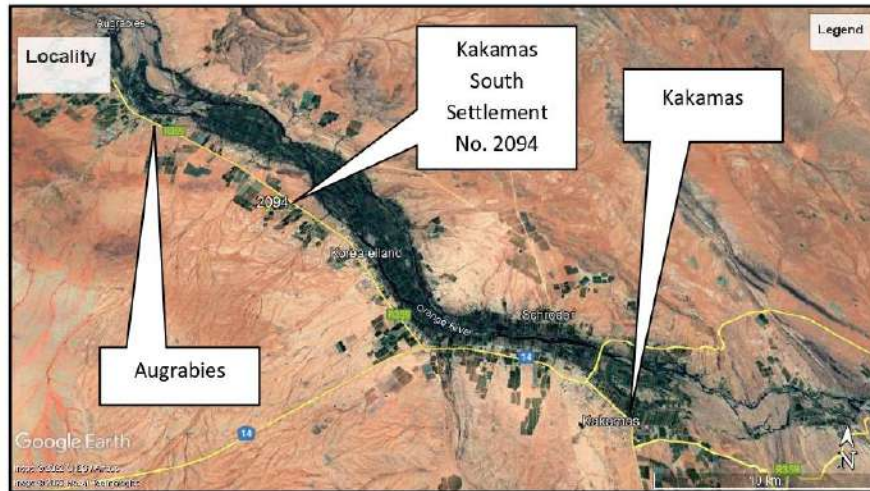


Figure 1: Locality Plan

1.2 Project Description

This application is for the proposed development of 19.7ha for agricultural use on the Kakamas South Settlement No. 2094, Augrabies. The development consists of the following (see **Figure 2**).

The proposal is for the establishment of an additional 19.7ha (turquoise area) of agricultural development, in order to fully utilise the property. Note no watercourses will be crossed or impacted by the development of this area. a small watercourse travels along the southern property boundary, but the proposed development will not impact on this watercourse.





Figure 2: Site Development Layout

1.3 Roads

Access is achieved via an existing gravel road that has access to the R64, between Augrabies and Kakamas. The internal gravel roads consist of compacted earth, with no formal stormwater management control structures in place along the tracks. The reason for this is the low rainfall characteristic of the area negates the need to provide for formal stormwater control.

1.4 Pipelines

Water is required to irrigate the established agricultural development by means of the drip irrigation method. The water is currently pumped from the Orange River through an existing pipeline. The existing pipelines pumps the water from a booster pump station along the existing pipelines to the adjacent agricultural development (See Figure 33 – pink lines). The proposed agricultural development will be irrigated by the same system.





Figure 3: Pipelines

1.5 Water

There is an existing Licence in terms of the National Water Act, 1998 (NWA) that has been issued to the applicant, Eternal Flame Investments 104 (Pty) Ltd. The WUL No. 10/D81A/A/11331 was issued on the 22 December 2022. The property has an Existing Lawful use for 10ha and the additional license for 10ha, which provides the property with 20ha (300 000m³/a) water rights.

1.6 Electricity

There is existing electricity available on the property for the proposed development.

2 Description of the Receiving Environment

2.1 Agricultural Theme

The proposal is for the construction of a new agricultural area of 19.7ha. The area on which the agricultural development will take place, is shown below in **Figure 4**.



