



**BASIC ASSESSMENT AND WATER USE LICENCE FOR  
THE PROPOSED PANFONTEIN ACCESS ROAD FOR RAND  
WATER IN MIDVAAL LOCAL MUNICIPALITY, GAUTENG  
PROVINCE**

**DRAFT BASIC ASSESSMENT REPORT**

**MARCH 2016**

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# BASIC ASSESSMENT REPORT



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(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 streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
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.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority

## PROJECT DETAILS

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**Title** : Environmental Basic Assessment Process for  
The Proposed Panfontein Access Road for RAND WATER in  
Midvaal Local Municipality, Gauteng Province.

**Report compiled by** : Company Name: Envirolution Consulting  
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**Client** : RAND WATER (RW)

**Report Status** : Draft Basic Assessment Report for Public Review

**Review Period** **The 30-day period for review is from  
11 March 2016 – 13 April 2016**

**DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)**

<b>Environmental Assessment Practitioner (EAP):</b>	Envirolution Consulting (Pty) Ltd		
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<b>EAP Qualifications</b>	BSc (Hons)		
<b>EAP Registrations/Associations</b>	Registered with the South African Council for Natural Scientific Professions (No: 400049/12)		

**Details of the EAP's expertise to carry out Basic Assessment procedures**

Envirolution Consulting Pty Ltd was contracted by Rand Water as the independent environmental consultant to undertake the Environmental Basic Assessment process for the proposed project. Envirolution Consulting Pty Ltd is not a subsidiary of or affiliated to Rand Water. Furthermore, Envirolution Consulting does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

The Envirolution Consulting team have considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with linear developments.

The EAPs from Envirolution Consulting who are responsible for this project are (refer to **Appendix H** for CVs):

- Gesam Govender – The principle environmental assessment practitioner (EAP) for this project is a registered Professional Natural Scientist and holds an Honours Degree in Botany. He has over 15 years of experience within the field of environmental management. His key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. He is currently responsible for the project management of EIAs for several diverse projects across the country.
- Ms. Jubilee Bubala the principle author of this Basic Assessment Report holds a Master's of Science degree from the Witwatersrand University. She has 6 years of experience consulting in the environmental field. Her key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; environmental auditing and compliance reporting; the identification of environmental management solution and

mitigation/risk minimising measures; environmental auditing, monitoring and reporting compliance; and developing and implementing ISO 14001:2004. Jubilee has been a project scientist for various EIA's in South Africa and Southern Africa. Jubilee is currently a Project Manager and Environmental Consultant at Envirolution Consulting Pty Ltd.

In order to adequately identify and assess potential environmental impacts associated with the proposed project, Envirolution has appointed the following specialists to conduct specialist impact assessments:

- Ecology (Flora) – Alan Short (Themeda Eco Consulting)
- Ecology (Fauna) – Christine Kneidinger (Classical Environmental Management Service)
- Ecology (Wetland)- Antoinette Bootsma ( Limosella Consulting)
- Soils and Agricultural Potential – Garry Petersen (ARC-Institute for Soil, Climate and Water)
- Heritage - J A Van Schalkwyk (National Cultural History Museum.)
- Traffic– Shabir Paruk (Paruk Consulting)
- Geotechnical Study -(HHO)

Details of Specialist Declaration of Interest included in **Appendix I**

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### **Appendix A: Site plan(s)**

- A1: Locality Map
- A2: Layout Plan
- A3: Sensitivity Maps
- A4: Route Corridor Coordinates

### **Appendix B: Photographs**

### **Appendix C: Facility illustration(s)**

### **Appendix D: Specialist reports**

- D1: Wetland Specialist Report
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- D3: Flora Specialist Report
- D4: Soil and Agriculture Specialist Report
- D5: Heritage Specialist Report
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- D7: Geotechnical Report

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Appendix E2: Proof of key stakeholder consultation

Appendix E3 (a): Comments Received

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Appendix E4: Proof of Authorities and Organs of State consultation

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### **Appendix F: Impact and Assessment Report**

### **Appendix G: Environmental Management Programme (EMPr)**

#### **Appendix G1: Rehabilitation and Monitoring Plan**

#### **Appendix G2: Stormwater Management Plan**

### **Appendix H: Details of EAP and Expertise**

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**Appendix J: Additional Information**

## SECTION A: ACTIVITY INFORMATION

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

YES

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

### 1. PROJECT DESCRIPTION

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

##### 1.1 Background Information

**Rand Water** (hereafter referred to as "RW") is a South African water utility that supplies potable quality water to the Gauteng province and other areas of the country and is the largest water utility in Africa. The Zuikerbosch Water Treatment Works (ZBWTW) (hereafter referred to "ZBWTW") is one of Rand Water's key operations that enables Rand Water to meet its obligation as a supplier of potable quality water. The only direct access to the ZBWTW and Rand Water Panfontein Sludge Disposal Site is via the provincial road K81 "Vischgat Road" (D1321) off the R54 (South-east). The intersection between the R54 and K81 is approximately 8km east of Vereeniging. The ZBWTW is situated along the K81 (D1321) approximately 3.2km south of the R54 intersection.

The route traverses an existing single lane (4 m wide) bridge (B483) over the Zuikerboschrand River a tributary of the Vaal River. The bridge is located approximately 1.8km south of the R54 intersection. The bridge level falls within the 1:50 year flood line. Under river flood conditions, the bridge is inaccessible. The bridge is frequently over topped by flood water and the last incidence occurred in 2011. Access across the bridge is currently controlled through stop control signs on either approach. In addition, the geometric alignments of the approaches to the bridge are also below current design and safety standards. Inaccessibility over the bridge ((B483) poses a major risk to the operation requirements of the ZBWTW and Rand Water as an organisation. It also affects the ability of RW staff as their workplace is inaccessible. Inaccessibility also leads to potential down time of the works, i.e. shortage of supply.

Through a detailed feasibility study it was determined that a new surfaced road to link the R54 road to the K81 road is required to provide alternative access for RW to two of Rand Water's facilities (Panfontein Sludge Disposal Site and Zuikerbosch TPW) specifically when the Suikerbosrand River floods and the bridge impassable.

##### 1.2 Project Description and Routes

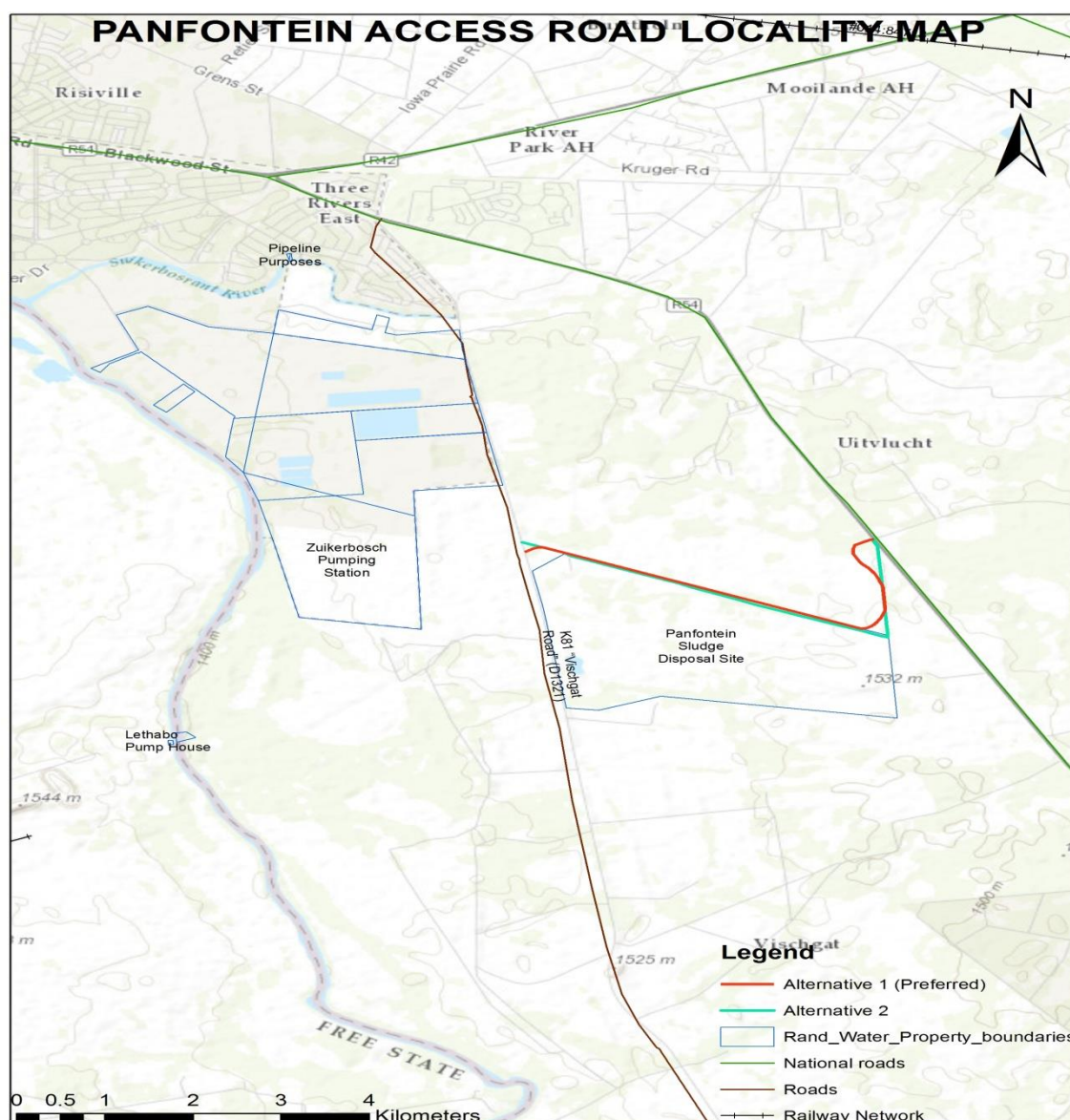
Following the above, RAND WATER is submitting an application to the Department of Environmental Affairs (DEA) for the proposed development of a new access surfaced road to link R54 road to the K81 to provide alternative access for RW to two of Rand Water's facilities (Panfontein Sludge Disposal Site and ZBWTW when the Suikerbosrand River floods). The surfaced road will be approximately 5.5km in length. The minimum cross section shall provide for a 6.8m surfaced road width and 0.9 m wide unsurfaced shoulder on both sides. The road reserve is proposed to be 20 m wide. Furthermore the work shall entail the upgrade of the existing intersection on the K81 to the Panfontein Sludge Disposal Site. Works shall additionally include the separation of the access along the new road and the entrance to the Panfontein Sludge Disposal Site and the relocation of services and infrastructure (cathodic protection unit and flow meter) where required.

The project site is located in Vereeniging, within the Midvaal Local Municipality in Gauteng Province.

Based on a pre-feasibility analysis undertaken by RW two alternative alignments were considered feasible and provided for further assessment through the Basic Assessment. Please refer to attached **Figure 1** and



**Appendix A** for details. This Basic Assessment Report (BAR) covers the findings of the site assessment and impacts identified in the preferred Layout route alternative 1 and the associated Layout alternative 2 for the proposed construction of the road. A corridor of 30m was assessed for the proposed route within which the road will be constructed.



**Figure 1:** Map showing the two route alternatives in relation to the Panfontein sludge disposal site and the ZBWTW.

The two route alternative corridors for the construction of the proposed access road merge for the majority of their distance and are described in detail as follows:

**1.2.1 Alternative 1 –(shown in red) (Preferred Alternative):**

The road starts at the D1321 (K81) Road and it continues along the existing gravel access road alignment to the Panfontein Sludge Disposal Site. The centerline of the road continues on what would be the extension of the existing gravel access road alignment. (The site is an open area that is predominantly used for cattle grazing and maize production). The route runs parallel to the northern boundary of the Rand Water Panfontein

Sludge Disposal Site for approximately 3.60km. The road's orientation along this length is west to east. Approximately 0.20km before the edge of the sludge disposal site, the alignment curves towards the northerly direction (parallel to the R54) making an S-bend to tie into the existing R54 Balfour intersection at a right angle. The S-bend near the R54 intersection is as a result of providing 100m of straight road perpendicular to the R54 to allow for better sight lines along the road as required by GAUTRANS. The alignment is approximately  $\pm 5.3$ km in length. This route is located on farm portions 6, 8, 9 and 70 of Uitvlucht 434 IR. This alternative was identified as the preferred alternative route due to safety reasons related to traffic impact during the operation phase.

### 1.2.2 Alternative 2 (Purple)

Alternative 2 is similar to alternative 1, this alignment starts at the D1321 (K81) Road, but unlike alternative 1, it utilises the existing intersection. From here the route follows the same corridor as that of Alternative 1 running along the northern boundary of the Rand Water Panfontein Sludge Disposal Site for 3.60km and at this point, unlike Alternative 1 (that kink upwards to head north), Alternative 2 continues for another 0.20km until the edge of the sludge disposal site, transecting an additional farm portion number 6 of the Badfontein 438 IR. At the end of the disposal sludge site it makes a 45 degree turn and kinks north to rejoin the common alignment with Alternative 1. Unlike Alternative 1 that makes an S-bend in the last leg before joining into the R54 intersection; Alternative 2 continues straight on the existing gravel farm road to tie into the existing R54 Balfour intersection at an acute angle. Alternative 2 route is L shaped and it is approximately  $\pm 5.5$ km in length. This route is located on farm portions 6, 8, 9 and 70 of Uitvlucht 434 IR and farm portion number 6 of Badfontein 438 IR.

### 1.3. Specialist studies

Several specialist studies have been undertaken to provide more detailed information on the environmental aspects that may be affected by the proposed project. Specialist Ecological (Flora and Fauna), Wetland, Geotechnical, Heritage, Agriculture and Traffic Assessments were undertaken during the Basic Assessment and their reports are attached within Appendix D of this BAR.

### 1.4. Construction Process

The following activities will be undertaken.

- Site Clearance
- Construction of the access road
- Construction of pavement layers
  - Surfacing the road with an asphalt layer
  - Construction of gravel shoulders
  - Finishing off the road reserve
  - Reconstruction of the intersections at the R54 AND D1321 Provincial roads
  - Construction of a new intersection at the Panfontein Sludge Disposal Site
- Relocation of existing services (where required)
- Installation of storm water management measures
  - Earth side drains
  - Concrete lined side drains
  - Cross pipes with headwalls and wing walls on both sides
  - Construction and installation of prefabricated culverts
- Installation of road signs and markings
- Installations of stock fence along the road reserve

- Installation of pedestrian roof fence at R54 and D1321 intersections
- Land explorations works

Construction of the proposed access road will take approximately 9-18 months to complete.

### 1.5 Operation Phase.

The proposed access road will require minimal maintenance work when required in terms of reviving road markings and also the cleaning of the storm water drains.

### 1.6 Decommissioning Phase.

The infrastructure will be decommissioned once it has reached the end of its economic life or is no longer required. The generic decommissioning activities would comprise of, site preparations, blasting of the road and removal of debris from site and rehabilitation. However, it must be noted that, decommissioning and closure phase has not been considered as part of this application as the end use of the site and required decommissioning activities are not known at this time and not envisaged. If decommissioning phase is considered in future, the developer will undertake the required actions as prescribed by the legislation at the time and comply with all relevant requirements administered by any relevant authority and competent authority at that time.

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

Listed activity as described in GN 983, 984 and 985	Description of project activity
<p><b>GN 983, Listing Notice 1, Activity 24:</b> The development of-</p> <p>(ii) a road with a reserve wider than 13.2 metres, or where no reserve exist where the road is wider than 8 metres but excluding-</p> <p>(a) Roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or</p> <p>(b) roads where the entire road falls within an urban area</p>	<p>A new surfaced road of approximately 5.5km in length with a 20 m wide road reserve will be constructed outside an urban area.</p>
<p><b>GN R 983 Listing 1, Activity 19</b> The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from-</p> <p>(i) a watercourse</p>	<p>The proposed access road will traverse an artificial watercourse.</p>
<p><b>GN 985, Listing Notice 3, Activity 4:</b> The development of a road wider than 4 metres with a reserve less than 13.5 metres.</p> <p>(c) In Gauteng:</p> <p>(iv) Sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support areas (ESA's) in the Gauteng Conservation plan or in Bioregional plans;</p> <p>vii) Sensitive areas identified as high potential agricultural land in terms of Gauteng Agricultural</p>	<p>The access road will be wider than 4 metres; the western end of the route slightly overlaps an ecological support area (ESA) namely the Soweto Highveld Grassland. Similarly to the above, along the route corridor is a moist area (artificial seepage watercourse) also an Ecological Support area.</p> <p>The access road will be located on farmland an area identified as high potential agricultural land in terms of Gauteng Agriculture Potential Atlas.</p>

Potential Atlas.	
<p><b>GN R 983 Listing 3, Activity 14</b></p> <p>The development of –</p> <p style="padding-left: 40px;">(xii) infrastructure or structures with a physical footprint of 100 square metres or more.</p> <p>where such a development occurs-</p> <p style="padding-left: 40px;">(a) within a watercourse;</p> <p style="padding-left: 40px;">(c) If no development setback exists within 32 metres of a watercourse measured from the edge of a watercourse.</p> <p style="padding-left: 40px;">(b) In Gauteng:</p> <p style="padding-left: 40px;">(iv) Sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support areas (ESA's) in the Gauteng Conservation plan or in Bioregional plans;</p>	<p>The proposed road will transect a moist area (an artificial seepage wetland) that occurs along the route corridor where it runs along the northern boundary of the sludge disposal site. In addition there is another artificial watercourse within 32 metres from the edge of the route corridor.</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.

