



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, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

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

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14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

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

YES	NO ✓
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If YES, please complete the form entitled “Details of specialist and declaration of interest” for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

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

The proposed construction of the Botshabelo Interchange on National Route 8 Section 11, between km43.00 and km52.60 and the upgrade of the main access road to Botshabelo, within the jurisdiction of the Mangaung Local Municipality in the Free State.

SANRAL has identified the need to improve safety on the N8 by closing various at-grade intersections, eliminating turning movements and introducing a grade-separated diamond interchange as the principal access to Botshabelo located on the N8/main road intersection.

The concept and layout of the proposed Botshabelo Interchange is based on the findings of the Traffic Impact Assessment (TIA) that was conducted by Iiso Consulting in July 2011. Refer to the TIA in Appendix D. It has been assumed that the N8 would be widened to 4-lanes dual carriageway in the future, however the improvements on the N8 are **not** included in the scope of work of this Basic Assessment Process and the design and construction under this project.

The study area of the project covers the N8 between the west intersection at SV43.7 to the east intersection at SV52.6, with the intention to close these two intersections. The proposed interchange would be located on the N8 Section 11 (N8/11:47.98kmE) at the primary access to Botshabelo.

The scope of work therefore includes the following:

- Closure of three formal intersections (within the 8km study area) which currently provides access to Botshabelo;
- Construction of a grade separated interchange as the primary (and only) access into Botshabelo, with an option to provide access to the north of the N8 for future development; and
- Formalise links and improve roads from the interchange into the existing Botshabelo road network, and northward to the existing gravel roads.

The existing access road (Main road) into Botshabelo will be have be widened for a distance of approximately 1.1km from the N8 to the major signalised intersection. Provision will also be made for 2m pedestrian walkways on both sides. The access road (main road) from Botshabelo intersects the N8 at 90° which is ideal for the proposed diamond interchange.

The following upgrades are required to the Main/Industrial intersection:

- South approach: Additional short right turn, left turn lane, two through lanes and a short exit lane;
- East approach: Additional short turn lane;
- North approach: Additional short left and right turn lanes and two approach and departure lanes carried through from the interchange;
- West approach: Additional short right turn lane.

The main access road (municipal road) from the Botshabelo Interchange to the Industrial Intersection will be upgraded to two lanes in each direction.

The consolidation of the existing three at-grade accesses on the N8 serving Botshabelo into a single grade-separated interchange is feasible from a capacity perspective, whilst not significantly impacting on the accessibility and connectivity of the area as well as not precluding future road network improvements, including future interchanges should the need arise.

Existing Gravel Roads and Informal Access

There are currently several informal gravel roads and a formal signed gravel road, S1323 that connect directly with the N8 within the study area. Site observations revealed low utilisation of these roads and that they primarily provide access to the area to the north of the N8. These roads are linked to each other by means of a gravel road that runs parallel to the N8, located at approximately 800m from the N8. The intention of this project is to restrict access to the N8 and these roads will also have to be closed and access to the north will be via the proposed interchange and the parallel road.

Interchange Bridge Underpass

The crossing road would pass under the N8. The bridge would be 3-spans, with the central span of 22.8m over the 4-lane access road.

Two options (*i.e. the underpass and overpass options*) for the crossing road under or over the N8 were tested for feasibility, benefits, and cost of construction. Given the easier vertical geometry; the benefits in terms of construction; and the substantial saving in cost, the applicant's preferred option is that the underpass option be adopted.

Discussions were held with the Mangaung Municipality (MM) and SANRAL to determine the intended plans for the development along the N8 corridor, with Botshabelo and in the longer term for the area north of the N8. The growth forecasts and development proposals of the current Integrated Development Plan (IDP) were examined in detail and were discussed with the MM Planning, Transportation and Roads Department on 23 March 2011 and 11 April 2012 (refer to the minutes of the meetings attached in Appendix J).

The MM anticipate that there will be substantial mixed-use development within the MM area and SANRAL, as custodians of the N8 have the responsibility of ensuring that road improvements take future developments into consideration. Therefore, the TIA was conducted and based on predicted long-term traffic volumes and the proposed interchange and upgrade of the municipal access road were designed as such.

The proposed interchange will consist of the following:

- A three lane bridge cross section, with two lanes southbound and one lane northbound on the Main Road;
- Two lanes on the N8 eastbound off-ramp at the approach to the north terminal;
- A single lane approach on the N8 westbound off-ramp at the approach to the south terminal;
- A left turn slip lane for the westbound traffic on approach to the south terminal;
- All entrance ramps to be single lanes;
- Stop controls at ramp terminals (traffic signals in future, subject to development along the N8 corridor and northward).