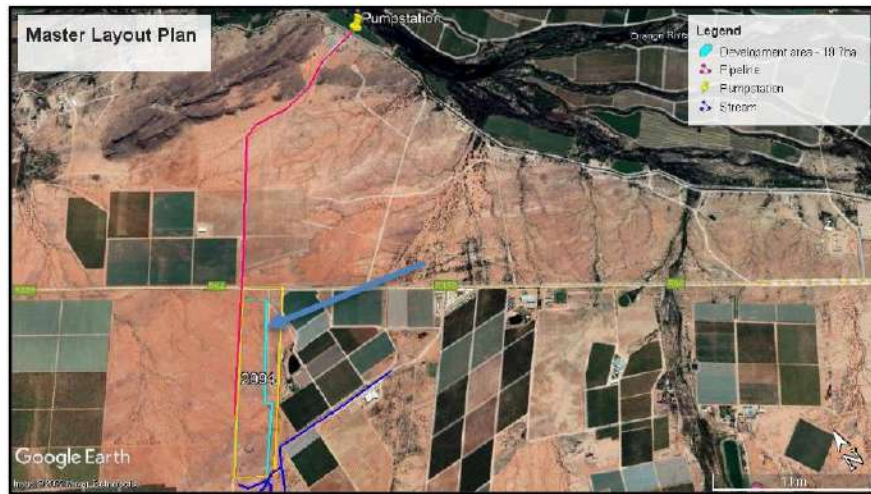


Figure 4: Agricultural areas

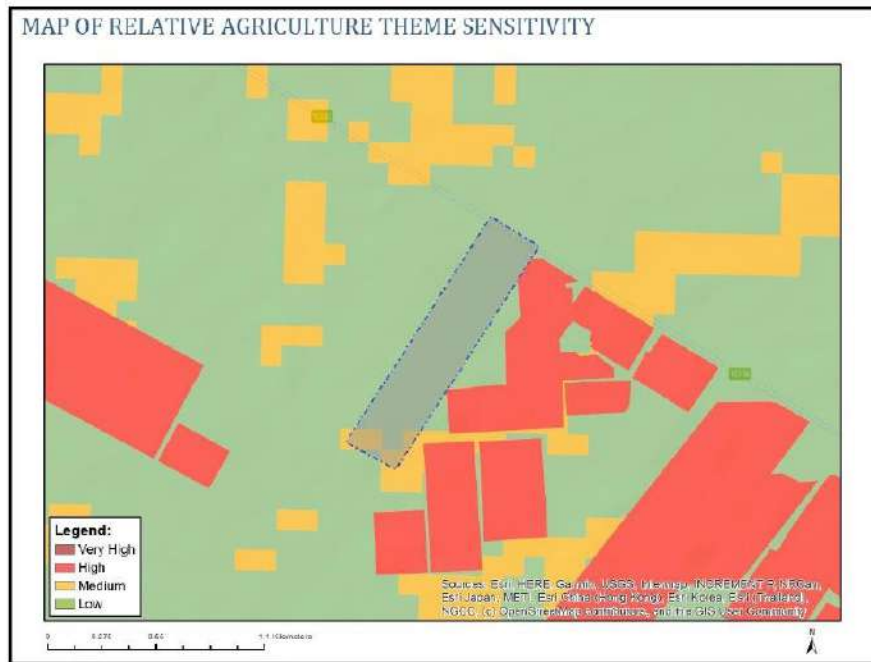


Figure 5: Agricultural Sensitivity

The new development area has a low agricultural impact as outlined in Figure 5 above (green area) according to the Site Sensitivity Report.



2.2 Terrestrial and Biodiversity Theme

The following is taken from the Botanical Assessment:

“The project site occurs within the Nama-Karoo Biome which is located on the central plateau of the western half of South Africa, extending into south-eastern Namibia (Mucina et al., 2006). Plant diversity in the Nama-Karoo is typically low compared to other biomes in South Africa and there are no centres of endemism and limited local endemic plant species. Dominant species in this biome typically include species from families such as Asteraceae, Fabaceae and Poaceae.

According to the National Vegetation Map (2018), which was compiled to provide a greater level of detail for floristically based vegetation units in South Africa, the project site occurs within Bushmanland Arid Grassland (Figure 6).

Bushmanland Arid Grassland occurs in the Northern Cape Province between Aggenys and Prieska and is characterised by extensive and irregular plains on slightly sloping plateaus. It is typically sparsely vegetated by grasses such as Stipagrostis interspersed with low shrubs such as Salsola.

This vegetation type is listed on the Red List of Terrestrial Ecosystems as Least Concern and has a conservation target of 21%. It is currently listed as not protected, however over 99% of the remaining natural extent is intact.”

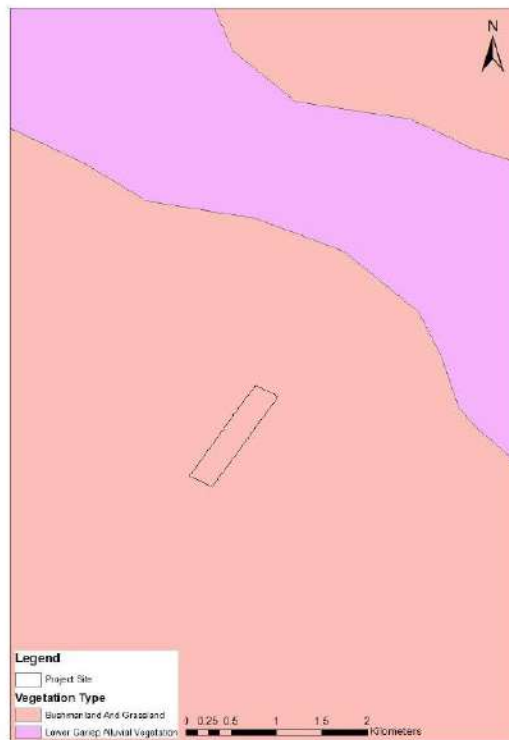


Figure 6: National Vegetation Map showing all three alternatives as occurring within Namaqualand Spinescent Grassland



"According to the Northern Cape CBA Map, the majority of the project site falls within a CBA 2 and a small portion in the southern section of the project area falls within an ESA (Figure 7).

The reason layer for the spatial data set was consulted to determine the reason given for the site being listed as a CBA2. Of the five reasons for the planning unit being listed as a CBA, only two are directly applicable to the project site itself; (1) the project site falls within Bushman Arid Grassland and (2) the project site falls within a NPAES focus area.