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

**a) Site alternatives**

**Not Applicable**

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

**In the case of linear activities:**

The proposed route of the access road (applicable for both the preferred and alternative site layout) will start from the K81 and follow the existing farm track running on the northern boundary of the Panfontein Sludge Disposal Site to join the K54. No feasible alternative routes are being considered for the access road as the proposed development is to follow existing linear infrastructure in the form of formal dirt road and informal dirt farm road. Due to the proximity of the proposed development to Zuikerbosh Water Treatment Works and Sludge Disposal Site and the fact that the proposed route follows an existing road which minimises the environmental impacts, no other practicable alternative exist.

**Alternative:**

**Latitude (S):**

**Longitude (E):**

Alternative S1 (preferred)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

26° 42' 14.33" S	28° 01' 39.18" E
26° 42' 43.07" S	28° 03' 01.92" E
26° 42' 12.83" S	28° 03' 48.57" E

Alternative S2 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

26° 42' 19.26" S	28° 01' 40.29" E
26° 42' 46.19" S	28° 03' 04.71" E
26° 42' 12.83" S	28° 03' 48.57" E

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.

A table has been attached as **Appendix A4** with all the proposed route coordinates in relation to alignment layout

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**

As with the selection of the site alternatives, the consideration of layout alternatives is constrained on the basis of the higher ecological sensitivity of the study area. The linear development falls within the remaining extent of two Threatened Terrestrial Ecosystems. Alternative S1 (preferred) and Alternative S2 are found mainly in the Central Free State Grassland which is considered Vulnerable and it also infringes on a small portion in the Soweto Highveld Grassland that is considered Endangered. The layout alternatives therefore are constrained with the

ecological sensitivity surrounding the study area. Both alternative layouts took all possible care to avoid environmentally sensitive areas identified through this Basic Assessment process. Refer to **Figure 3**.

<b>Alternative 1 (preferred alternative)</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
Preferred site layout centre point	26° 42' 43.07" S	28° 03' 01.92" E
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative site layout centre point	26° 42' 46.19" S	28° 03' 04.71" E

c) Technology alternatives

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

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

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

e) **No-go alternative**

This is the option of not constructing the proposed access surfaced road. This option is assessed as the “no go alternative” in this Basic Assessment Report (Section D and Appendix F), against which the project impacts are assessed. If the project does not proceed, there will still be a need for an alternative access route to provide uninterrupted and safe access to Rand Waters’ critical facilities and ensure continued potable water supply. The site will remain unchanged and there will be neither opportunities for temporary employment nor a safe and permanently accessible route to Rand Waters’ essential operation sites.

**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 A1<sup>1</sup> ( )
- Alternative A2 (if any)
- Alternative A3 (if any)

**Size of the activity:**

	m <sup>2</sup>
	m <sup>2</sup>
	m <sup>2</sup>

or, for linear activities:

**Alternative:**

- Alternative A1 (Preferred site layout)
- Alternative A2 (Alternative site layout)
- Alternative A3 (if any)

**Length of the activity:**

	±5300m
	±5500m
	m

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

**Alternative:**

- Alternative A1 (Preferred site layout)
- Alternative A2 (Alternative site layout)
- Alternative A3 (if any)

**Size of the site/servitude:**

	10.6 hectares.
	11 hectares
	m <sup>2</sup>

### 4. SITE ACCESS

Does ready access to the site exist?

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

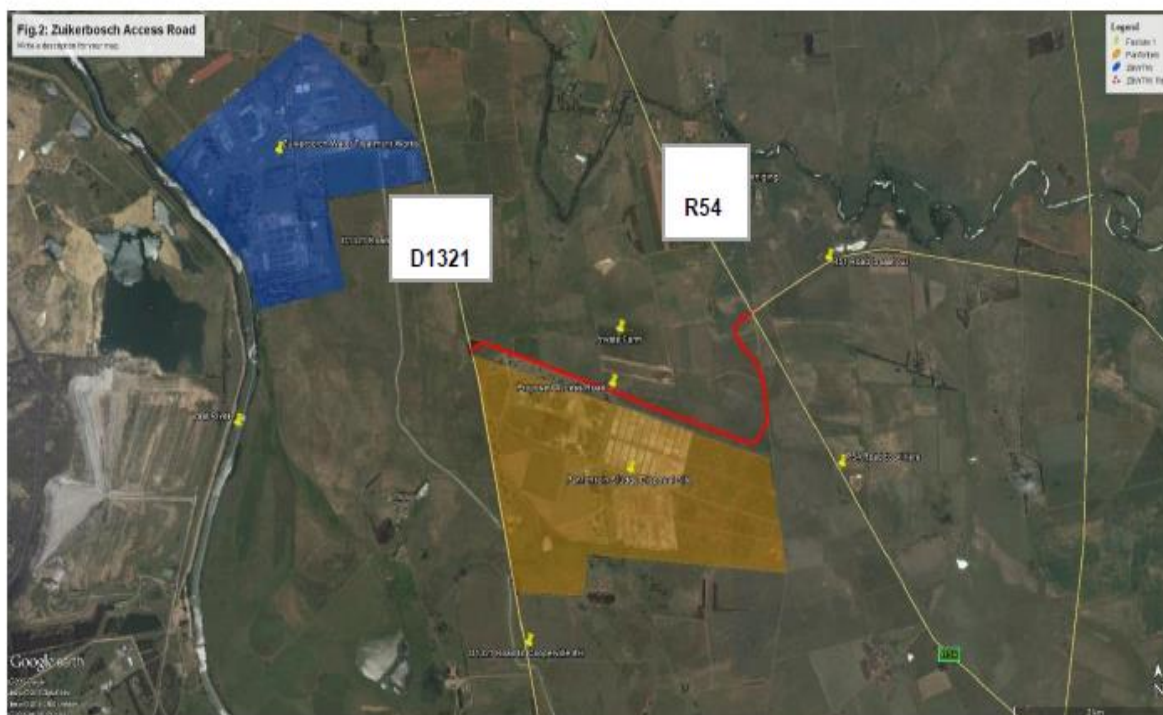
YES	
	m

Describe the type of access road planned:

The proposed site is located between the R54 and D1321 roads and can be accessed via either of the existing access roads therefore there is ready access to the site at these intersections (R54 or D1321). Between (R54 and D1321). exist a formal gravel road and informal dirt farm road. There is a need to construct a formal surfaced access road to replace this gravel and dirt road in order to provide a permanently accessible route to Rand Waters operational sites (ZBWTW and Panfontein Sludge Disposal site) which are inaccessible when the Suikerbosrand River floods. Rand Water currently accesses its sites using the proposed route (Alternative S1 (preferred) and Alternative S2) during periods of flooding as per the arrangement with the respective Landowner.

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. **See Appendix A and Figure 2 .**

<sup>1</sup> "Alternative A." refer to activity, process, technology or other alternatives.



**Figure 2:** Map showing access roads R54 and D1321 (K81) to site, with the proposed route corridor shown in red

## 5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

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

An A3 Locality Map is attached within **Appendix A**.



## 6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

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

An A3 Layout Map is attached within **Appendix A**

## 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 A**.

An integrated layout plan (Alternative S1 (preferred) and Alternative S2) has been overlain on a sensitivity map and attached within **Appendix A**.

## 8. SITE PHOTOGRAPHS

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

Colour photographs taken on site together with a description of each photograph are attached within **Appendix B**.

## 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.

The facility illustration is enclosed within **Appendix C**

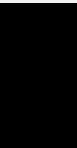
## 10. ACTIVITY MOTIVATION

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

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>		<b>NO</b> ✓	Please explain
The proposed route and development footprint passes through privately owned farm areas and is zoned agriculture. Once in place, the access road is unlikely to significantly disrupt farming activities. The development footprint on site will be required to be rezoned "special use" as required by the municipality.			
<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	<b>YES</b> ✓		Please explain
The Gauteng PSDF is a provincial and strategic planning policy that responds to and complies with in particular the National Development Plan vision 2030 and the National Spatial Development perspective (NSDP). This framework promotes a developmental state in accordance to the principals of global sustainability as is stated by among others, the South African constitution and enabling legislation. The Gauteng PSDF is based on six growth and development pillars, each of which has its onset of drivers with long term-programmes. Pillar 1 highlights the job creation by expanding and maintaining road infrastructure. The proposed development will create jobs opportunities during the construction phase, these employment opportunities will target local community members that are usually excluded from mainstream economic and formal employment. Therefore the development is in line with the Gauteng PSDF. Additionally the project will also assist with integration of economically disadvantaged communities in the project shall also ensure that there is uninterrupted service delivery from Rand Water.			
<b>(b) Urban edge / Edge of Built environment for the area</b>		<b>NO</b> ✓	Please explain
The proposed development falls outside the urban edge, therefore, the proposed access road will not impact on the urban edge.			
<b>(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?).</b>		<b>NO</b> ✓	Please explain
The study area falls within the Midvaal Local Municipality. Clean running water among other municipal services is highlighted in the 2014/-2015 IDP as priority issues warranting attention. The project will not compromise the IDP objectives but would rather assist the Local Municipality in achieving these targets as the access road will ensure Rand Waters operations are not interrupted due to the site being inaccessible. Additionally the job creation and skills transfer will occur during the construction phase of the project, increased employment and skills transfer is aligned with the Municipalities Development Plans			
<b>(d) Approved Structure Plan of the Municipality</b>	<b>YES</b> ✓		Please explain
The Municipality is aware of the proposed development and supports the application and has further provided input into the design of the road and the proposed intersections. The Municipality aims at ensuring that citizens have access to basic services such as water and this project will aid Rand Water an Organ of State that supplies potable quality water to operate effectively. The project shall also result in infrastructure development and increased connectivity paths for rural communities.			

<p><b>(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?)</b></p>		<p><b>NO</b> ✓</p>	<p>Please explain</p>
<p>The Sedibeng District Municipality and Midvaal Local Municipality do not have EMFs. The relevant conservation plan is the Gauteng Province Conservation Plan. According to this plan, the proposed site falls within the Critical Biodiversity Area and care must be taken to minimise any impacts on the biodiversity that may arise from the development. However, it is worth noting that the proposed development falls within an already transformed environment disturbed by anthropogenic activities such as agriculture (maize production and cattle rearing) and the adjacent Sludge Disposal site. The proposed project will therefore not compromise the existing environmental management priorities. Any negative impacts can be mitigated to acceptable levels. In addition the positive impacts would outweigh the negative impacts.</p>			
<p><b>(f) Any other Plans (e.g. Guide Plan)</b></p>		<p><b>NO</b> ✓</p>	<p>Please explain</p>
<p>None Applicable</p>			
<p><b>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)?</b></p>		<p><b>NO</b> ✓</p>	<p>Please explain</p>
<p>The main purpose of the access road is to provide continuous/uninterrupted access for RW to two of Rand Water's facilities (Panfontein Sludge Disposal Site and ZBWTW which is currently hindered when the Suikerbosrant River floods).</p> <p>The project shall assist in achieving the performance areas as identified by the Local Municipality, namely growth in the region and creation of more employment opportunities as well as through the improvement of public services and broadening access to communities and thereby improving quality of living which is further aligned with achieving the goal of opportunity in terms of economic growth and employment which also entails access to basic services, social infrastructure and quality environment. Furthermore the Municipality aims to achieve inclusivity which aims to integrate communities and improve transport corridors and human settlements. One such priority for the Municipality is the improvement of mobility corridors with specific reference to Route R54.</p> <p>The current land use of the proposed site is agriculture and livestock farming. The project is not specifically considered within the existing approved SDF. Due to the linear nature of the activity, the existing land use can still be maintained. The Sedibeng District Municipality seeks to address past spatial planning imbalances by bringing services and economic opportunities close to previously disadvantaged areas. This initiative is supported by the proposed access road.</p>			

<p><b>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.)</b></p>		<p><b>NO</b> ✓</p>	<p>Please explain</p>
<p>The main purpose of the access road is to provide continuous/uninterrupted access for RW to two of Rand Water's facilities (Panfontein Sludge Disposal Site and ZBWTW which is currently hindered when the Suikerbosrant River floods). The proposed activity is not necessarily a direct societal priority for the immediate community. However, the access road development will benefit the local Bonkiszwe, community through job creation during construction, skills development and transfer which in turn reduces poverty levels that the area is currently facing and overall the project will strengthen water quality supply in the area and the entire Rand Water supply network. The Sedibeng District Municipality seeks to address past spatial planning imbalances by bringing services and economic opportunities close to previously disadvantaged areas, this road shall positively impact the local community by improving mobility and job creation and increase inclusivity amongst neighbouring communities.</p>			
<p><b>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.)</b></p>		<p><b>YES</b> ✓</p>	<p>Please explain</p>
<p>The construction of the access road will not place additional pressure on the local area or Municipality during construction or operation phase of the development.</p>			
<p><b>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.)</b></p>		<p><b>YES</b> ✓</p>	<p>Please explain</p>
<p>The main purpose of the access road is to provide continuous/uninterrupted access for RW to two of Rand Water's facilities (Panfontein Sludge Disposal Site and ZBWTW which is currently hindered when the Suikerbosrant River floods).</p> <p>The project shall assist in achieving the performance areas as identified by the Local Municipality, namely growth in the region and creation of more employment opportunities as well as through the improvement of public services and broadening access to communities and thereby improving quality of living which is further aligned with achieving the goal of opportunity in terms of economic growth and employment which also entails access to basic services, social infrastructure and quality environment. Furthermore the Municipality aims to achieve inclusivity which aims to integrate communities and improve transport corridors and human settlements. One such priority for the Municipality is the improvement of mobility corridors with specific reference to Route R54.</p> <p>The Sedibeng District Municipality seeks to address past spatial planning imbalances by bringing services and economic opportunities close to previously disadvantaged areas. This initiative is supported by the proposed access road. The project will not require any capacity for services such as water and sanitation nor storm water management from the relevant Municipalities.</p>			

<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>Clean drinking water and sanitation are essential to the realisation of all human rights. Water supply and sanitation in South Africa is characterised by both achievements and challenges. After the end of Apartheid South Africa's newly elected government struggled with the then growing service and backlogs with respect to access to water supply and sanitation developed. The government thus made a strong commitment to high service standards and to high levels of investment subsidies to achieve those standards. Since then, the country has made some progress with regard to improving access to water supply. The Organ of State mandated to provide clean quality water is RW. The main purpose of the access road is to provide supporting infrastructure to ensure access to RW's critical operation sites in order for Rand Water to achieve its mandate. This will aid RW to meet its target objectives at intermittent times when the bridge that provide the direct access to the facility is inaccessible. The provision and access of uninterrupted potable water is an issue of national importance.</p>			
<p><b>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.)</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The Sludge Disposal site and the ZBWTW that will be serviced by the proposed road are both authorised facilities. In terms of Rand Waters's requirements, the proposed access route is required to ensure access to Rand Waters's critical operation facilities. The proposed access route corridors are considered to be the most feasible location for the infrastructure, taking technical and environmental (social and biophysical) issues into consideration as well as associated costs. The following variables were considered in order to identify the most preferred route option:</p> <ol style="list-style-type: none"> <li>1. Land availability / Ownership / Expropriation;</li> <li>2. Design Complexity / Major structures;</li> <li>3. Environmental Considerations;</li> <li>4. Lifecycle Impact;</li> <li>5. Maintenance Responsibility;</li> <li>6. Overall Implementation Timeframe;</li> <li>7. Unit Cost Assessment (cost / km);</li> <li>8. Financial consideration;</li> <li>9. Impact ZBWTW Operations (travel time / distance)</li> </ol> <p>The preferred route alternative S1 was identified as the most favourable choice. The route alternative S1 coincides with the route currently utilised by Rand Water in times when the existing access road is inaccessible due to flooding. The landowners have provided RW with access across their land during times of flooding, using an existing farm dirt road.</p>			

<p><b>9. Is the development the best practicable environmental option for this land/site?</b></p>	<p><b>YES</b> ✓</p>	<p>Please explain</p>
<p>The access route is a linear development within a road reserve of 20 m wide over a distance of approximately ±5.5km. The land use of the extent of the route is mixed, including agriculture and livestock farming as well as an existing gravel road on the eastern boundary as well as an informal farm dirt road. The entire proposed route passes through privately owned properties. Once in place, the route is unlikely to significantly disrupt farming activities.</p> <p>The following variables were considered in order to identify the most preferred route option:</p> <ol style="list-style-type: none"> <li>1. Land availability / Ownership / Expropriation;</li> <li>2. Design Complexity / Major structures;</li> <li>3. Environmental Considerations;</li> <li>4. Lifecycle Impact;</li> <li>5. Maintenance Responsibility;</li> <li>6. Overall Implementation Timeframe;</li> <li>7. Unit Cost Assessment (cost / km);</li> <li>8. Financial consideration;</li> <li>9. Impact ZBWTW Operations (travel time / distance)</li> </ol> <p>The preferred route alternative S1 was identified as the most favourable choice. The route alternative S1 coincides with the route currently utilised by Rand Water in times when the existing access road is inaccessible due to flooding.</p> <p>The assessments of impacts within this Basic Assessment conclude that the development within the corridor investigated will have medium-low to low environmental impacts. Taking into consideration the above and the specialist assessments the proposed route (preferred Alternative S1) is the option that provides the least damage to the environment, as a whole, at acceptable cost, in the long term as well as in the short term. It can therefore be concluded that it is indeed the best practicable environmental option for this site.</p>		

<p><b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b></p>	<p>YES ✓</p>	<p></p>	<p>Please explain</p>
<p><u>Negative impacts</u></p> <p>The identified potential negative impacts (i.e. air emissions, increasing the potential for erosion, soil and groundwater contamination, waste management, social impact (potential increase in theft of livestock), long term loss of agricultural land, accidental fires are all localised, and of low to medium impact and can be effectively managed to have a very low impact provided the mitigation measures proposed in the project EMPr are implemented.</p> <p><u>Positive impacts:</u></p> <ul style="list-style-type: none"> <li>○ Readily available and uninterrupted access to the Sludge Disposal site and the ZBWTW facilities during times when the bridge that provides direct access to the facilities is flooded.</li> <li>○ Negating the issue of health and safety concerns for RW's employees that arise from crossing the flooded bridge during times when it is flooded as well as those experienced whilst using the bridge which does not meet current design and safety standards</li> <li>○ Social positive impacts: The construction phase will lead to positive social benefits, such as job creation and the establishment of related small businesses such as waste collection and transportation.</li> <li>○ The project shall assist in achieving the performance areas as identified by the Local Municipality, namely improvement of public services and broadening access to communities and thereby improving quality of living which is further aligned access to basic services, social infrastructure and quality environment.</li> </ul> <p>The project shall also ensure inclusivity which aims to integrate communities and improve transport corridors and human settlements. It can therefore, be concluded that the benefits of the proposed development outweigh the negative impacts.</p>			
<p><b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b></p>	<p></p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed access route is associated with the approved Sludge Disposal site and the ZBWTW. Any other similar activities in the area would depend on the feasibility of developing additional access routes in this area (thus requiring access roads). Rand Waters operations require continued and uninterrupted access in order to achieve its mandate set out by Government in terms of service delivery and provision of potable water. It is not envisaged a similar activity within the municipality will be supported by the same requirement to achieve a mandate to serve the people of South Africa.</p>			
<p><b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b></p>	<p></p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed access route will not negatively affect any person's rights. The servitude rights for the linear project will be acquired by RW and landowners shall be compensated.</p>			
<p><b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b></p>	<p></p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The site is outside of the urban edge and will not impact on the urban edge of the built environment in any way.</p>			

<p><b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b></p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed activity on its own does not. However it shall contribute to the critical operations of Rand Waters's authorised Sludge Disposal site and the ZBWTW. The project may contribute to SIP 6: Integrated municipal infrastructure project as the proposed project will improve water and sanitation bulk infrastructure and ensure service delivery and thereby positively impact the population. The project will also contribute to SIP 11 in terms of transport links to main networks the proposed access road shall improve mobility for rural communities, the project shall also include fencing of the farms that border the road. Overall the project contributes to SIP 18: Water and sanitation infrastructure ensuring Rand Water critical remain operation at all times without any interruptions that maybe caused by inaccessibility.</p>		
<p><b>15. What will the benefits be to society in general and to the local communities?</b></p>	<p>Please explain</p>	
<p>The Organ of State mandated to provide clean quality water is RW. The main purpose of the access road is to provide supporting infrastructure to ensure access to RW's critical operation sites in order for Rand Water to achieve its mandate. The project shall assist in achieving the performance areas as identified by the Local Municipality, namely growth in the region and creation of more employment opportunities as well as through the improvement of public services and broadening access to communities and thereby improving quality of living which is further aligned with achieving the goal of opportunity in terms of economic growth and employment which also entails access to basic services, social infrastructure and quality environment. Furthermore the Municipality aims to achieve inclusivity which aims to integrate communities and improve transport corridors and human settlements</p> <p>Further the proposed project shall benefit society and the local community in terms of:</p> <ul style="list-style-type: none"> <li>▪ Social positive impacts: The construction phase will lead to positive social benefits, such as job creation and the establishment of related small businesses such as waste collection and transportation.</li> <li>▪ The project shall assist in achieving improvement of public services and broadening access to communities and thereby improving quality of living which is further aligned access to basic services, social infrastructure and quality environment.</li> <li>▪ The project shall also ensure inclusivity which aims to integrate communities and improve transport corridors and human settlements.</li> </ul>		
<p><b>16. Any other need and desirability considerations related to the proposed activity?</b></p>	<p>Please explain</p>	
<p>The proposed project will aid RW to ensure that quality water is readily available to the community and the broader region. Further the geometric alignments of the approaches to the bridge are also below current design and safety standards therefore the proposed project will provide an alternative safe access route for Rand Water employees and the surrounding community.</p>		



17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>The National Plan 2030 aims to achieve, (eradicate the high unemployment rate in the country): i.e. unemployment rate should fall from 24.9 percent in June 2012 to 14 percent by 2020 and to 6 percent by 2030). The proposed development contributes towards this vision by creating employment opportunities and skills development during the construction phase in a country in which unemployment rates are high and in which job creation is encouraged in all spheres of government. After construction, some of the community members can look for jobs elsewhere if there is an opportunity because of the skills they would have acquired during construction. The project shall assist in achieving improvement of public services and broadening access to communities and thereby improving quality of living which is further aligned access to basic services, social infrastructure and quality environment. One of the objectives of the national development plan 2030 is for all South Africans to have social equity through expanded access to water and sanitation services Thus; the proposed project is aimed at fulfilling this objective by ensuring continued water supply.</p>	

**18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.**

The IEM guidelines encourage a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels. The basic principles underpinning IEM are that there be:

- informed decision-making;
- accountability for information on which decisions are taken;
- accountability for decisions taken;
- a broad meaning given to the term environment (i.e. one that includes physical, biological, social, economic, cultural, historical and political components);
- an open, participatory approach in the planning of proposals;
- consultation with interested and affected parties;
- due consideration of alternative options;
- an attempt to mitigate negative impacts and enhance positive aspects of proposals;
- an attempt to ensure that the 'social costs' of development proposals (those borne by society, rather than the developers) be outweighed by the 'social benefits' (benefits to society as a result of the actions of the developers);
- democratic regard for individual rights and obligations;
- compliance with these principles during all stages of the planning, implementation and decommissioning of the proposals (i.e. from 'cradle to grave'); and
- The opportunity for public and specialist input in the decision-making process.

The general objectives of Integrated Environmental Management have been taken into account during the current process through the following:

- The potential impacts of the activity on the environment, socio-economic conditions and cultural heritage have been identified, predicted and evaluated, as well as the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impact, maximizing benefits and promoting compliance with the principles of environmental management. Mitigation measures for minimising negative impacts and enhancing positive impacts are detailed in the Environmental Management Programme (EMPr)
- The effects of the activity on the environment have been considered before actions taken in connection with them. Incorporated in the current Basic Environmental Assessment process. The effect of the proposed project on the environment is detailed in the Impact Assessment section, which identifies potential impacts and ranks their significance before and after mitigation measures are implemented.
- Adequate and appropriate opportunity for public participation has been ensured throughout the public participation process as follows:
  - Posters along the route; Newspaper adverts; Background Information Documents; Engagement with stakeholders; Public meeting; and Comments and response report as part of final BAR.
- Comprehensive Impact Assessment has been undertaken as part of BAR
- Sufficient information has been provided such that the environmental attributes can be considered in the decision-making process

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

The principles of environmental management as set out in section 2 of NEMA have been taken into account. As follows:

- Development must be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation's cultural heritage cannot be avoided, are minimised and remedied. Through the location of the linear project within a transformed environment and in close proximity to the operations that will be serviced by the access road, impacts on the aspects listed above have been minimised, further mitigation measures and recommendations from specialists have been taken into account to further reduce the potential impact. .
- Where an environmental impact cannot be avoided, it is minimised and remedied. This is achieved through the location of the project within an already transformed land (avoidance of impacts), and the recommendation of mitigation measures which will be achieved through the implementation and adherence to the EMPr.
- The negative impacts on the environment and on people's environmental rights have been anticipated and prevented, and where they cannot be prevented, are minimised and remedied. Through the location of the facility in close proximity to the RW operations social impacts, have been minimised.
- The interests, needs and values of all interested and affected parties have been taken into account in any decisions through the Public Participation Process.
- The social, economic and environmental impacts of the activity have been considered, assessed and evaluated, including the disadvantages and benefits.
- The effects of decisions on all aspects of the environment and all people in the environment have been taken into account, by pursuing what is considered the best practicable environmental option
- All efforts are being made to ensure that the project achieves sustainability, environmental justice and that the environmental rights of Interested and Affected Parties (local stakeholders, communities and the construction employees) are protected. This will be achieved by Rand Water and its' appointed Contractors through the implementation of the recommendations provided by the Basic Assessment Report, the project's Environmental Management Programme and Environmental Authorisation.

**11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES**

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act, 1998 (Act No. 107 of 1998): EIA	In terms of GNR 982 and GNR 983 of December 2014, a Basic Assessment process is required	Department of Environmental Affairs (DEA)	1998

<p>Regulations have been promulgated in terms of Chapter 5. Activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation.</p>	<p><u>to be undertaken for the proposed project</u></p>		
<p>The Constitution of South Africa (Act No 108 of 1996)</p>	<p>Protection of human rights and environment of the study area.</p>	<p>National &amp; Provincial</p>	<p>1996</p>
<p><b>National Environmental Management Act (Act No 107 of 1998):</b> In terms of the Duty of Care provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with this project is avoided, stopped or minimised.</p> <p>In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.</p>	<p><u>Protection of the environment of the study area and surroundings. While no permitting requirements arise from this section of the Act, this will be applicable during construction and operation in order to ensure minimisation of impacts on the environment. The EMPr provides guidance and mitigation measures for all phases of the project in order to ensure the impacts caused by the project are mitigated and remediated. Thus the EMPr addresses pre construction phase, construction and post construction (rehabilitation) and operational phase requirements.</u></p>	<p>Department of Environmental Affairs (DEA)</p>	<p>1998</p>
<p><b>National Environmental Management: Biodiversity Act 2004 (Act 10 of 2004) ;</b> This Act provides management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act 107 of 1998; the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources.</p>	<p>Protection of biodiversity features and where possible relevant permits will need to be obtained. Permitting or licensing requirements will not be required for this project, as most of the plant species on site are exotic and impacted by anthropogenic activities. The vegetation component of the site is therefore not considered to be sensitive. No species of conservation concern are expected to occur on the</p>	<p>Department of Environmental Affairs (DEA)</p>	<p>1998</p>

	study site. The artificial seepage wetland areas shall be managed and rehabilitated where necessary as per specialist recommendations. Prior to, during and post construction the management of conservation of areas of biodiversity sensitivity shall be protected and sustainable utilised.		
<b>National Environmental Management: Waste Act (Act No. 59 of 2008):</b> The NEMA: WA came into effect on the on 1 <sup>st</sup> July 2009. Section 20 of the Environment Conservation Act 73 of 1989, under which waste management was previously governed, was repealed. In general, the Act seeks to ensure that people are aware of the impact of waste on their health wellbeing and the environment, and in the process giving effect to Section 24 of the constitution, in ensuring an environment that is not harmful to health and wellbeing.	No waste license activities are applicable to this project. The developer will, however, be required to store and manage waste in accordance with the requirements of this Act and associated Standards.	Department of Environmental Affairs (DEA)	2009
<b>Promotion of Access to Information Act, 2000 (Act No 2 of 2000):</b> Legislation that allows the public access to information about activities that influence their well-being and to make contributions to decision making.	<u>No permitting is required; the act finds applicability during the public participation process phase of the basic assessment process.</u>	Department of Environmental Affairs (DEA)	2000
<b>National Environmental Management: Air Quality Act (Act No 39 of 2004).</b>  * S18, S19 and S20 of the Act allow certain areas to be declared and managed as "priority areas" * The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has	<u>Protection of air quality through dust minimisation and dust suppression measures. While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction phase of the project. Dust control regulations promulgated in November 2013 may require the implementation of a dust management plan</u>	National Department of Environmental Affairs  Local authority, i.e. Ekurhuleni Metropolitan Municipality	2004

<p>failed to comply with the Act.</p> <p>* Dust Control Regulation Control Regulations, R. No. 827 of 1 November 2013.</p>			
<p><b>National Heritage Resources Act (Act No 25 of 1999).</b> Section 38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length</p>	<p><u>Protection of heritage resources surrounding the study area and those uncovered during the development phase by reporting to the nearest heritage authority. No identified heritage sites were reported on site. However, should any heritage sites be unearthed during excavations, a permit would be required to be obtained from SAHRA.</u></p>	<p>South African Heritage Resources Agency (SAHRA)</p> <p>The Provincial Heritage Resources Authority Gauteng (PHRAG)</p>	<p>1999</p>
<p><b>Conservation of Agricultural Resources Act (Act No 43 of 1983)</b></p> <ul style="list-style-type: none"> <li>▪ Prohibition of the spreading of weeds (S5)</li> <li>▪ Classification of categories of weeds &amp; invader plants &amp; restrictions in terms of where these species may occur - Regulation 15 of GN R1048 and Regulation 598 GN 37885 of NEM:BA (Act No. 10 of 2004)</li> </ul>	<p><u>This Act will find application throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, a weed control and management plan must be implemented.</u></p>	<p>National Department of Agriculture, Forestry and Fisheries (DAFF)</p>	<p>1983</p>
<p><b>National Water Act (Act No 36 of 1998)</b></p> <p>National Water Act aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. This requires that the quality of water resources is protected as well as integrated management of water resources with the delegation of powers to institutions at the regional or catchment level. The purpose of the Act is to ensure that the nation's water resources are protected, used, developed,</p>	<p><u>Protection of water resources and where possible relevant approvals to be obtained. Construction of the access road within an artificial wetland must be authorised by the Department of Water and Sanitation.</u></p>	<p>Department of Water and Sanitation</p>	<p>1998</p>

conserved, managed and controlled.			
<b>Occupational Health and Safety Act No. 85 of 1993.</b> The Occupational Health and Safety Act provides for the health and safety of persons at work and for the health and safety of persons.	<u>While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction phase of the project. Healthy and safety precautions measures must be put in place for the construction crew and the public.</u>	Department of Labour	1993
<b>National Road Traffic Act (No 93 of 1996)</b>	<u>Compliance to traffic laws by driving at minimal speed approved by local authorities.</u>	National & Provincial	1996
<b>All relevant Provincial regulations and Municipal bylaws</b>	<u>The Contractor will obey and abide by provincial and municipal bylaws which are related to the proposed project.</u>	Provincial and Local	

## 12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

### a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?  
If YES, what estimated quantity will be produced per month?

YES ✓	<input checked="" type="checkbox"/>
NO	<input type="checkbox"/>
Could not be determined at this stage m <sup>3</sup>	

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

Small quantities of solid waste will be generated during the construction phase of the project. This waste will be disposed at a licensed waste facility.