It should be noted that Bushman Arid Grassland is listed as Least Concern and the RLE (2021) indicates that 99% of this vegetation type remains intact suggesting that the conservation target for this vegetation type can still be met elsewhere. The loss of this vegetation type at the project site is equivalent to 0.07% (19.7ha) of the remaining extent.

Although the site occurs within a NPAES focus area, the land on either side of the property has been transformed for agriculture. The current Google Earth imagery is dated 2020 and does not reflect the changes within the general area. The field survey confirmed that the properties immediately to the east and west of the site have been planted with orchards. Given its location within an agricultural farming area, it is unlikely this parcel of land will be the preferred choice as a future protected area.

Based on the above it is unlikely the overall ecological functioning of the CBA would be compromised by the development."

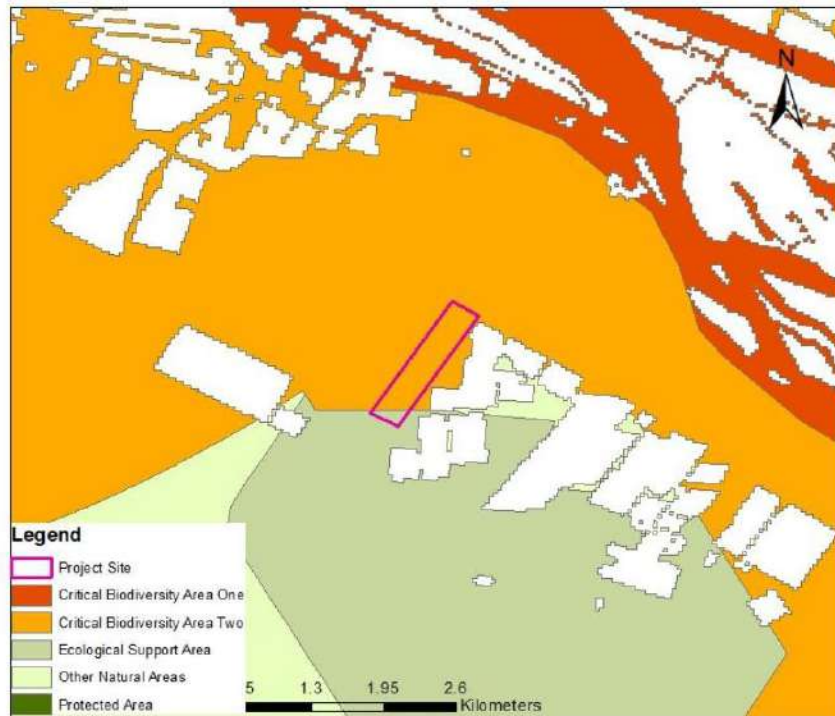


Figure 7: The project site in relation to identified CBAs and ESAs



2.2.1 Conclusion

The project area is located within Bushmanland Arid Grassland which is listed as Least Concern with 99% of its extent intact. If the project proceeds it will result in the loss of 0.07% of the remaining extent of this vegetation type.

Site Ecological Importance (SEI) for the site was determined to be moderate since there are no confirmed or highly likely Species of Conservation Concern (SCC) that could occur within the site and receptor resilience is moderate.

Four impacts were identified for the project, three of which are of low significance after mitigation measures have been implemented and one of which is moderate significance.

2.3 Animal Species Theme

The site has been left natural; however, all the surrounding areas have been transformed by agricultural activities, as shown below in **Figure 8**. **Figure 8** shows with the yellow arrow the adjacent site that is currently being transformed for agricultural use, with existing approvals.



Figure 8: Showing vegetation on site

The development area is within an area extensively utilized for agriculture and possibility of any animal life would be low. The property is also still being run as a commercial farm; thus, insecticides will keep all insects at bay.

2.4 Aquatic Biodiversity Theme

The proposed development will not directly impact on the small watercourses as indicated in **Figure 4**. There will be no direct impact on these small streams; therefore, an application to the Department of Water and Sanitation is not necessary. A small 20m buffer area will be provided to prevent any possible impacts on the watercourse.

Therefore, no need for an assessment from a freshwater specialist.



2.5 Civil Aviation Theme

The site is located within a rural setting surrounded by agricultural developments, see **Figure 4**. Further assessment is indicative that agricultural infrastructure will not have a negative height nor wind energy components that will impact on civil aviation. Also, the area is shown as having a medium impact, see **Figure 9**, however, no civil aviation infrastructure is located within the surroundings and as stated agricultural development will have no impact on civil aviation.



Figure 9: Civil Aviation theme

2.6 Defence Theme

The development will be located on agricultural land, within a rural area (**Figure 4**). The property is privately owned, and the development will not impact on defence installation.

2.7 Landscape / Visual Impact Theme

The proposed development is for the construction of a new agricultural area. The development will be located within a rural setting, surrounded by agricultural developments and will not impact on the visual character of the surroundings.