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

General waste removed from site will be disposed of at a suitably licensed disposal facility. The nearest licensed landfill site is the Groenpunt Prison Landfill in Vereeniging or alternatively the Langkuil/EMSA in Meyerton. Safe or disposal certificates must be obtained and kept on site for the duration of the construction phase.

Will the activity produce solid waste during its operational phase?

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

YES	<input type="checkbox"/>
NO ✓	<input checked="" type="checkbox"/>
m <sup>3</sup>	

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

No solid waste will be produced during the operational phase of the proposed project.

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

During construction a registered landfill sites e.g. the Groenpunt Prison Landfill in Vereeniging can be used as they still have capacity and no waste will be generated during the operation phase. If this landfill cannot be used an alternative landfill site is the Langkuil/EMSA in Meyerton.

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

--

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

Can any part of the solid waste be classified as hazardous in terms of the NEM: WA? NO ✓

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

Is the activity that is being applied for a solid waste handling or treatment facility? NO ✓

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

**b) Liquid effluent**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? NO ✓

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

	m <sup>3</sup>
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Will the activity produce any effluent that will be treated and/or disposed of on site? NO ✓

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

Will the activity produce effluent that will be treated and/or disposed of at another facility? NO ✓

If YES, provide the particulars of the facility:

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

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

The following measures could be put in place to ensure optimal reuse or recycling of waste water:

- Sewage will be managed and handled/ managed through the use of portable chemical ablutions facilities
- During construction phase measures may be put in place to separate dirty water from clean water
- Water used within the construction process if tested and found to be within the required limits maybe used for dust suppression.

**c) Emissions into the atmosphere**

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities? NO ✓

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

YES	NO



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

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

During the construction phase, it is expected that there will be short term, localised dust generation and vehicular emissions e.g. carbon dioxide, carbon monoxide from movement of vehicles. However the dust and emissions will be of short term duration and have limited impact in terms of extent and severity. Appropriate dust mitigation measures must be implemented to reduce the impacts. It is recommended that vehicles be kept in good operating mechanical conditions in order to minimise possible exhaust emissions. The emissions will however, have short term impacts on the immediate surrounding areas which can be easily mitigated and thus the authorisation of such emissions will not be required.

**d) Waste permit**

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

	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?

	NO ✓

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

Describe the noise in terms of type and level:

Minimal noise will occur during construction phase by moving vehicles and operating machinery. This is not regarded as a significant noise source/impact and will not constitute a “disturbing noise”.  
Noise will be of short term, localised and will last during the construction phase of the project. The noise level is anticipated to be less than 50dBA as required by SANS 10103 and thus authorisation will not be required for the noise.

**13. WATER USE**

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

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

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

	NO ✓
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If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

**14. ENERGY EFFICIENCY**

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

The development will not require power supply during its operation phase. However generators will be used as a source of power where needed during the construction phase.

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

Not applicable. The development is not an energy consumptive development and will not use energy for its continued operation.

**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):

**Alternative 1 and Alternative 2 follow the same corridor and occur in the same environment. Therefore this section will not be duplicated.**

- 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:**

<b>Province</b>	Gauteng Province
<b>District Municipality</b>	Sedibeng District Municipality
<b>Local Municipality</b>	Midvaal Local Municipality
<b>Ward Number(s)</b>	Ward 1
<b>Farm name and number</b>	Uitvlucht 434 IR; Portion 6 Uitvlucht 434 IR; Portion 8 Uitvlucht 434 IR; Portion 9 Uitvlucht 434 IR; Portion 70 Badfontein 438 IR Portion 6
<b>Portion number</b>	Please refer above
<b>SG Code</b>	TOIR0000000004340006 TOIR0000000004340008 TOIR0000000004340009 TOIR0000000004340013 TOIR0000000004380006

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:**

Agriculture (cultivation and livestock farming).

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.

#### Access Road

##### Alternative S1: Preferred Site Layout

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 (Alternative Site Layout):

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

### 2. LOCATION IN LANDSCAPE

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

#### Preferred Site Layout (S1) and Alternative Site Layout (S2)

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

### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

#### Access Road

	Preferred Site Layout: (S1)	Alternative Site Layout: (S2)	Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	NO	NO	YES	NO
Dolomite, sinkhole or doline areas	NO	NO	YES	NO
Seasonally wet soils (often close to water bodies) <u>(the soils are not seasonally wet, they are continually wet due to seepage from the ponds)</u>	YES ✓	YES ✓	YES	NO
Unstable rocky slopes or steep slopes with loose soil	NO	NO	YES	NO
Dispersive soils (soils that dissolve in water)	NO	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	NO	NO	YES	NO
Any other unstable soil or geological feature	NO	NO	YES	NO
An area sensitive to erosion	NO	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.

#### 4. GROUNDCOVER

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

##### Preferred Site Layout (S1) and Alternative Site Layout (S2)

Natural veld - good condition <sup>E</sup>	Natural veld with scattered aliens <sup>E</sup> ✓	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land ✓	Paved surface	Building or other structure	Bare soil ✓ (i)

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.

A specialist was consulted and the Flora specialist report is included within **Appendix D**

#### 5. SURFACE WATER

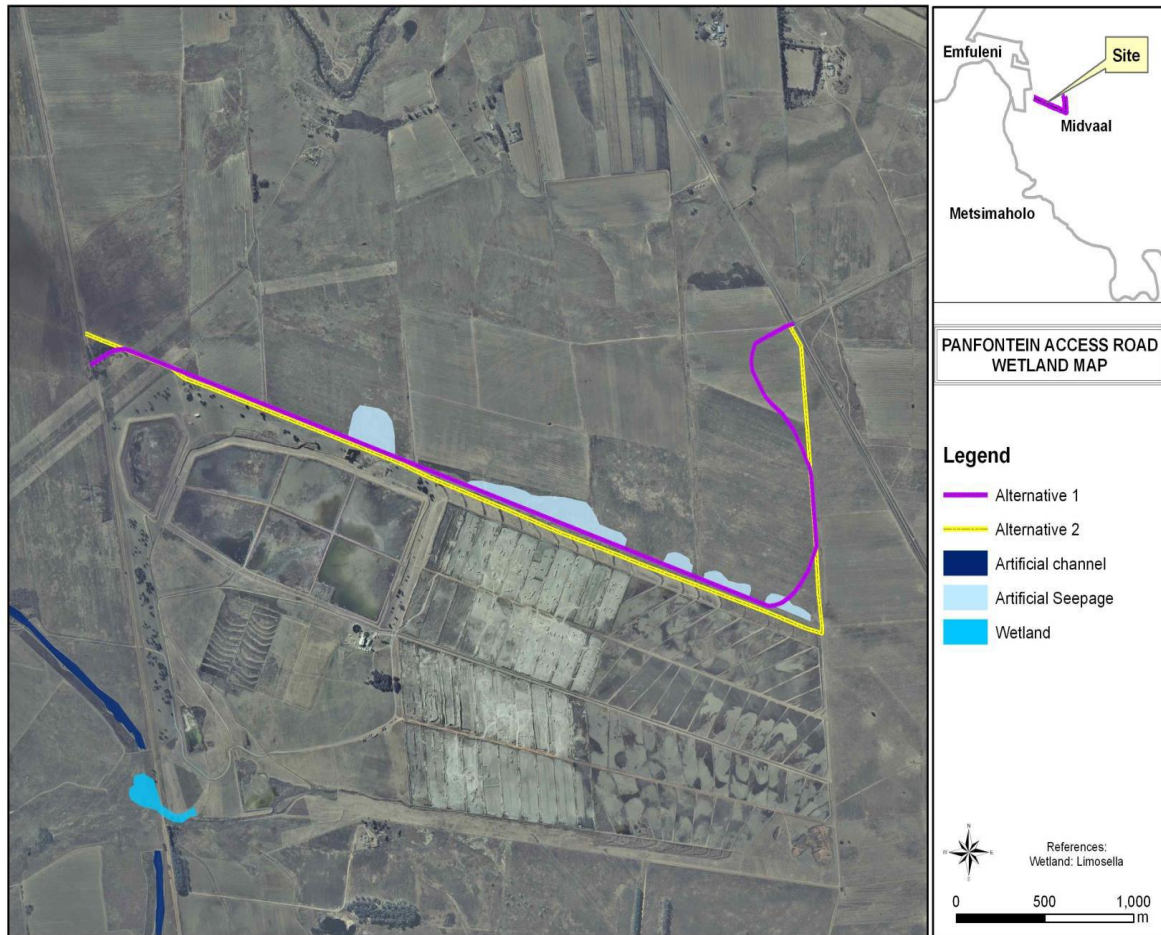
Indicate the surface water present on and or adjacent to the site and alternative sites?

##### Preferred Site Layout (S1) and Alternative Site Layout (S2)

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.

Moist areas were recorded on the route alternative. Seepage of water from the sludge dams results in an increased soil moisture gradient supporting plant species adapted to these conditions. Based on the presence of wetland indicators and their isolation from the regional hydrological network, the moist areas along the proposed route are classified as artificial seepage wetlands. However, these wetlands are formed and maintained by water seeping from the sludge dams. Should the dams be removed the source of water feeding the wetlands will disappear and the area will return to a terrestrial nature. The seepage wetlands are therefore classified as artificial seepage wetlands (**Figure 3**). For further information, please refer to Wetland Specialist report attached within **Appendix D**.



**Figure 3.** Artificial seepage wetland areas identified along the route corridor

## 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:

### Preferred Site Layout (S1) and Alternative Site Layout (S2)

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential A	Church	<b>Agriculture ✓</b>
Retail commercial & warehousing	Old age home	<b>River, stream or wetland ✓ (artificial wetland)</b>
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
<b>Office/consulting room ✓</b>	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	<b>Other land uses (Sludge disposal site and water treatment works and pump station) ✓</b>

If any of the boxes marked with an "N" are ticked, how will this impact / 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

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:

### Preferred Site Layout (S1) and Alternative Site Layout (S2)

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

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

## 7. CULTURAL/HISTORICAL FEATURES

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

	NO ✓
Uncertain	

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

A heritage impact study was carried out and no sites, features or objects of cultural heritage significance were identified in the study area. As no site, features or objects of cultural significance are known to exist in the study area, there would be no impact as a result of the proposed development. Therefore, from a heritage point of view it is recommended that the proposed development can continue. Should any archaeological sites or graves become exposed during construction work, it should immediately be reported to a heritage consultant so that an investigation and evaluation of the findings can be made.

For further details, please refer to the Heritage specialist report attached within Appendix D of this report.

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

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

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

	NO ✓

## 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 unemployment rate in Midvaal is 18.8% with youth unemployment rating at 25.4%. The majority of households earn between R6 000 – R30 000 per annum. In comparison with the other local municipalities within the Sedibeng District Municipality, Midvaal has the highest Human Development Index and thus a better balanced society.

Several new businesses have invested in the Midvaal region during the last few years, creating employment opportunities for the local community.

#### Economic profile of local municipality:

The Midvaal Local Municipality has a population of 95301, with the majority (70.50%) between the ages of 15



and 64 years, those below 15 are 23.20% and above 65 are 6.30%.

The Municipality is one of three local municipalities within the Sedibeng District Municipality, which constitutes the southern parts of Gauteng Province, the economic hub of South Africa. Together with the Emfuleni municipal area, Midvaal represents the major centre of economic activity in this part of the province with economic activity being predominantly industrial, however also including agricultural, mining, tourism and commercial business activities. The Midvaal Local Municipality's Gross Domestic Product (GDP) indicates a constant increase from 2001 to 2009. The major employment sector is services, followed by manufacturing, whilst the following sectors contribute to the GDP of the municipality:

- Mining (0.4%)
- Agriculture (2.6%)
- Electricity (5.7%)
- Construction (5.7%)
- Manufacturing (25.1%)
- Services sector (60.4%).

**Level of education:**

According to Census 2011, Midvaal Local Municipality, the level of education among adults are as follows; 3,6% have completed primary schooling, 34,4% have some secondary education, 32,3% have completed matric, and 15,3% have some form of higher education. Very few people have no schooling. This contributes to a well-balanced and sustainable community.

**b) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?	R18.4 million
What is the expected yearly income that will be generated by or as a result of the activity?	R None expected
Will the activity contribute to service infrastructure?	YES ✓
Is the activity a public amenity?	NO ✓
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	It is not known at this stage.
What is the expected value of the employment opportunities during the development and construction phase?	It is not known at this stage.
What percentage of this will accrue to previously disadvantaged individuals?	It is not known at this stage.
How many permanent new employment opportunities will be created during the operational phase of the activity?	N/A
What is the expected current value of the employment opportunities during the first 10 years?	N/A
What percentage of this will accrue to previously disadvantaged individuals?	N/A

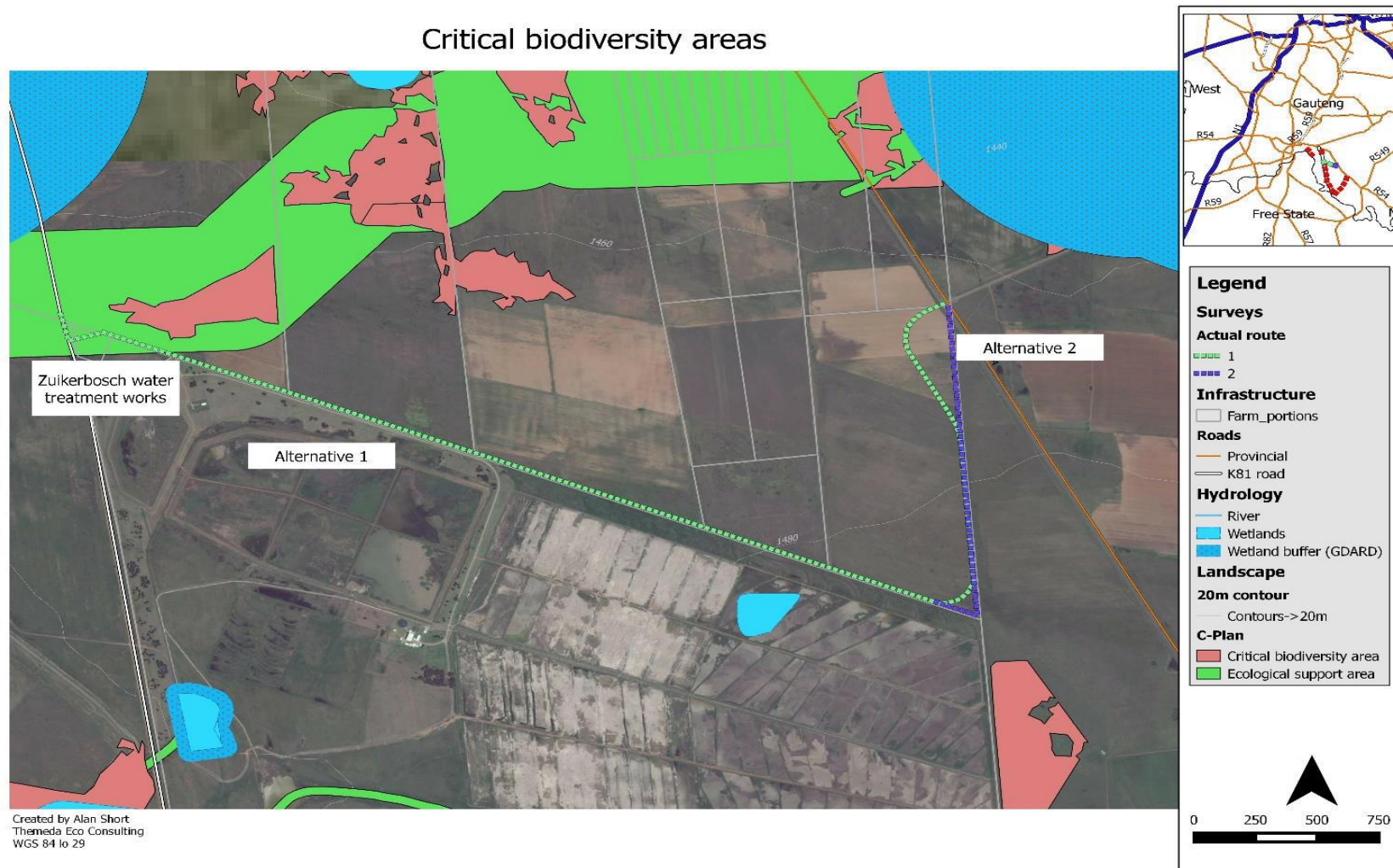
**9. BIODIVERSITY**

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](mailto: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)

**Preferred Site Layout (S1) and Alternative Site Layout (S2)**

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA) ✓	Other Natural Area (ONA)	No Natural Area Remaining (NNR) ✓	<p>The Gauteng Department of Agriculture and Rural Development (GDARD) have mapped critical biodiversity areas (CBAs) and Ecological Support Areas (ESAs) across the province. CBAs are those areas that are critical for meeting conservation targets. They contain features that are important for biodiversity conservation, including important ecosystems, habitats and species. ESAs are areas that are important for supporting biodiversity in a dynamic ecosystem, such as providing corridors for migration.</p> <p>The routes do not overlap any critical biodiversity areas (CBAs), and the western end of the route slightly (10%) overlaps an ecological support area.</p> <p>The route consists entirely of cultivated lands, with little remnant vegetation other than pioneer species. The remainder of the land was dominated by pioneer grasses such as <i>Cynodon dactylon</i>. Forbs observed were largely pioneer or invasive, including the invasive weeds Mexican poppy (<i>Argemone mexicana</i>) and <i>Richardia braziliensis</i>, with scattered <i>Gomphocarpus fruticosus</i> and <i>Asparagus</i> sp. Several alien plants were recorded, including a colony of <i>Ailanthus altissima</i>. No plants of conservation concern were observed at the time of the survey, and their presence was thought to be unlikely given the cultivation of the adjacent lands.. A grove of <i>Eucalyptus</i> spp. (gum trees) is located at the junction of the two roads on the property Panfontein 437/01.</p> <p>For both alternatives, 90% of the area of the 100m buffer consisted of low sensitivity vegetation, with the remaining 10% in the western, less disturbed portion of the route</p>



**Figure 4:** The Proposed Site falls outside the Critical Biodiversity Area with only a small portion of it falling in the Ecological Support Area. The majority of the route corridor is transformed.

## b) Indicate and describe the habitat condition on site

## Preferred Site Layout (S1) and Alternative Site Layout (S2)

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	5%	The routes fall in the majority within the degraded Central Free State Grassland and a small portion of it in the Soweto Highveld Grassland. Only a very small portion of the grassland can be considered as being in the natural state. The grasslands have been significantly transformed due to prolonged periods of high intensity grazing and cultivation, and therefore have a much lower and poorer vegetation cover and contain a grove of <i>Eucalyptus</i> spp at the western end of the routes.
Near Natural (includes areas with low to moderate level of alien invasive plants)	5%	The road way and surrounding verge were very low in species diversity with only remnant species grassland species as the entire area has been historically, or is currently, cultivated. Near natural occur on site where transformation has taken place but not to an extent that all natural characteristics have been lost. Large patches of <i>Stoebe plumosa</i> occur. Much of the area appears to be wetlands, with large stands of <i>Imperata cylindrica</i> , characteristic of wetlands. Sensitivity is low, despite the wetland features along the road, which may be partially an artefact of seepage from the adjacent waterworks. Grasses included <i>Cynodon dactylon</i> and <i>Eragrostis gummiflua</i> . Scattered milkweed ( <i>Gomphocarpus fruticosus</i> ) occurred along the road. grove of <i>Eucalyptus</i> spp. occurs at the western end of the routes
Degraded (includes areas heavily invaded by alien plants)	20%	Both route alignments run alongside cultivated lands and old lands, with vegetation characteristic of old lands. Moderately invaded by invasive alien plants, including the replacement of natural climatic vegetation with indigenous pioneer and sub climatic weeds and grasses has taken place in the proposed project site. The alien <i>Richardia braziliensis</i> , a weed common in overgrazed or disturbed areas, was present in small patches, as was Mexican poppy <i>Argemone ochroleuca</i> . Other alien trees included a colony of <i>Ailanthus altissima</i> . Sedges ( <i>Cyperaceae</i> ) and bulrush ( <i>Typha capensis</i> ) were also observed along the roadside. Occasional <i>Asparagus</i> shrubs occurred. A grove of <i>Eucalyptus</i> spp. occurs at the western end of the routes, and is traversed by Alternative
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	70%	The corridor runs on an open area that is entirely used for cultivation (cattle grazing and maize production) and existing gravel / dirt roads with little remnant vegetation other than pioneer species. Patches of historically ploughed land are present on site. Transformation activities that has occurred on site includes overgrazing, trampling of the general area, informal farm tracks and formal farm gravel road and the artificial wetland created from the seepage of water from the Sludge Disposal site has also contributed to the fragmentation of the

		proposed site
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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.

**Preferred Site Layout (S1) and Alternative Site Layout (S2)**

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

The study area is located within two vegetation regions namely the Central Free State Grassland (Vulnerable) and the Soweto Highveld Grassland (Endangered). These grasslands are characterized as extensive plains of short grassland, dominated by *Themeda triandra* in good condition and *Eragrostis spp.* in poor condition, with heavy infestations of *bankrotbos Seriphium plumosum* in degraded bottomlands. The grasslands are vulnerable to *Vachellia karroo* invasion. For both alternative layout alignments, 90% of the area of the 100m buffer consisted of **low sensitivity vegetation**, with the remaining 10% in the western, less disturbed portion of the route. No plants of conservation concern were observed at the time of the survey, and their presence was thought to be unlikely given the cultivation of the adjacent lands. Much of the grassland has been transformed by cultivation and existing gravel/dirt roads.

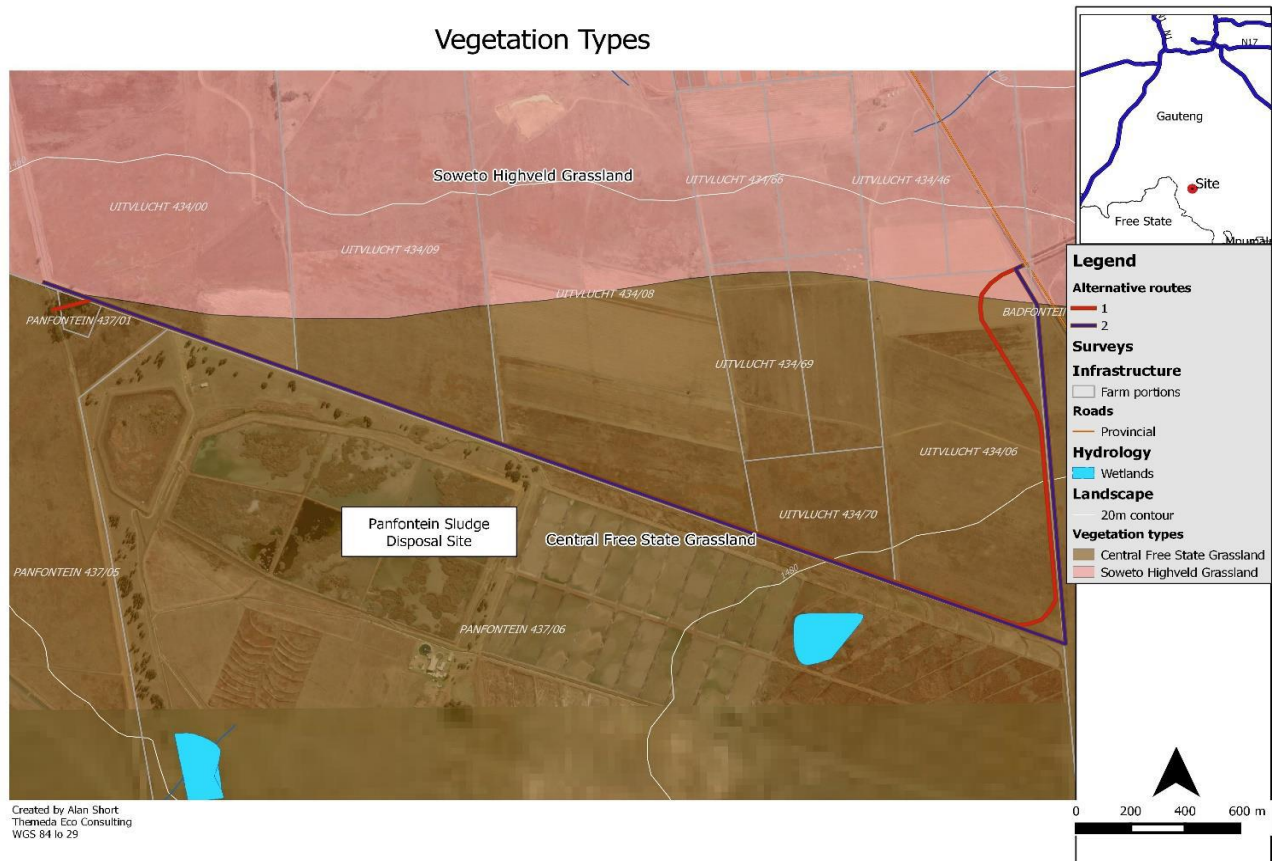
Within 32 metres from the edge of the route corridor and also along the route corridor occur some wetlands. The wetlands emanate from the seeping of water from the ponds. The wetlands are artificial, small and are isolated from the hydrological network and as such are not considered sensitive.

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

According to the National List of Threatened Terrestrial Ecosystems Preferred Site Layout and Alternative Site Layout are found mainly in the Central Free State Grassland which is considered Vulnerable and a small portion in the Soweto Highveld Grassland that is considered Endangered (Refer to **Figure 5**). These grasslands are characterized as extensive plains of short grassland, dominated by *Themeda triandra* in good condition and *Eragrostis spp.* in poor condition, with heavy infestations of bankrotbos *Seriphium plumosum* in degraded bottomlands. The grasslands are vulnerable to *Vachellia karroo* invasion. Much of the grassland has been transformed by cultivation (Mucina and Rutherford 2006). Soweto Highveld Grassland is listed as Vulnerable ecosystem (SANBI and DEAT 2009). The Central Free State Grasslands are not listed as a threatened ecosystem.

However, from the field assessment it is evident that the area surrounding the linear development has undergone severe transformation and cannot be representative of either vegetation type. There is a low likelihood of most protected plants occurring, as the habitat limits many species, and the cultivation has likely removed most propagules such as perennial bulbs. The vegetation of the study area was mostly disturbed with high density patches of *Seriphium plumosum* (bankrupt bush) and ground cover of *Cynodon dactylon*. Trees recorded on the study site include a single *Salix babylonica* (weeping willow). Hydromorphic vegetation included *Cyperaceae* and *Imperata cylindrica*.

Moist conditions were recorded along the route corridor/ servitude and within 32 metres from the edge of the route corridor. The area is historically disturbed by farming activities and water seeping from unlined sludge ponds. Seepage of water from the sludge dams results in an increased soil moisture gradient supporting plant species adapted to these conditions. Based on the presence of wetland indicators and their isolation from the regional hydrological network, the moist areas along the proposed route are classified as seepage wetlands. These wetlands are formed and maintained by water seeping from the sludge dams. Should the dams be removed the source of water feeding the wetlands will disappear and the area will return to a terrestrial nature. The biodiversity of these wetlands is ubiquitous and not sensitive to flow and habitat modifications. They play an insignificant role in moderating the quantity and quality of water in major rivers. The EIS score for these wetlands is 0.57 indicating a Low/Marginal class with a Recommended Ecological Management Class of D. Wetlands in this class is considered as not ecologically important and sensitive at any scale.



**Figure 5;** Vegetation types and artificial wetland on the project site



**SECTION C: PUBLIC PARTICIPATION****1. ADVERTISEMENT AND NOTICE**

<b>Publication name</b>	Vanderbijlpark Ster		
<b>Date published</b>	03 November, 2015		
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>	
	Site Notice Position 1	26° 45' 40.40" S	28° 05' 39.60" E
	Site Notice Position 2	26° 44' 51.20" S	28° 05' 53.40" E
	Site Notice Position 3	26° 47' 56.90" S	28° 03' 16.50" E
	Site Notice Position 4	26° 42' 16.00" S	28° 01' 39.60" E
	Site Notice Position 5	26° 42' 17.60" S	28° 03' 51.60" E
<b>Date placed</b>	03 November, 2015		

Proof of the placement of the relevant advertisements and notices are included within **Appendix E1**.

**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

<b>Title, Name and Surname</b>	<b>Affiliation/ key stakeholder status</b>	<b>Contact details (tel number or e-mail address)</b>
Chantelle Erasmus (BBV II Farmers representative) <ul style="list-style-type: none"> <li>Details of represented objectors are attached within <b>Appendix E3</b> and will not be repeated here</li> </ul>	(BBV II Farmers Association Group)	chantellee@esthemuller.co.za
Mr Evert Muller	Landowner	muller@vaal.net
Carlos Da Silva	Landowner	083 444 5551
Alletta Van Deventer	Landowner	072 276 8580
Saul Greenblatt	Adjacent Landowner to Panfontein namely Vischgat and Zoekfontein.	saul@principalpartners.co.za

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

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





<p>Works can still be accessed via an alternative road. The flood usually lasts not more than 2 or 3 days.</p> <ul style="list-style-type: none"> <li>▪ We request and suggest that you obtain the rainfall figures of the area for the past 5 years to determine the frequency of the flooding of the bridge.</li> </ul> <p><b>1) <u>Safety and Security:</u></b></p> <p>The area comprises of farm land where mainly cattle farming and maize is being conducted.</p> <ul style="list-style-type: none"> <li>▪ Stock theft in the area has become uncontrollable during the past years. This can be confirmed by the South African Police and community leaders. The new road will provide a quick and easy access and escape route to and from neighbouring farms for perpetrators.</li> <li>▪ The new proposed road will be a quiet road with little traffic and will make it attractive for perpetrators to use.</li> </ul> <ul style="list-style-type: none"> <li>▪ If the road is constructed it will have to be fenced off according to the specification of the land owners, there will have to be controlled access with a boom and security, to prevent theft.</li> </ul>	<ul style="list-style-type: none"> <li>▪ There already exists an informal dirt farm road. The farm properties adjacent to property are already bordered by provincial roads where theft from these roads is expected to be higher. The provincial roads provide more accessible escape routes for perpetrators; these properties are already susceptible to theft due to their proximity to main arterial routes. . However in saying this, Rand Water is aware of the increase in crime in all areas of its network and do try work with community in reducing crime and reducing exposure to risk. As part of this proposed project the farm properties bordering the road shall be fenced and the road itself will also be fenced.</li> </ul> <ul style="list-style-type: none"> <li>▪ Rand Water has consulted with the directly affected land owners and discussions are underway with regards to landowner agreements and servitude rights.</li> <li>▪ The road will be utilised mainly by Rand Water employees however it will be open for public use. The road will not be operated as a private road. A specialist has conducted an assessment of the current traffic demands and future demands and this report shall be made available for review and comment during the public participation process.</li> </ul> <ul style="list-style-type: none"> <li>▪ The proposed road is a surfaced road.</li> </ul>
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<ul style="list-style-type: none"> <li>▪ <u>Pollution</u>: If the new road is a dirt road it will increase the dust and surface pollution in the area.</li> </ul> <p><b>2) <u>Agricultural potential</u>:</b></p> <ul style="list-style-type: none"> <li>▪ It will contribute to the fragmentation of the area which consists of large farms.</li> <li>▪ Due to the size of the road, a large portion of vegetation which forms part of the farming activities will be removed.</li> <li>▪ It will have a negative impact on the fauna and flora of the area where wild animals such as duikers, steenbok, jackals and a variety of birds like Pheasants ,Guinea-fowls and nigh owls frequently occurs.</li> </ul>	<p>During construction measures will be implemented as per the approved environmental management plan to mitigate potential pollution and dust. The road will be a tart road and no dust is expected to occur during operation.</p> <ul style="list-style-type: none"> <li>▪ The establishment of an access road will not have a significant impact on the prevailing agricultural situation in the vicinity, as the route follows an existing farm track along the edge of some cultivated and non-cultivated lands. There will thus be minimal loss of agricultural soil, even if the width of the road servitude is increased. The total area to be disturbed will be approximately 11 ha along the length of the road (20 m road reserve x 5.5 km road length)             <ul style="list-style-type: none"> <li>▪ Large portions of the study area have previously, or are currently under cultivation and / or grazing practises. Cultivated lands that are currently being utilised have no to very little natural vegetation remaining and are used in most instances for maize production. Areas which have previously been cultivated but are currently left fallow are heavily disturbed and contain invasive, weedy plant species. These areas are highly transformed and disturbed and it is unlikely to find fauna species of conservation concern within these areas.</li> <li>▪ Conservation important species may occur within the area in addition to the area being utilised by many common and hardy mammal, avifauna and herpetofauna species. This area has low ecological value. Mitigation measures provided in specialist reports and the EMPr shall be implemented prior to and during construction phases of the project.</li> </ul> </li> </ul>
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<p><b>3) <u>Social and Economic:</u></b></p> <p>The road</p> <ul style="list-style-type: none"> <li>▪ There is no justification for this economic expenditure as the only party who will benefit from it will be Rand Water and the owner on whose farm it will be constructed.</li>   <li>▪ There is no public transport available in that area and it will therefore not be to the benefit of the people living in the squatter camps adjacent to the Zuikerbosh Water Treatment Works.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rand Water is a water utility that supplies potable quality water to the Gauteng province and other areas of the country. Uninterrupted and continuous access to Rand Waters' operational sites is required in order to achieve its mandate as a water board and ensure continued service delivery in terms of water supply to its network.</li> </ul> <p>The only direct access to the Zuikerbosch ZBWTW and Rand Water Panfontein Sludge Disposal Site is via the provincial road K81 "Vischgat Road" (D1321) off the R54 (South-east). The route traverses an existing single lane (4 m wide) bridge (B483) over the Zuikerboschrand River a tributary of the Vaal River. The bridge level falls within the 1:50 year flood line. Under river flood conditions, the bridge is inaccessible. The bridge is frequently over topped by flood water and the last incidence occurred in 2011. Access across the bridge is currently controlled through stop control signs on either approach. In addition, the geometric alignments of the approaches to the bridge are also below current design and safety standards. Inaccessibility over the bridge (B483) poses a major risk to the operation requirements of the Zuikerbosch ZBWTW and Rand Water as an organisation. It also affects the ability of RW staff as their workplace is inaccessible. Inaccessibility also leads to potential down time of the works, i.e. shortage of supply. It must be noted that the bridge currently poses a hazard to Rand Water employees and the public who utilise the bridge as the geometric alignments of the approaches to the bridge are also below current design and safety standards.</p> <p>The main purpose of the access road is to provide supporting infrastructure to ensure access to RW's critical operation sites in order for Rand Water to achieve its mandate which benefits not only the local</p>
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	<p>community but also broader society. The proposed project shall benefit society and the local community positively as follows:</p> <ul style="list-style-type: none"><li>▪ The construction phase will lead to positive social benefits, such as job creation and the establishment of related small businesses such as waste collection and transportation.</li><li>▪ The project shall assist in achieving improvement of public services and broadening access to communities and thereby improving quality of living which is further aligned access to basic services, social infrastructure and quality environment.</li><li>▪ The project shall also ensure inclusivity which aims to integrate communities and improve transport corridors and human settlement</li><li>▪ During construction phase low skilled labour will be sourced from the local community, hence households from the squatter camps will benefit</li></ul>
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#### 4. COMMENTS AND RESPONSE REPORT