2.8 Archaeological, Cultural Heritage and Palaeontology Theme

The farm has been outlined for agricultural purposes; the new development area has to a small extent not been impacted. The development of the agricultural area is also considered to be in line with the existing use.



The adjacent property had a baseline study conducted, with the same vegetation, elevations and site location.

The baseline studies outlined that the impacts are very low, with no further mitigation necessary.



3 Outcome of the Site Sensitivity Verification

3.1 Agricultural Theme

The proposed agricultural area will not impact on the surrounding agricultural developments, as it will help to sustain/improve production on the farm. The protocol states that should the site have a medium or low sensitivity rating, compliance statement must be prepared by a soil scientist or agricultural specialist, registered with the SACNASP. However, in this case the activity will not have a negative but a positive impact on agriculture. For this reason, the findings of the sensitivity verification report are disputed and neither an agricultural assessment nor an agricultural compliance statement is deemed necessary. A comment will, however, be requested from the Department of Agriculture and included as/if received.

3.2 Animal Species Theme

The Site Sensitivity Report refers to the following species "*Aves-Neotis ludwigii*" Ludwig's bustard is a species of bird in the bustard family and named after Baron von Ludwig. It is a medium-to-large sized species. It is found in Angola, Botswana, Lesotho, Namibia, and South Africa. Its habitats include semi-arid grasslands.

The development area is within an area extensively utilized for agriculture and no animal life was noted during the site inspection. The property is also still being run as a farm; thus, insecticides will keep all insects at bay. Should any animal life be encountered it must be carefully removed and none must be harmed or killed (this condition will be included in the environmental management programme (EMPr)).

The findings of the sensitivity verification report are disputed and should be regarded as negligent. No additional assessments will be conducted.

3.3 Aquatic Biodiversity Theme

According to the screening report, the site has a low sensitivity in terms of aquatic biodiversity.

The EAP concurs with the finding of the screening report. A freshwater specialist Statement will not be included in the BAR.

3.4 Civil Aviation Theme

The Protocol for Civil Aviation came into effect on 09 May 2020. The protocol states that should the information gathered from the site sensitivity verification differ from the designation of "very high", "high" or "medium" sensitivity on the screening tool and it is found to be of a "low" sensitivity, no further assessment requirements are identified. The findings of the sensitivity verification report are disputed and should be regarded as negligent. As such, no further assessments are required.

3.5 Terrestrial Biodiversity Theme and Plant Species Theme

The affected area will be utilised for agricultural activities and as indicated in Section 2.2 it will impact on the CBA2 on the property. The findings of the site sensitivity report indicates that



the area is of very high importance, these findings are not disputed, and the rating should be indicated as included. A Botanical specialist was appointed to carry out an assessment of the terrestrial sensitivity.

3.6 Defence Theme

The site is located within a rural setting surrounded by agricultural developments and will not impact on defence installation. The Protocol for Defence came into effect on 09 May 2020. According to the protocol, no negative impacts on the defence installation are expected in low sensitivity areas. It is unlikely for further assessment and mitigation measures to be required.

As the development will not impact on defence installation and the findings of the sensitivity verification report are confirmed, no further studies are required.

3.7 Landscape/Visual Impact Theme and Archaeological, Cultural Heritage and Palaeontology Theme

The farm has been zoned for agricultural purposes for more than 20 years and the surrounding areas is completely transformed by agricultural activities. The new development area has to a small extent been impacted; however, the majority is in a natural state. The development of the agricultural area is also considered to be in line with the existing use on the farm. As such, the ratings for archaeology are low and the ratings for the palaeontology are considered as low sensitivity. However, an assessment was conducted on the property directly adjacent to the affected area and these studies findings will be utilised.

The proposed development will be in line with the visual character of the surroundings as it is an expansion of existing use (agriculture) surrounded by similar activities. An online application will be lodged on SAHRIS. A Paleoethological Assessment and an Archaeological Assessment will include these assessments for the adjacent property and will be utilised to assess possible impacts.