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

#### 5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:- **is attached within Appendix E and not repeated here. Refer to Appendix E5 (Project Database)**

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Attached in Appendix E5					

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

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

#### 6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

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

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

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## **SECTION D: IMPACT ASSESSMENT**

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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.

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 and decommissioning phases of the proposed Panfontein Access Road is provided in the table overleaf. The impact assessment is undertaken for all components of the facility, including:

- Temporary lay down areas
- Access roads

### 1.1 PLANING AND DESIGN PHASE

No impacts are expected to result from Activities associated with the design and pre-construction phase pertains mostly to feasibility assessments undertaken mostly at a desktop level. Geotechnical surveys were undertaken with minimal impacts in terms of disturbance of vegetation and soils.

Assessment of impacts associated with the **Preferred Site Layout and Alternative Site Layout** during the planning and design phase.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
<b>Ecological impacts</b>			
<ul style="list-style-type: none"> <li>▪ Use of vehicles during field survey</li> <li>▪ Drilling at localised areas for geotechnical surveys</li> </ul>	<b>Direct impacts</b> <ul style="list-style-type: none"> <li>▪ Roads and vegetation impacts Disturbance of vegetation</li> <li>▪ Disturbance of soil</li> </ul>	Very low	<ul style="list-style-type: none"> <li>▪ Demarcate areas where activities are to be undertaken and restrict activities to those areas.</li> <li>▪ Limit clearance of vegetation as far as possible.</li> <li>▪ Reinstate area following disturbance;</li> <li>▪ Make use of existing access roads only</li> </ul>
	<b>Indirect impacts</b> N/A		
	<b>Cumulative impacts</b> The overall cumulative impacts on ecology will be low to moderate considering the scale of the project and also the route corridor follows existing disturbed farm tracks and land used for agriculture	Negligible	Same as detailed above



## 1.2 CONSTRUCTION PHASE

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the **Construction Phase** of the proposed access road **Preferred Site Layout (S1) and Alternative Site Layout (S2)**

Ecological Impacts (Fauna)					
The impact on fauna is expected to be low to negligent. Presence of indigenous terrestrial vertebrates within the study area is low due to current land use and degradation. Mammals that may be permanently present can be relocated or will move away during construction, and may resettle after construction, depending on safety specifications necessitated by the development. No restricted or specific habitat of vertebrates exists on the study area and will be affected by the proposed development					
Activity	Impact Summary	Significance		Proposed Mitigation	
		Layout Alternative	S1		S2
Establishment, development and utilization of infrastructure	<b>Direct impacts:</b> Destruction of sensitive fauna habitat through construction activities such as clearing of vegetation and dumping of construction material illegally. These elements will reduce the ecological and ecosystem functioning if not managed correctly.		Low	Low	<ul style="list-style-type: none"> <li>▪ The removal of vegetation should be kept to a minimum.</li> <li>▪ Existing road infrastructure and access routes should be utilized during construction and operation.</li> <li>▪ Construction and operational crews should be informed of fauna species which may occur on site and be provided with a protocol to deal with such occurrences.</li> <li>▪ Construction personnel should be informed of the Animal Protection Act no. 71 of 1962 and encouraged not to harm any wildlife;</li> <li>▪ The development area should be rehabilitated and re-vegetated as soon as possible using an appropriate rehabilitation plan which incorporates indigenous plant species.</li> </ul>
Establishment,	Construction and operation personnel are likely to be afraid		Low	Low	<ul style="list-style-type: none"> <li>▪ Existing road infrastructure should be</li> </ul>

development and utilization of infrastructure	of fauna species and may persecute them or kill them. If these individuals are not afraid of them they may hunt them for food or sport. Construction and operational activities such as noise and lighting may disturb fauna species.			<p>utilized during construction and operation.</p> <ul style="list-style-type: none"> <li>▪ Construction and operational crews should be informed of fauna species which may occur on site and be provided with a protocol to deal with such occurrences.</li> <li>▪ Construction personnel should be informed of the Animal Protection Act no. 71 of 1962 and encouraged not to harm any wildlife;</li> <li>▪ Any development approved must acknowledge fauna species and allow them the opportunity to migrate, i.e. if an animal is encountered, the construction should cease until the animals move of their own accord or if necessary are captured and relocated.</li> <li>▪ Construction and operation activities should be restricted to daylight hours to prevent any additional disturbance to fauna such as floodlights or construction/operational noises.</li> <li>▪ If blasting is required, this should be restricted to daylight hours not beginning before one hour after sunrise and ending one hour before sunset as these are the times when fauna assemblages are most mobile.</li> </ul>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Possible relocation of fauna that may occur on site to a quieter area.</li> <li>▪ Pregnant animals aborting due to uncontrolled noise</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>▪ Same as detailed above</li> </ul>

	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>Loss of fauna species in the broader study area</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>Same as detailed above</li> </ul>
<b>Ecological Impacts (Wetland)</b>				
Artificial seepage wetlands occur along the route corridor. These wetlands are as a result of seepage from the water works and are small and are isolated from the hydrological network and as such are not considered sensitive. The primary potential impact of the proposed road on the artificial wetland areas is a temporary loss of wetland habitat which will occur during the construction phase of the road. The impact with and without mitigation is calculated as <b>low</b> . No impact to regional hydrology or downstream watercourses is expected. Since the wetlands are artificial, isolated from regional hydrological networks, and don't support any sensitive species,				
Activity	Impact Summary	Significance		Proposed Mitigation
	Layout Alternative	S1	S2	
Construction of the road	<b>Direct impacts:</b> Loss of wetland habitat	Low	Low	Minimise construction footprint
	<b>Indirect impacts:</b> Loss of habitat for opportunistic hydro plants and avifauna utilising the site	Low	Low	Same as detailed above
	<b>Cumulative impacts:</b> None:	<ul style="list-style-type: none"> <li>N/A</li> </ul>		

<b>Ecological Impacts (Flora)</b>				
There is little material difference, from a vegetation perspective, between Alternative 1 and Alternative 2. Impacts and sensitivities are equal on both alternatives. Both run through transformed vegetation, with only a small proportion at the western end of the routes in relatively undisturbed vegetation of an ecological support area. The routes are relatively short (<6km) and total impact on vegetation will be minimal.				
Activity	Impact Summary	Significance		Proposed Mitigation
	Layout Alternative	S1	S2	
Construction and operation of the access	<b>Direct impacts:</b> Loss of indigenous (-ve) and alien invasive (+ve) vegetation, increase in runoff and erosion,	Low	Low	<ul style="list-style-type: none"> <li>The removal of vegetation should be kept to a minimum.</li> <li>Existing road infrastructure should be</li> </ul>

<p>road on previously transformed and/or highly degraded areas – Both alternatives</p> <p>Construction and operation of any development component(s) on remaining intact Central Free State Grassland vegetation – Alternative Site Layout 1</p>	<p>possible distribution of alien invasive species, possible disturbance and reduction of habitat or injury to burrowing vertebrates, possible change of natural runoff and drainage patterns, possible loss of protected species, possible permanent loss of revegetation and potential of soil surface</p>			<p>utilized during construction and operation.</p> <ul style="list-style-type: none"> <li>▪ The development area should be rehabilitated and re-vegetated as soon as possible using an appropriate rehabilitation plan which incorporates indigenous plant species.</li> <li>▪ Degraded portions of natural vegetation should be cleared of invasive as a minimum, and could be used for limited components of the development, provided that this is located on areas with the highest present level of disturbances</li> <li>▪ Prior to commencing with site establishment, search rescue must be undertaken.</li> <li>▪ During the design phase, aim to have connection routes coinciding with existing tracks or fence lines to reduce the disturbance to vegetation and avoid creating new tracks and areas of compaction by construction machinery.</li> <li>▪ Site establishment is to be done only in an area identified as not being environmentally sensitive and approved by the ECO or EMS representative, prior to establishment.</li> <li>▪ Prior to establishment of the site camp(s), the Contractor shall produce a plan showing the positions of all buildings, lay down yards, batch plants, vehicle wash areas, vehicle repair area, batching areas and infrastructure for approval by the Resident Engineer or PM.</li> <li>▪ No accommodation for workforce on site</li> </ul>
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				except a security presence.
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Indirect impacts:</li> <li>▪ Increased erosion risk as a result of soil disturbance and loss of vegetation cover during construction.</li> <li>▪ Loss of fertile topsoil due to the initial vegetation clearing (for the access road) and increased storm water runoff</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>▪ Compile a storm water management plan for the site,</li> <li>▪ Appropriate storage of topsoil refer also to EMPr for detailed mitigation measures</li> <li>▪ Implement erosion control measures.</li> </ul>
	<p><b>Cumulative impacts:</b></p> <p>If mitigation measures are not strictly adhered to, the following could occur:</p> <ul style="list-style-type: none"> <li>▪ Loss of and further fragmentation of remaining portions of natural grassland and associated ecosystem services such as pollination</li> <li>▪ Alteration of occupancy by terrestrial fauna, possible reduction of available habitat and food availability to terrestrial fauna</li> <li>▪ Spread and establishment of invasive species, and further associated degradation of remaining endangered vegetation</li> <li>▪ Loss of viable populations of indigenous flora</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>▪ Same as detailed above</li> </ul>

<b>Visual Impacts</b>				
<p>The significance of the visual impact of the proposed development would be low significance. The affected landscape is not pristine and is unlikely to be sensitive to the change associated with the proposed development. The proposed development will add to existing infrastructure (Panfonetin Sludge Disposal Site) that is visible but will not change the overriding character of the area in which it is set, which is that of a rural lowland productive agricultural area.</p>				
Activity	Impact Summary	Significance		Proposed Mitigation
	Layout Alternative	S1	S2	
<p>Impact of the construction phase on the following visual receptors: Farmsteads in the vicinity of the proposed development.</p>	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Impact of initial site works, construction camp, site set up, setting out, laying services, ground works.</li> <li>▪ Construction of access road and intersections, from the K81 (D1321) junction to R54 junction and through site.</li> <li>▪ Impact of the road construction works to completion.</li> <li>▪ Construction rubble left onsite may attract vermin, encourage the growth of opportunistic alien vegetation and become unsightly</li> <li>▪ Littering on site may attract vermin, pollute the surrounding areas and become unsightly</li> </ul>	<p>Low</p>	<p>Low</p>	<ul style="list-style-type: none"> <li>▪ Establish screening structures to shield construction works from sensitive receptors (where required); good traffic and site management and keeping local people informed.</li> <li>▪ Good traffic and site management</li> <li>▪ Keeping local people informed.</li> <li>▪ Littering will not be permitted on the site and general housekeeping will be enforced.</li> <li>▪ General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.</li> <li>▪ All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.</li> <li>▪ All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained.</li> <li>▪ Separate waste skips/ bins for the different</li> </ul>

				<p>waste streams must be available on site.</p> <ul style="list-style-type: none"> <li>▪ The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.</li> <li>▪ No waste (hazardous or general) will be disposed of in the trenches around the storm water channel footprint.</li> <li>▪ All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li> <li>▪ Adequate toilet facilities must be provided for all staff members as standard construction practice.</li> <li>▪ Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste;</li> <li>▪ The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.</li> <li>▪ All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site</li> </ul>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Hauling and delivery of construction materials regularly on local roads during contract period</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>▪ Operate site within construction industry management guidelines, time limit on contract period.</li> </ul>
	<p><b>Cumulative impacts:</b></p> <ul style="list-style-type: none"> <li>▪ None</li> </ul>	<ul style="list-style-type: none"> <li>▪ None</li> </ul>		

<b>Soil &amp; Agricultural Impacts</b>					
The establishment of an access road will not have a significant impact on the prevailing agricultural situation in the vicinity, as the route follows an existing farm track along the edge of some cultivated and non-cultivated lands. There will thus be minimal loss of agricultural soil, even if the width of the road servitude is increased. The total area to be disturbed will be approximately 12 ha along the length of the road (20 m road reserve x 5.5 km road length).					
Activity	Impact Summary	Significance		Proposed Mitigation	
		Layout Alternative	S1		S2
Occupation of the site by development footprint	<b>Direct impacts:</b> Impact of the development footprint on the loss of agricultural land		Low	Low	<ul style="list-style-type: none"> <li>Site Layout Alternative 1 should be selected as the preferred alternative as it is slightly shorter approximately 5.3km as compared to Site Layout Alternative 2.</li> </ul>
Construction activities which disturb the natural soil profile	Impact of the construction on the loss of topsoil		Low	Low	<ul style="list-style-type: none"> <li>Strip and stockpile topsoil from areas where excavations are made. Re-spread topsoil after completion of construction.</li> </ul>
Construction of access road and vehicles operating during the construction phase.	Impact of the development footprint on soil erosion.		Low	Low	<ul style="list-style-type: none"> <li>Ensure that adequate erosion measures are in place and limit direct footprint. Explore the potential to re-establish vegetation immediately when construction is completed in the area</li> </ul>
	Impact of increased vehicle activity		Low	Low	<ul style="list-style-type: none"> <li>Limit vehicle movement to identified access routes and ensure that dust suppression is exercised during dry seasons and during maximum vehicle movement</li> </ul>
	Storage and Inappropriate management of hydrocarbons or pollutants on site		Low	Low	<ul style="list-style-type: none"> <li>The contractors must provide and maintain a method statement for mixing of cement and asphalt. The method statement must provide information on proposed location, storage, washing and disposal of cement, packaging, tools and plant storage</li> <li>Washing and cleaning of equipment and</li> </ul>