BASIC ASSESSMENT REPORT

4 Summary Table of Site Analysis Verification

	Specialist Assessment	Screening Report Sensitivity Rating	Inclusion or Exclusion	Reasons for exclusion
1	Agricultural Theme & Agricultural Impact Assessment	High	Excluded	The new agricultural areas will not impact on the existing agricultural potential on site; the new development will help sustain/improve production. The protocol states that should the site have a medium or low sensitivity rating, compliance statement must be prepared by a soil scientist or agricultural specialist, registered with the SACNASP. However, in this case the activity will not have a negative but a positive impact on agriculture. For this reason, the findings of the sensitivity verification report are disputed and neither an agricultural assessment nor an agricultural compliance statement will be undertaken. A comment will, however, be requested from the Department of Agriculture and included as/if received.
2	Landscape/ Visual Impact Assessment	No rating	Exclusion	The activity will be located within a rural setting, surrounded by agricultural developments and will not impact on the visual character of the surroundings. Furthermore, the development will be in line with the zoning of the site, as well as visual characteristics of the surroundings which is agriculture. As such, no further studies will be conducted.
3	Archaeological and Cultural Heritage Theme & Impact Assessment	Low	Inclusion	The farm has been utilized for agricultural purposes for more than 20 years and is completely transformed by the activities. The development of the new agricultural areas is also considered to be in line with the existing use. As such, the ratings for archaeology are low and the ratings for the palaeontology are considered as a low sensitivity. However, an assessment was conducted on the property directly adjacent to the affected area and these studies findings will be utilised.
4	Palaeontology Theme & Impact Assessment	Low	Inclusion	See above in 3.
5	Terrestrial Biodiversity Theme & Impact Assessment	High	Inclusion	The Site Sensitivity Report indicates the impact to be high. These findings are not disputed at this stage, and the rating has been indicated as included. A Botanical Assessment should, however, be conducted to determine the impact on the botanical aspects.
6	Plant Species Theme	Medium	Inclusion	The site contains intact natural vegetation and therefore a botanical assessment will be conducted during the EIA phase.
7	Animal Species Theme	High	Exclusion	The Site Sensitivity Report refers to the following species " <i>Aves-Neotis ludwigii</i> " Ludwig's bustard is a species of bird in the bustard family and named after Baron von Ludwig. It is a medium-to-large sized species. It is found in Angola, Botswana, Lesotho, Namibia, and South Africa. Its habitats include semi-arid grasslands. The development area is within an area extensively utilized for agriculture and possibility of any animal life would be low. The property is also still being run as a commercial farm; thus, insecticides will keep all insects at bay. Should any animal life be encountered it must be carefully removed and none must be harmed or killed (this condition will be included in the environmental management programme (EMPr)). The findings of the sensitivity verification report are disputed and deemed to be negligent. No additional assessments will be conducted.
8	Aquatic Biodiversity Theme & Impact Assessment	Low	Exclusion	There will be no direct impacts on small streams; therefore, no application will be lodged with DWS. A buffer area will be provided for 20m surrounding the watercourse, to prevent any possible future impact. The findings of the sensitivity verification report are confirmed. A freshwater specialist Statement will not be necessary or included in the BAR.
9	Civil Aviation Theme	Medium	Exclusion	The site is located within a rural setting surrounded by agricultural developments. Further assessment is indicative that agricultural infrastructure will not have a negative height nor wind energy components that will impact on civil aviation. However, the Protocol for Civil Aviation came into effect on 09 May 2020. The protocol states that should the information gathered from the site sensitivity verification differ from the designation of "very high", "high" or "medium" sensitivity on the screening tool and it is found to be of a "low" sensitivity, no further assessment requirements are identified. The findings of the sensitivity verification report are disputed and should be regarded as negligent. As such, no further assessments are required.
10	Defence Theme	Low	Exclusion	The site is located within a rural setting surrounded by agricultural developments and will not impact on defence installation. However, since the Protocol for Defence came into effect on 09 May 2020. According to the protocol, no negative impacts on the defence installation are expected in low sensitivity areas. It is unlikely for further assessment and mitigation measures to be required. As such, no further studies are required, and the findings of the sensitivity verification report are confirmed.

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS
REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED DEVELOPMENT
FOOTPRINT ENVIRONMENTAL SENSITIVITY**

EIA Reference number:

Project name:

Project title:

Date screening report generated: 07/03/2022 09:15:27

Applicant: Eternal Flame

Compiler: GroenbergEnviro Pty Ltd

Compiler signature:

Application Category: Transformation of land|Indigenous vegetation

OFFICIAL

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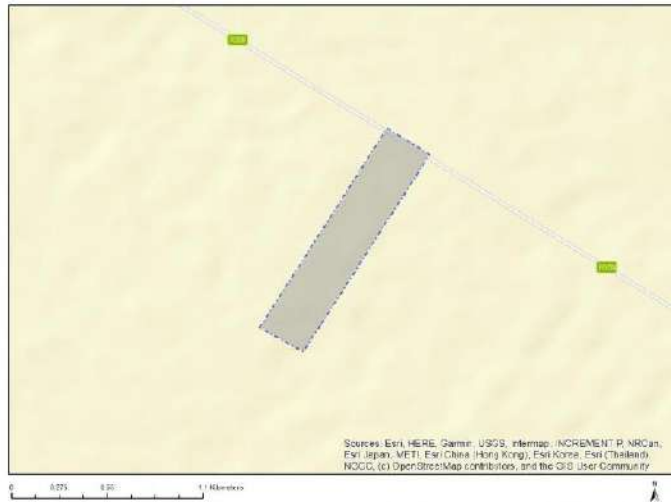
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Proposed Project Location

Orientation map 1: General location



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	KAKAMAS SOUTH SETTLEMENT	2094	0	28°41'37.16S	20°26'50.07E	Erven

Development footprint¹ vertices:

Footprint	Latitude	Longitude
1	28°41'18.39S	20°26'58.22E
1	28°41'22.68S	20°27'6.15E
1	28°41'23.54S	20°27'5.52E
1	28°41'50.65S	20°26'45.82E
1	28°41'54.96S	20°26'42.68E
1	28°41'51.23S	20°26'34.81E
1	28°41'51.08S	20°26'34.48E
1	28°41'18.39S	20°26'58.22E

¹ "development footprint", means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

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Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	12/12/20/2185	Solar PV	Approved	21.7
2	12/12/20/2231	Solar PV	Approved	21
3	14/12/16/3/3/1/453	Solar PV	Approved	19.7
4	12/12/20/2564	Solar PV	Approved	16.2

Environmental Management Frameworks relevant to the application



Environmental Management Framework	LINK
Siyanda District Municipality EMF	https://screening.environment.gov.za/ScreeningDownloads/EMF/SIYANDA_EMF_REPORT_2008.doc

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development footprint as well as the most environmental sensitive features on the footprint based on the footprint sensitivity screening results for the application classification that was selected. The application classification selected for this report is:

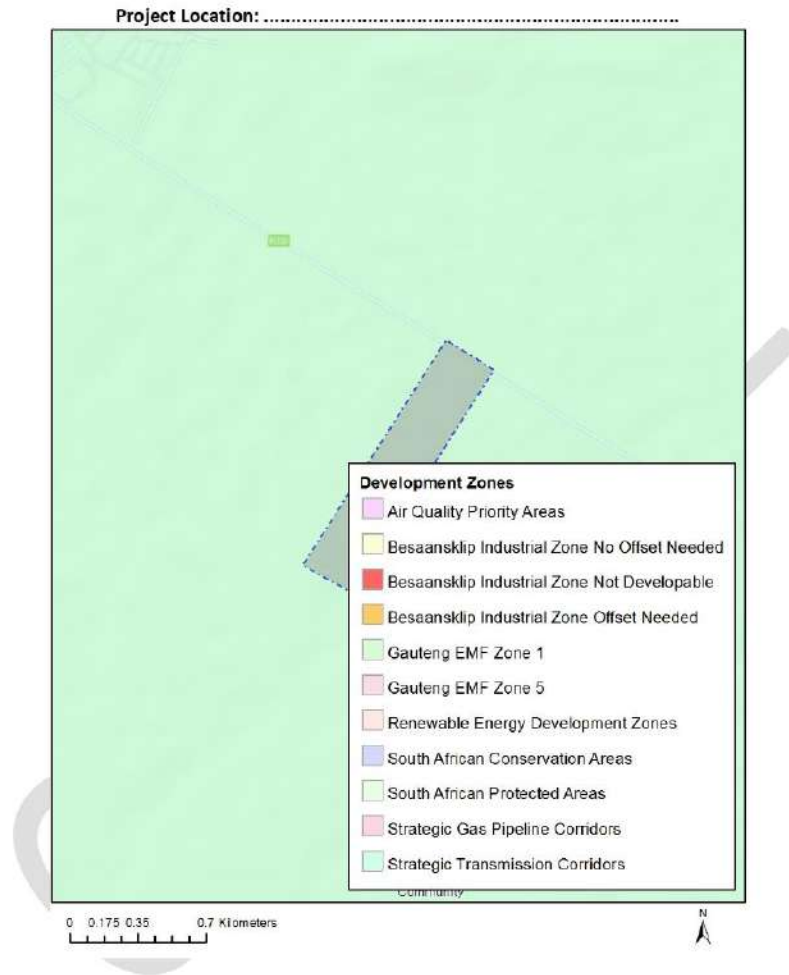
Transformation of land | Indigenous vegetation.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this footprint are indicated below.

Incentive, restriction or prohibition	Implication
Strategic Transmission Corridor-Northern corridor	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_EGI.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development footprint environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme		X		

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Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme			X	
Defence Theme				X
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the footprint situation.

N o	Specialist assessment	Assessment Protocol
1	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
6	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
7	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf

	ent	
8	Animal Species Assessm ent	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

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Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed footprint for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