				<p>vehicles should also be done within a bermed area (wash bay area). These sites must be rehabilitated prior to commencing the operational phase</p> <ul style="list-style-type: none"> <li>▪ The mixing of concrete should only be done at specifically selected sites on mortar boards or similar structures to contain pollution</li> <li>▪ Materials such as fuel, oil, paint, herbicide and insecticides must be sealed and stored in bunded areas or under lock and key, as appropriate, in well-ventilated areas</li> <li>▪ Drip trays (minimum of 10cm deep) must be placed under all vehicles that stand for more than 24 hours. Vehicles suspected of leaking must not be left unattended, drip trays must be utilised.</li> <li>▪ Drip trays must be utilised during repairs and maintenance of all machinery. The depth of the drip tray must be determined considering the total amount / volume of oil in the vehicle. The drip tray must be able to contain the volume of oil in the vehicle</li> <li>▪ Provision of adequate sanitation facilities located outside of the wetland/riparian area or its associated buffer zone</li> <li>▪ Remove all construction equipment and material on completion of construction</li> <li>▪ No water should be abstracted from any nearby river / wetland without DWS authorisation</li> <li>▪ Remove all project-related material used</li> </ul>
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				to support equipment on completion of construction
	<b>Indirect impacts:</b> ▪ None	N/A		
	<b>Cumulative impacts:</b> ▪ The overall loss of agricultural land in the region due to other developments. The significance is low as the route follows an existing farm track along the edge of some cultivated and non-cultivated lands.	Low		▪ No mitigation required
Social Impacts				
Activity	Impact Summary	Significance		Proposed Mitigation
	Layout Alternative	S1	S2	
<b>Construction phase</b> (Including all related infrastructure such as site construction camp and lay down area)	<b>Direct impacts:</b> <b>Positive social impacts:</b> ▪ Creation of employment and business opportunities.	Low(+)	Low(+)	<b>Enhancement</b> ▪ Where possible, the applicant should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically semi and low-skilled job categories. This will reduce the potential impact that this category of worker could have on local family and social networks; ▪ Maximise the use of local labour for low – semi skilled jobs far as possible.
	<b>Potential negative impacts:</b> ▪ Influx of workers looking for employment opportunities to the area ▪ Increased risk of stock theft, poaching and damage to farm	Low (-)	Low (-)	<b>Mitigation</b> ▪ Implement mitigation measures to monitor and control the activities of construction workers and for the control of nuisance impacts. ▪ Access to the construction site must be

	<p>infrastructure associated with construction workers</p> <ul style="list-style-type: none"> <li>▪ Increased risk of veldt fires associated with construction related activities</li> <li>▪ Impact of heavy vehicles, including damage to roads, safety, noise and dust.</li> <li>▪ Construction workers using nearby bushes or farmland for ablution</li> </ul>			<p>strictly controlled.</p> <ul style="list-style-type: none"> <li>▪ Entry points and access routes to the sites must be clearly marked and traffic limited to those areas as far as possible.</li> <li>▪ Mechanisms will be implemented to deal with people seeking employment in order to minimise any issues related to the influx of people.</li> <li>▪ No open fires will be allowed on site unless in a demarcated area identified by the ECO</li> <li>▪ Train some construction workers as fire marshals</li> <li>▪ All construction activities should be limited to the demarcated areas.</li> <li>▪ Access to these demarcated areas should be strictly controlled.</li> <li>▪ Adequate sanitary and ablutions facilities must be provided for construction workers as standard construction practice.</li> <li>▪ The Contractor shall provide sanitation facilities in the form of chemical toilets, at all camps, offices, workshops and construction sites for staff and visitors. No other form of sanitation will be permitted unless a connection with a local sewer main is possible. The provision of this facility will comply with current legislation. A minimum of one toilet per 11 people or within 100 meters of the work site in order to prevent any breach of sanitary bylaws or offence to public decency.</li> <li>▪ All staff is to use the toilets at all times rather than informal defecation in the</li> </ul>
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				<p>environment.</p> <ul style="list-style-type: none"> <li>▪ Toilets are to meet the minimum requirements of the OHS ACT.</li> <li>▪ All sanitary fees that may be payable to any local authority shall be paid by the Contractor.</li> <li>▪ Ablutions are to be cleaned/emptied before they are full and contaminate the environment.</li> <li>▪ Toilets are not to be located within sensitive areas such as drainage lines and 1:100 year flood lines</li> <li>▪ Any sewerage spillages must be regarded as hazardous and cleaned up immediately using appropriate PPE.</li> <li>▪ A sewage leak due to accidental damage to a sewerage service must contain the spillage. The spillage may not leave the site. The relevant authority must be notified, all necessary precautions against veldt fires and also to protect material on site shall be taken.</li> <li>▪ The contractor shall have fire-fighting equipment easily available on site especial during the winter period.</li> <li>▪ At no time shall the contractor's workforce be allowed to collect firewood from the veldt.</li> <li>▪ Packaging and other waste material may not be burned on site under any circumstances</li> <li>▪ As outlined in the National Veldt and Forest Act 101 of 1998 (periods when the veldt is dry) a firebreak is to be in place by</li> </ul>
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			<p>end May each year. If the firebreak is to be built the requirements as laid out in the Act must be followed. If the firebreak is to be scraped, the same requirements of a new access road are to be followed.</p> <ul style="list-style-type: none"> <li>▪ Burning of vegetation including tree trunks and stumps cut during site clearing and establishment shall not be permitted. Woody material should be chipped and reused as mulch back on the site. No organic matter other than alien invasive material should leave the site. This will enable the environment to be rehabilitated easier.</li> <li>▪ The Contractor shall supply fire fighting equipment in proportion to the fire risk presented by the type of construction and other on-site activities and materials used on site. This equipment shall be kept in good operating order. This particularly applies to welding activities.</li> <li>▪ Smoking is only allowed in designated safe smoking areas.</li> <li>▪ No fires for warming or cooking are allowed outside of secured areas in the construction camp.</li> </ul>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Local employed people during the construction phase may learn new skills thereby making them more employable in the future.</li> </ul>		<ul style="list-style-type: none"> <li>▪ The developer should implement a training and skills development enhancement programme for locals during the construction phase. The aim of the programme should be to maximise the number of South African's and locals employed during the operational phase of the project.</li> </ul>
	<p><b>Cumulative impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Impacts on family and community relations</li> </ul>		<ul style="list-style-type: none"> <li>▪ Attention should be given to the awareness of HIV/Aids and STDs in the form of toolbox talks.</li> </ul>

	<ul style="list-style-type: none"> <li>In cases where unplanned / unwanted pregnancies occur or members of the community are infected by an STD, specifically HIV and/or AIDS, the impacts may be permanent and have long term to permanent cumulative impacts on the affected individuals and/or their families and the community.</li> </ul>			
<b>Heritage Impacts</b>				
<p>No heritage resources were identified during the survey. However due to most of the features occurring underground e.g. graves, they maybe accidentally exhumed during excavation which is unlikely as such features would already have been exhumed if they existed by agriculture machinery. Therefore the likelihood of such features occurring is improbable. Nonetheless, should graves, fossils or any archaeological artefacts be identified during construction, work on the area where the artefacts were found, must cease immediately and it should immediately be reported to a heritage practitioner or local museum so that an investigation and evaluation of the finds can be made.</p>				
Activity	Impact Summary	Significance		Proposed Mitigation
	Layout Alternative	S1	S2	
Construction of the access road and associated infrastructure.	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>During the construction phase earthworks might impact on unknown buried artefacts, e.g. graves</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>The contractors and workers should be notified that archaeological sites might be exposed during the construction work.</li> <li>Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;</li> <li>No artifacts may be removed off site unless authorized by the appropriate authority. Work on the area where the artifacts were found should cease immediately and the Engineer and the EMS representative be notified as soon as possible. Upon receipt of such notification, the PM or EMS representative will arrange for</li> </ul>

				<p>the excavation to be examined by an Archaeologist as soon as possible.</p> <ul style="list-style-type: none"> <li>▪ The relevant authority shall be informed to ensure that appropriate management</li> <li>▪ Action is taken immediately in collaboration with the specialist.</li> <li>▪ Under no circumstances shall archaeological artifacts be removed, destroyed or interfered with by the Contractor, his employees, his sub-contractors or his sub - contractors' employees. Any person who causes intentional damage to archaeological or historical sites and artifacts could be penalised or legally prosecuted in terms on the Act.</li> </ul>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>▪ None</li> </ul>			<ul style="list-style-type: none"> <li>▪ None</li> </ul>
	<p><b>Cumulative impacts:</b></p> <ul style="list-style-type: none"> <li>▪ The loss of a number of archaeological sites.</li> </ul>			<ul style="list-style-type: none"> <li>▪ None</li> </ul>

Air Quality Impacts				
Activity	Impact Summary	Significance		Proposed Mitigation
	Layout Alternative	S1	S2	
Movement of construction machinery and heavy vehicles	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Construction vehicles may release pollutants like carbon monoxide and carbon dioxide and smoke in the air</li> <li>▪ Excavated stockpiled topsoil and subsoil has the potential</li> </ul>	Medium	Medium	<ul style="list-style-type: none"> <li>▪ A speed limit of 40km/h to be maintained on all dirt roads.</li> <li>▪ Dust suppression by means of either water or biodegradable chemical agent is required.</li> <li>▪ A provision for a minimum of twice daily dampening by water cart must be</li> </ul>

	<p>to contribute to dust pollutants in the air from blowing wind.</p> <ul style="list-style-type: none"> <li>▪ Movement of construction vehicles especially speeding will be a source of fugitive dust on site due to loose soil types</li> </ul>			<p>provided.</p> <ul style="list-style-type: none"> <li>▪ The first dampening must commence with the start of work daily and the second watering to commence no later than four hours later.</li> <li>▪ During exceptional circumstances additional dampening may be required should the watering not be deemed effective by the ECO. The ECO will determine the nuisance and health issues in considering this recommendation.</li> <li>▪ All reasonable measures should be taken to minimize air emissions in the form of smoke, dust and gases.</li> <li>▪ All vehicles and other plant should comply with road worthy requirements and comply with legislation in terms of allowable emissions.</li> <li>▪ Construction activities must be limited to normal working hours and according to municipal bylaws,</li> <li>▪ Dust suppression mitigation measures must be implemented</li> <li>▪ A continuous dust monitoring process needs to be undertaken during construction.</li> <li>▪ All vehicles transporting friable materials such as sand, rubble etc. must be covered by a tarpaulin or wet down.</li> <li>▪ Bare surfaces must be rehabilitated as soon as possible with indigenous vegetation that will be able to grow in the area.</li> </ul>
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				<ul style="list-style-type: none"> <li>No burning of refuse or vegetation is permitted.</li> <li>A complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon.</li> </ul>
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>Health issues for workers and homesteads exposed to dust</li> <li>Dust hinder crop production i.e. dust covered crops may not synthesis at optimum rates.</li> </ul>	Very Low	Very Low	<ul style="list-style-type: none"> <li>Operate site within construction industry management guidelines, time limit on contract period.</li> </ul>
	<p><b>Cumulative impacts:</b></p> <ul style="list-style-type: none"> <li>The overall impact on air quality in the region due to other developments. The significance is low due to the small extent of this proposed development.</li> </ul>	No mitigation required		

Traffic Impacts				
Activity	Impact Summary	Significance		Proposed Mitigation
		S1	S2	
Increased traffic congestion could possibly occur as a result of construction vehicles moving onto and off the site	<p><b>Layout Alternative</b></p> <p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>Traffic congestion at the access points where the road will link the k81</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>Construction activities must be limited to normal working hours and according to municipal bylaws</li> <li>Traffic marshals/officers must be appointed to</li> </ul>

during construction	(D1321) and R54. <ul style="list-style-type: none"> <li>Construction of access road, from the K81 junction to R54 junction and through site.</li> </ul>			<p>assist with smooth movement of motorists where the proposed road will link to K81 (D1321) and R54 during periods of peak construction and intersection upgrades.</p> <ul style="list-style-type: none"> <li>It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the implementation of an efficient and effective access control system.</li> <li>Suitable warning and information signage should be erected before construction commences.</li> </ul>
	<b>Indirect impacts:</b> Hauling and delivery of construction materials regularly on local roads during contract period	Low	Low	<ul style="list-style-type: none"> <li>Operate site within construction industry management guidelines, time limit on contract period.</li> </ul>
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>None</li> </ul>			<ul style="list-style-type: none"> <li>None</li> </ul>

Noise Impacts				
Activity	Impact Summary	Significance		Proposed Mitigation
	Layout Alternative	S1	S2	
Construction activities such as presence of vehicles on site and movement of machinery	<b>Direct impacts:</b> Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents ( $\pm 1$ km from the site) as well as along internal access roads.	Low	Low	<ul style="list-style-type: none"> <li>Construction activities must be limited to normal working hours and according to municipal bylaws.,</li> <li>The contractor must ensure that noise levels remain within acceptable limits.</li> <li>If blasting should be required, the nearest sensitive receptors should be informed of the activity three days prior to activity.</li> <li>Complaints register will be maintained, in which any complaints from the community will</li> </ul>

				<p>be logged. Complaints will be investigated and, if appropriate, acted upon.</p> <ul style="list-style-type: none"> <li>▪ The operational layout shall be designed so as to control noise at source by the selection and positioning of temporary and permanent plant. Appropriate directional and intensity settings should be maintained on hooters and sirens.</li> <li>▪ Silencer units on plant and vehicles shall be maintained in good working order where feasible for use.</li> <li>▪ Where required, the Contractor shall provide noise attenuation measures in the form of cladding and earth beams between sources of on-site noise and neighbours</li> </ul>
	<b>Indirect Impact</b>	Low	Low	<ul style="list-style-type: none"> <li>▪ Operate site within construction industry guidelines, time frames on contract period</li> </ul>
	<b>Cumulative impacts:</b>	<ul style="list-style-type: none"> <li>▪ None</li> </ul>		
	<ul style="list-style-type: none"> <li>▪ None</li> </ul>	<ul style="list-style-type: none"> <li>▪ None</li> </ul>		

### 1.3 OPERATION PHASE

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the **Operation Phase** of the proposed access road **Preferred Site Layout (S1) and Alternative Site Layout (S2)**

OPERATION				
Traffic Impact				
Activity	Impact Summary	Significance		Proposed Mitigation
Layout Alternative		S1	S2	
Operation of the access road	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>▪ Traffic and Safety Risk:</li> </ul>	Low	High	<ul style="list-style-type: none"> <li>▪ Implementation of a four way stop with signage must be considered at the design phase of the</li> </ul>

	Operation of the access road could result in vehicle collision at the intersections R54 Balfour intersection			<ul style="list-style-type: none"> <li>development at both intersections</li> <li>▪ The Panfontein Access Road must approach the intersections at right angles.</li> <li>▪ A civil engineer must prepare detailed design layouts of the proposed road and intersections and submit to the Local and Provincial Authorities for comment and approval.</li> <li>▪ Site Layout Alternative 1 should be selected as the preferred alternative as it approaches both K81 (D1321) and R54 at right angles</li> </ul>
	<b>Indirect impacts:</b> None	None		
	<b>Cumulative impacts:</b> <ul style="list-style-type: none"> <li>▪ Increased road accidents in the area</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provided that the proposed mitigation measures above are implemented, the cumulative impact of the proposed activity is regarded to be insignificant.</li> </ul>		
<b>Ecological Impacts</b>				
Activity	Impact Summary	Significance		Proposed Mitigation
	Layout Alternative	S1	S2	
Maintenance of the access road and possible breakage of storm water drainages	<b>Direct impacts:</b> <ul style="list-style-type: none"> <li>▪ Localised increase in runoff and accelerated erosion, possible release of toxic substances and/or heavy metals and associated contamination of soil and groundwater.</li> </ul>	Very Low	Very Low	<ul style="list-style-type: none"> <li>▪ Storm water management measures must be implemented;</li> <li>▪ An maintenance plan must be drafted and adhered to by the responsible person who will own and manage the road, this plan must include                             <ul style="list-style-type: none"> <li>○ measures to contain and mitigate the release of harmful substances</li> <li>○ Measures to limit the establishment and spread of alien invasive species</li> </ul> </li> </ul>
	<b>Indirect impacts:</b> None	None		

	<p><b>Cumulative impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Possible pollution of surrounding areas if no mitigation is implemented</li> <li>▪ Possible increase in and spread of alien invasive species beyond the site if no mitigation is implemented</li> </ul>	<ul style="list-style-type: none"> <li>▪ Avoidance of cumulative impacts through site specific mitigation</li> </ul>		
<b>Socio-Economic Impact</b>				
Activity	Impact Summary	Significance		Proposed Mitigation
	<b>Layout Alternative</b>	S1	S2	
Operation of the access road	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Stock theft in the area has become uncontrollable during the past years. The new road may provide a quick and easy access and escape route to and from neighbouring farms for perpetrators</li> </ul>	Low	Low	<ul style="list-style-type: none"> <li>▪ If the road is constructed it will have to be fenced off according to agreements between the land owners and Rand Water,</li> </ul> <p>It is worth noting that, the landowners have provided RW with access across their land during times of flooding, a dirt road currently exists (same alignment as the proposed tar road). RWs proposal is to formalise this road (tar). The road will be a public road. It is not likely that a new road would result in an increased security risk as the property on which the road will traverse is already bordered by provincial roads.</p>

#### 1.4 DECOMMISSIONING AND CLOSURE PHASES

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the **Decommissioning and Closure Phases** of the proposed access road **Preferred Site Layout (S1) and Alternative Site Layout (S2)**