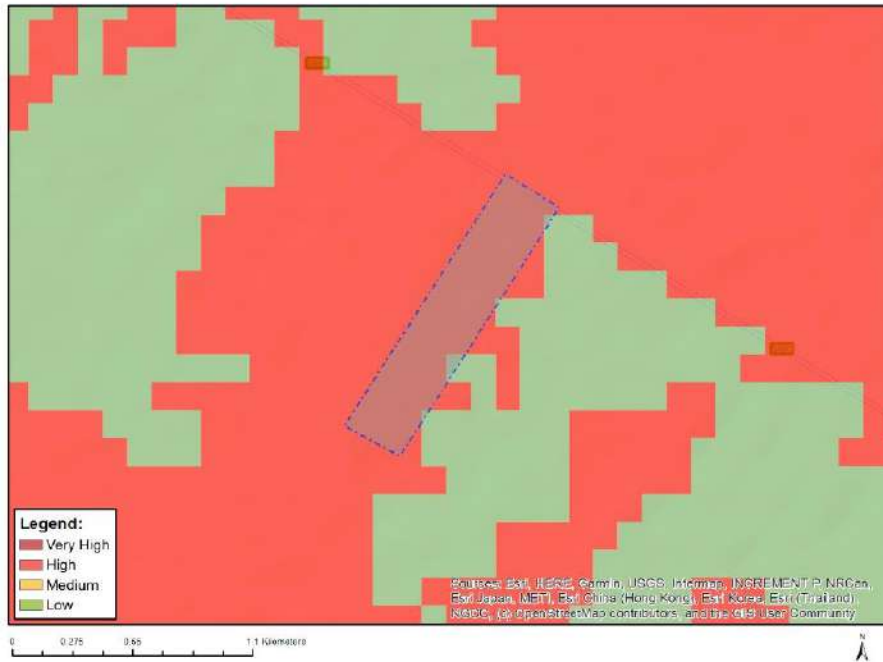


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Annual Crop Cultivation / Planted Pastures Rotation; Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Low	Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Neotis ludwigii
Low	Low sensitivity

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Between 8 and 15 km of other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 144

Appendix J2: Water Use License



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Private Bag X313, Pretoria 0001, 185 Francis Baard Street, Sedibeng Building, Pretoria, Tel: 012 336 7500, Fax (012) 323 4472/ (012) 326 2715. www.dws.gov.za

**LICENCE IN TERMS OF CHAPTER 4 OF THE
NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998)**

I, **Iketletso Lekalake** in my capacity as Provincial Head: Northern Cape in the Department of Water and Sanitation: and acting under authority of the powers sub- delegated to me by the Acting Director- General of Water and Sanitation, hereby authorises the following water uses in respect of this licence.

SIGNED: *Lekalake*

DATE: 22 December 2021

**LICENCE NO: 10/D81A/A/11331
FILE NO: 27/2/1/D181/40/1**

1. Licensee: Eternal Flame Inv 104 Pty Ltd

Postal Address P.O. Box 45
Augrabies
8874

2. Water Uses

2.2 Section 21(a) of the Act: Taking water from a water resource; subject to the conditions set out in Appendices I and II.

3. Properties in respect of which the licence is issued

3.1. ERF 2094 portion 0, Kakamas South Settlement

4. Registered owners of the Property

4.1 Eternal Flame Inv 104 Pty Ltd

5. Licence and Review Period.

5.1 This licence is valid for a period of 20 years from the date of issuance, and it may be reviewed at an interval not more than five (5) years.

6. Definitions

Any terms, words and expressions as defined in the National Water Act, 1998 (Act 36 of 1998) shall bear the same meaning when used in this licence.

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"The Reginal Head"- means the Chief Director: Northern Cape, Department of Water and Sanitation, Private Bag X6101, Kimberley, 8300.

"The Department" means the Department of Water and Sanitation.

"Responsible Authority" means the Department of Water and Sanitation or Catchment Management Agency.

"Report" refers to the reports entitled:

- i) Business Plan, compiled by the Eternal Flame Inv 104 Pty Ltd, September 2020; and
- ii) Water use licence Application Reports compiled by Eternal Flame Inv 104 Pty Ltd, dated September 2020; and as well as all other related documentations and communication (emails, letters, verbal, etc.) related thereto.

7. Description of the activity

The activity entails taking water from Orange River through Augrabies main Canal to irrigate 10 hectors of grapes using micro sprinklers irrigation system on ERF 2094 portion 0, Kakamas South Settlement. There will be no storage facility; water will be pumped directly from Orange River to the irrigation field. The geographical location of the abstraction point is S : S : 28°40'43'.2E : 20°27'51'.5. The activity falls within quaternary catchment D81A in the Orange Water Management Area.