Activity	Impact Summary	Significance	Proposed Mitigation
<b>DECOMMISSIONING AND CLOSURE PHASES</b>			
<p><b>Decommissioning and closure phases</b> - The decommissioning phase would entail the dismantling of the access roads and the transportation of rubble from the site. It is anticipated that the access road will be dismantled and removed and a rehabilitation plan (removal of all foreign material from site and provision of recycling plans) approved by the relevant authorities will be implemented.</p> <p>Decommissioning and closure phase has not been considered as part of this application as the end use of the site and required decommissioning activities are not known at this time. In addition, the current environmental baseline conditions may change overtime; it is therefore not possible to predict the potential environmental impacts. In addition, it is unlikely that decommissioning will be contemplated due to the nature of the development. However the closure and decommissioning require a separate EIA process. If decommissioning phase is considered in future, the developer will undertake the required actions as prescribed by the legislation at the time and comply with all relevant requirements administered by any relevant authority and competent authority at that time.</p>			

#### 2. NO GO ALTERNATIVE

<b>NO-GO OPTION</b>			
<p>Construction, operation and decommissioning phase of the access road</p>	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>▪ <b>Ecological impacts:</b> the no-go option would result in no ecological impact occurring.</li> <li>▪ <b>Agricultural impacts:</b> The 'do nothing' alternative will result in no impact on the current land use status. The proposed site will likely continue to be used as an existing gravel farm road. In addition it will continue to serve as a grazing area.</li> </ul>	<p>Medium (-)</p>	<ul style="list-style-type: none"> <li>▪ The no-go option would result in a negative social cost due to the loss of construction phase employment opportunities and operational phase jobs. This could be mitigated by implementing the proposed project.</li> <li>▪ The no go option would result in disruptions to access to critical Rand Water sites which may lead to water service delivery interruptions.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ <b>Social impacts:</b> The no-go option would result in job opportunities not being realised resulting in further unemployment in the area.</li> <li>▪ <b>Visual impacts:</b> The visual character of the area would remain unchanged.</li> <li>▪ <b>Heritage impacts:</b> The do-nothing alternative would have no impact on the heritage environment as no development would be undertaken which could potentially impact upon heritage resources.</li> </ul>		
	<p><b>Indirect impacts:</b></p> <ul style="list-style-type: none"> <li>▪ The No-Development option would represent a lost opportunity for Rand Water to supplement the existing access route via the Bridge which gets flooded and inaccessible during storm weather conditions. Given Rand Waters responsibility as a water quality provider in the country, this would represent a high negative social cost.</li> </ul>	Low	<ul style="list-style-type: none"> <li>▪ Implementation of the proposed project</li> </ul>
	<p><b>Cumulative impacts:</b></p> <ul style="list-style-type: none"> <li>▪ Contributing to further unemployment and unsustainable ways to produce quality water during the rainy season</li> </ul>	Low	<ul style="list-style-type: none"> <li>▪ Implementation of the proposed project</li> </ul>

A complete impact assessment in terms of Regulation 19(3) of GN 983 must be included as **Appendix F**.

### 3. 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.

#### Comparison of Alternatives: Alternative Layout 1 (S1) Preferred) and Alternative Layout 2 (S2)

This section provides a summary of the environmental assessment and conclusions drawn for the proposed Panfontein Access Road to be constructed in Midvaal Local Municipality, Gauteng Province. In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultant during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project.

The following conclusions can be drawn from the specialist studies undertaken within this Basic Assessment:

Element/Factor	Observation/Comments
Flora impact	<p>Any impacts on the flora of <b>Alternative 1</b> or <b>Alternative 2</b> will be minimal, as the area is already heavily disturbed by cultivation and there is very little remnant vegetation (Central Free State Grassland) remaining on site. Vegetation occurring is largely a mixture of pioneer species. The wetlands along the route are an artefact of seepage from the adjacent water works; regardless, a road will have relatively little impact on an already disturbed environment.</p> <p>There is little material difference, from a vegetation perspective, between Alternative 1 and Alternative 2. Impacts and sensitivities are equal on both alternatives. Both run through transformed vegetation, with only a small proportion at the western end of the routes in relatively undisturbed vegetation of an ecological support area. The routes are relatively short (&lt;6km) and total impact on vegetation will be minimal.</p>
Fauna and habitat Impact	<p>No threatened species are expected to be fatally impacted upon by the proposed alignment.</p> <p>The project area is found within two vegetation types, which are listed as Vulnerable and Endangered namely the Central Free State Grassland and Soweto Highveld Grassland respectively. Both alternatives are found primarily in the Central Free State Grassland except for the start and end of each route. Both alternatives however are found in areas that are already transformed or highly disturbed and cannot be considered representative of these areas. Both routes follow existing road infrastructure or informal agricultural roads.</p> <p>The Vaal River and Suikerbosrand River and their tributaries as well as wetlands are found within the extended project area. Neither alternative impact on any of these elements.</p> <p>In terms of fauna assemblages, no species of conservation concern were identified during the site inspection of the project area. However,</p>



	<p>conservation important species may occur within the area in addition to the area being utilised by many common and hardy mammal, avifauna and <i>herpetofauna</i> species. Both alternatives follow a dirt road within an existing agricultural area and follows existing fencing to meet up with the entrance of the sludge disposal site. <u>This area is of low ecological concern and therefore either alternative would be considered preferable for construction of a concrete surface.</u></p>
<p>Watercourse Impact</p>	<p>Moist conditions were recorded along the proposed route alternatives. No route alternative is considered as more ideal in terms of the potential impact to the artificial seepage wetlands recorded on the site. The area is historically disturbed by farming activities and water seeping from unlined sludge ponds. These artificial wetlands are small and are isolated from the hydrological network and as such are not considered sensitive.</p> <p>The primary potential impact of the proposed road on the artificial wetland areas is temporary loss of wetland habitat which will occur during the construction phase of the road. The impact with and without mitigation is calculated as <u>Low</u>. <u>It is of short duration and limited only to site.</u> <u>The possibility of the impact occurring is definite.</u> <u>No impact to regional hydrology or downstream watercourses is expected.</u></p>
<p>Heritage and Cultural Impact</p>	<p>The impacts to heritage resources by the proposed development are considered to be of low significance for both the preferred layout Alternative 1 and Layout Alternative 2 (S2) due to the absence of heritage material on the site. The impact is short term and possibility of impact occurring is <u>improbable</u>.</p>
<p>Traffic impact</p>	<p>The traffic specialist recommended that the access road approach both the K81 (D1321) and R54 intersections at a right angle for safety reasons. Layout Alternative 1 is agreement with the specialist recommendations while Layout alternative 2, approaches R54 at an acute angle which is unsafe for the road traffic users. This may result in traffic collision during operation which is rated as <b>High</b> and the duration of the impact is <b>Long term</b> and the probability of impact occurring is <b>Highly Probable</b>.</p> <p>The Alternative Layout (S2) is therefore not preferred from a traffic point of view during the operation phase due to the traffic and safety risk related to the exit point where the alignment ties into the R54 Balfour intersection.</p>
<p>Soil and Agriculture Potential</p>	<p>The establishment of an access road will not have a significant impact on the prevailing agricultural situation in the vicinity, as the route corridor follows an existing farm track along the edge of some cultivated and non-cultivated lands. There will be minimal loss of agricultural soil, even if the width of the road servitude is increased. The total area to be disturbed will be approximately 11 ha along the length of the road (20 m road reserve x 5.5 km road length), but new disturbed areas will be less than this, since there is an existing dirt road. The main impact might be the</p>

	<p>creation of an excessive amount of dust during the construction phase.</p> <p>From the point of view of the soil resource, there is no reason why the project cannot be authorized</p>
Visual and/or aesthetic elements	<p>The significance of the visual impact of the proposed development would be low significance. The affected landscape is not pristine and is unlikely to be sensitive to the change associated with the proposed development. The proposed development will add to existing infrastructure (Panfonetin Sludge Disposal Site) that is visible but will not change the overriding character of the area in which it is set, which is that of a rural lowland productive agricultural area.</p> <p>With or without mitigation, the new access road will be a weak visual element for both alternatives as it is not an overhead development but a ground pass development.</p>
Social and socio-economic impact	<p>The overall social and socio-economic impact in terms of positive and negative impacts is likely to be of a <b>Low significance</b> and <b>localised</b> during the construction for both alternatives with the implementation of enhancement/mitigation measures. The potential negative impacts associated with the construction phase are typical of construction-related activities and are expected to respond to the mitigation measures proposed. Issues identified include the influx of outside workers, whether locals would be employable during the construction phase of the project as on-site skills development and training would be imperative to ensure that the benefits of employment could be maximised, the intrusion impacts associated with construction, and impacts on the daily living and movement patterns of neighbouring landowners and road users.</p>
Possible degradation and long-term effects on the environment.	<p>No long term effect on the environment is expected. Mitigation measures should be employed to ensure no significant degradation of the environment.</p>
Pollution released into the environment	<p>The proposed activity is not expected to result in long term pollution of the environment. Mitigation measures are proposed to ensure pollution is restricted to short term localised effects</p>
<p><b>Cumulative Impacts:</b></p> <p>Based on the findings of the studies undertaken, in terms of environmental constraints and opportunities identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the establishment of the proposed Panfontein Access Road and associated infrastructure. The significance levels of the majority of identified negative impacts can generally be reduced to acceptable levels by implementing the recommended mitigation measures. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.</p>	
<p>For detailed assessment of each layout alternative and impacts in terms of duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts, please refer to <b>Appendix F</b> attached within this Basic Assessment Report.</p>	

**Table 1: Summary of specialist findings for each of the respective Layout Alternatives (✓ depicting suitability of the site for the access road development)**

Specialists	Layout Alternative 1 (S1)	Layout Alternative 2 (S2)	Preference of Alternatives	
			Preferred	Least Preferred
Flora & Fauna impact	✓	✓	Equally suitable	
Wetland impact	✓	✓	Equally suitable	
Traffic Impact	✓	X	Layout Alternative 1 (S1)	Layout Alternative 2 (S2)
Heritage	✓	✓	Equally suitable	
Soil and Agriculture Impact	✓	✓	Equally suitable	

The Layout Alternative 1 (S1) is the preferred alternative layout and recommended by all specialist studies that were conducted for the project. Nonetheless Layout Alternative 2 is equally preferred but for the exception that the Alternative Layout (S2) is not preferred from a traffic point of view during the operation phase due to the traffic and safety risk related to the point where the access road intersects with the R54 Balfour intersection. The layout approaches the intersection at an acute angle not in line with the traffic specialist recommendations. **Alternative Layout S2 is therefore not preferred in this regard.** Nonetheless, no fatal flaws or impacts of high significance were identified for both alternatives as they have the least impact on the environment.

Therefore, it is recommended that the project should be authorised. A number of issues requiring mitigation have been highlighted in the impact assessment (Appendix F). In response to these potential environmental impacts, environmental specifications for the management of these issues / impacts are detailed within the Environmental Management Programme (EMPr) included within **Appendix G**.

Alternative B

Alternative C

**No-go alternative (compulsory)**

Also referred to as the ‘Do nothing’ option, this refers to Rand Water not constructing the proposed access road on the identified site. In this scenario the potential positive and negative environmental and social impacts as described in this Basic Assessment Report will not occur and the status quo will be maintained.

- Water security: The current water crisis in South Africa highlights the significant role that Rand Water plays in terms of clean water provision. The No-Development option would represent a lost opportunity for Rand Water to deliver the required quantity of clean water during the rainy season when the Bridge is reported to flood. This would represent a High negative social cost.
- Rand Water is a South African water utility that supplies potable quality water to the Gauteng province and other areas of the country and is the largest water utility in Africa. Should the facility not be constructed, this “will limit the Rand Water’s potential to provide the needed quality water in the area

and cumulatively in the broader region.

- Rand Water will be failing to carry out their legislative mandate towards the realisation of provision of aforementioned services mainly in the rainy season.

The no-development option also represents a lost opportunity in terms of the employment and business opportunities (construction phase) associated with the proposed Panfontein access road. On a local level, should the complete development proceed, the landowner will benefit from the proposed development financially. The study area is currently used as a farm land access road and in some areas it lays fallow, therefore the landowner will not be able to benefit agriculturally. The no-development option will therefore not be beneficial to the landowner or the broader community nor the general public.

**The 'Do nothing' alternative is, therefore, not a preferred alternative**

## 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 ✓

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

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

There are no environmental or social impacts of substantive significance that would prevent the establishment of the proposed Panfontein Access Road on a site in Midvaal Local Municipality, Gauteng Province, provided that the tarred road is developed within the recommended alternative.

From an environmental perspective either of the alternatives can be implemented as they both are deemed to be environmentally appropriate within the context of the receiving environment as detailed in this basic assessment report. No environmental fatal flaws have been identified. Nonetheless from the traffic perspective **Layout Alternative 2 (S2)** is not preferred during the operation phase due to the significant impact it may pose on traffic and safety in the area during the operation phase. It can therefore be recommended that **Layout Alternative 1 (S1)** be implemented as all its impacts can be mitigated to an acceptable level.

The construction of the proposed access road should be implemented according to the EMPr to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation. Relevant conditions to be adhered to include:

### Construction

- All relevant practical and reasonable mitigation measures detailed within this report and EMPr must be implemented.
- The implementation of the EMPr for all the project life cycle phases of the proposed project is considered key in achieving the appropriate environmental management standards as detailed above
- The content of the EMPr and its objectives must be made known to all Contractors and their subcontractors, agents and other people working on site.
- A storm water drainage system and a storm water management plan must be developed and implemented on site
- An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr and environmental conditions once issued by DEA for the duration of the construction period.
- Monthly monitoring reports must be submitted to DEA for the evaluation of the projects compliance to the EMPr and Environmental authorisation.
- All declared alien plants must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1994), and the implementation of a monitoring programme in this regard is recommended.
- Existing tracks/roads should be used as far as possible, and construction activities should be

<p>limited to the authorised site.</p> <ul style="list-style-type: none"><li>▪ Disturbed areas should be rehabilitated as soon as possible once construction is complete in an area.</li><li>▪ Rand Water shall ensure that adequate protection measures are taken to minimize the potential risk of theft during the construction and operational phase.</li><li>▪ The developer must obtain all necessary permits prior to the commencement of construction.</li><li>▪ A public complaints register must be available on site to record any issues of concern from the public regarding the project.</li><li>▪ Implementation of the environmental awareness education to the contractor's during and prior to construction</li><li>▪ Continued consultation and engagement with all relevant stakeholders – especially property owners, neighbouring and local communities, and respective municipalities during labour recruitment and procurement for services and supplies during construction phase;</li><li>▪ Compliance with all legal requirements in relation to environmental management and conditions of the environmental authorisation issued by DEA.</li><li>▪ On-going monitoring of the development sites to detect and restrict the spread of alien plant species.</li></ul> <p><b>Operation</b></p> <p>The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented.</p> <ul style="list-style-type: none"><li>▪ Maintenance of storm water drainage</li></ul>
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Is an EMPr attached?

YES ✓

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

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

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

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

\_\_\_\_\_  
NAME OF EAP

\_\_\_\_\_  
SIGNATURE OF EAP

\_\_\_\_\_  
DATE

## **SECTION F: APPENDIXES**

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The following appendixes must be attached:

### **Appendix A: Site plan(s)**

- A1: Locality Map
- A2: Layout Plan
- A3: Sensitivity Maps
- A4: Route Corridor Coordinates

### **Appendix B: Photographs**

### **Appendix C: Facility illustration(s)**

### **Appendix D: Specialist reports**

- D1: Wetland Specialist Report
- D2: Fauna Specialist Report
- D3: Flora Specialist Report
- D4: Soil and Agriculture Specialist Report
- D5: Heritage Specialist Report
- D6: Traffic Specialist Report
- D7: Geotechnical Report

### **Appendix E: Public participation information**

- Appendix E1: Adverts and Site Notices
- Appendix E2: Proof of key stakeholder consultation
- Appendix E3 (a): Comments Received
- Appendix E3 (b): Comments and Response Report
- Appendix E4: Proof of Authorities and Organs of State consultation
- Appendix E5: Registered Interested and Affected Parties
- Appendix E6: Minutes of Meetings

### **Appendix F: Impact and Assessment Report**

### **Appendix G: Environmental Management Programme (EMPr)**

#### **Appendix G1: Rehabilitation and Monitoring Plan**

#### **Appendix G2: Stormwater Management Plan**

### **Appendix H: Details of EAP and Expertise**

### **Appendix I: Specialist Declaration of Interest**

### **Appendix J: Additional Information**