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APPENDIX I

Conditions for all Water Uses

1. This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998).
2. The responsibility for complying with the provisions of the licence is vested in the Licensee and not any other person or body.
3. The Licensee must immediately inform the Reginal Head or Responsible Authority of any change of name, address, premises and/or legal status.
4. If the property in respect of which this licence is issued is subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Reginal Head or Responsible Authority of the Department within 60 days of the said change taking place.
5. If a water user association is established in the area to manage the resource, membership of the Licensee to this association is compulsory.
6. The Licensee shall be responsible for any water use charges or levies imposed by a responsible authority in terms of the Raw Water Pricing Strategy, Waste Discharge Charges, Water Resource Management Charge of the Department, or any other water charge or levies that might be imposed in terms of the appropriate legislation.
7. While effect must be given to the Reserve as determined in terms of the Act, where a desktop determination of the Reserve has been used in issuance of a licence, when a comprehensive determination of the Reserve has finally been made; it shall be given effect to.
8. The licence shall not be construed as exempting the Licensee from compliance with the provisions any other applicable Act, Ordinance, Regulation or By-law.
9. The licence and amendment of this licence are also subject to all the applicable procedural requirements and other applicable provisions of the Act, as amended from time to time.
10. The Licensee shall conduct an annual internal audit on compliance with the conditions of licence. A report on the audit shall be submitted to the Reginal Head or Responsible Authority within one month of the finalisation of the audit.
11. The Licensee shall appoint an independent external auditor to conduct a biennial external audit on compliance with the conditions of this licence. The audit shall be conducted within 6 (six) months after the submission of internal audit, and a report of the audit shall be submitted to the Reginal Head or Responsible Authority within one month of finalisation of the audit report.
12. Any incident that causes or may cause water pollution shall be reported to the Reginal Head or Responsible Authority or his/her designated representative within 24 hours.
13. The Licensee must inform the Department at least 300 days before the expiry date of the licence whether the licence must be considered for another term.

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14. Licensee shall use water efficiently to minimise total water intake, void usage of water where possible, implement "good" housekeeping and operating practices, and maximise the reuse /recycle of contaminated water.
15. All measuring, recording and integrating devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals as specified and required according to the device specifications.
16. The licensee must calibrate the inflow and outflow meters and these calibration certificates shall be available for inspection by the Regional Head or Responsible Authority or his/her representative upon request. A relevant maintenance and calibration schedule should be compiled and maintained by the licensee.
17. The conditions of the authorisation must be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of these activities and the licensee must take such measures that are necessary to bind such persons to the conditions of this licence.
18. Notices prohibiting unauthorised persons from entering the certain areas, as well as acceptable signs indicating the risks involved in case of an unauthorised entry must be displayed along the boundary fence of these areas.
19. If the Licensee is not the end user/beneficiary of the water use related infrastructure and will not be responsible for long term maintenance and management of the infrastructure, the Licensee must provide a programme for hand over to the successor-in-title including a brief management/maintenance plan and the agreement for infrastructure along with allocation of responsibilities, within three (3) months before handover.
20. The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of-
 - 20.1 shortage of water;
 - 20.2 inundations or flood;
 - 20.3 siltation of the resource; and
 - 20.4 required reserve releases.

APPENDIX II

Section 21 (a) of the Act: Taking water from a water resource

1. This licence authorises the abstraction of 150 000m³/a of water from though south main the canal as indicated in Table 1. Wate abstracted shall be used irrigate 10 hectors of grapes using drip irrigation system.

Table 1: Section 21 (a) water use activity

Water Use	Purpose	Volume (m ³ /a)	Properties	Co-ordinate
Section21(a)				
Abstraction of water from the Orange River Augrabies main Canal	Irrigation of grapes	150 000m ³ /a	ERF 2094 portion 0, Kakamas South Settlement	S : 28°40'43".2 E : 20°27'51".5

2. The quantity of water authorised to be taken in terms of this licence may not be exceeded without prior authorisation by the Responsible authority.
3. This licence does not imply any guarantee that the said quantities and qualities of water will be available at present or at any time in the future.
4. The abovementioned volume may be reduced when the licence is reviewed.
5. The Licensee shall continually investigate new and emerging technologies and put into practice water efficient devices or apply technique for the efficient use of water containing waste, in an endeavour to conserve water at all times.
6. All water taken from the resource shall be measured as follows:
 - 6.1 The daily quantity of water taken must be metered or gauged and the total recorded at the last day of each month; and
 - 6.2 The Licensee shall keep record of all water taken and a copy of the records shall be forwarded to the Reginal Head or Responsible Authority each year with the annual monitoring report.
7. No water taken may be pumped, stored, diverted, or alienated for purposes other than intended in this licence, without written approval by the Reginal Head or Responsible Authority.
8. The Licensee shall install and monitor appropriate water measuring devices to measure the amount of water abstracted, received and/or consumed, as applicable to the infrastructure.
9. The licensee shall establish and implement a continual process of raising awareness amongst itself, its workers and stakeholders with respect to Water Conservation and Water Demand Management initiatives.
10. The licensee shall as part of annual monitoring report submit:-
 - 10.1 Details of crops
 - 10.2 Irrigation system types
11. The licensee shall appoint and make use of suitable qualified irrigation system designers for

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FILE NO: 27/2/1/D181/40/1

the design and installation of irrigation systems which shall be registered with South African Irrigation Institute.

12. The Licensee shall compile an Annual Monitoring Report and submit to the Reginal Head or Responsible Authority within eighteen (18) months after issuance of this licence and annually thereafter under Reference number 27/2/1/D181/40/1. This must be accompanied by the results of analysis after monitoring requirements.

[END OF LICENCE]