There is no formal road network north of the proposed Botshabelo Interchange and a link road (gravel) would be required to restore access on to, or across the N8.

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All signs and marking will have to be removed and replaced with the interchange ramp marking and formal signage.

There are two major services which will be affected by the construction of the proposed interchange:
 Eskom: There are major pylons and overhead power lines parallel to the N8 some 120m to the south. The vertical clearance is generally adequate (except for the option with the crossing road over the N8) and it is possible to design horizontal geometry for the ramps to avoid conflict with the pylons.

Telkom: There is an overhead Telkom line on single poles along the northern edge of the N8, which would have to be re-located through the interchange to avoid the crossing road and interchange ramps.

Preliminary discussions have taken place with Eskom and Telkom. Formal wayleave applications are presently being prepared for submission and consideration.

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

Listed activity as described in GN R.544, 545 and 546	Description of project activity
Example: <i>GN R.544 Item 11(3): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</i>	<i>A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river</i>
GN R.544 Item (22) The construction of a road, outside urban areas, (i) with a reserve wider than 13,5 meters or, where no reserve exists where the road is wider than 8 metres, or for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010	The scope of work includes the construction of a grade-separated diamond interchange as the principal access to Botshabelo, located at the Main Road/N8 intersection. The proposed interchange will consist of the following: <ul style="list-style-type: none"> • A three lane bridge cross section, with two lanes southbound and one lane northbound on the Main Road; • Two lanes on the N8 eastbound off-ramp at the approach to the north terminal; • A single lane approach on the N8 westbound off-ramp at the approach to the south terminal; • A left turn slip lane for the westbound traffic on approach to the south terminal; and All entrance ramps to be single lanes.
GN R.544 Item (47) The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre - (i) where the existing reserve is wider than 13,5 meters; or	The following upgrades are required to the Main/Industrial intersection: <ul style="list-style-type: none"> • South approach: Additional short right turn, left turn lane, two through lanes and a short exit lane;

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<p>(ii) where no reserve exists, where the existing road is wider than 8 metres –</p> <p>excluding widening or lengthening occurring inside urban areas.</p>	<ul style="list-style-type: none"> • East approach: Additional short turn lane; • North approach: Additional short left and right turn lanes and two approach and departure lanes carried through from the interchange; • West approach: Additional short right turn lane. <p>The main road is required to be upgraded to two lanes in each direction.</p>
<p>GN R.544 Item (11) The construction of:</p> <ul style="list-style-type: none"> i. canals; ii. channels; iii. bridges; iv. dams; v. weirs; vi. bulk storm water outlet structures; vii. marinas; viii. jetties exceeding 50 square metres in size; ix. slipways exceeding 50 square metres in size; x. buildings exceeding 50 square metres in size; or xi. infrastructure or structures covering 50 square metres or more <p>where such construction occurs within a watercourse or within 32 meters of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	<p>A Wetland Delineation and Functional Assessment confirmed the presence of the temporary zone of a small wetland area, that will be affected by the proposed interchange. This wetland was categorised as a hillslope seepage wetland connected to a watercourse. Existing stormwater drainage comprises nominal box culverts (450mm x 900mm x 1500mm) at approximately 200m to 600m centres, essentially to allow for localised cross drainage.</p>
<p>GN R.544 Item ((18) The infilling or depositing of any material of more than 5 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from</p> <ul style="list-style-type: none"> i. a watercourse; ii. the sea; iii. the seashore; iv. the littoral active zone, an estuary or a distance of 100 meters inland of the high-water mark of the sea or an estuary, whichever distance is the greater <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving</p> <ul style="list-style-type: none"> a. is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or v. occurs behind the development setback line. 	<p>There will be infilling or depositing of material into, or the dredging, excavation, removal or moving of soil, sand, pebbles or rock from the temporary zone of the hillslope seepage wetland connected to a watercourse, for the construction of the proposed interchange and the culverts for stormwater drainage.</p>

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

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

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

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

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

In the case of linear activities:

Alternative: Alternative S1 (preferred) – There is only one alternative for the proposed Botshabelo Interchange.

	Latitude (S):	Longitude (E):
<ul style="list-style-type: none"> • Starting point of the activity 	29° 11'52.043"S	26° 43'1.756"E

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• Middle/Additional point of the activity (north)	29°11'52.393"S	26°42'39.313"E
• Middle/Additional point of the activity (south)	29°11'40.231"S	26°42'44.173"E
• End point of the activity	29°11'41.524"S	26°42'22.245"E

Alternative S1 (preferred) – There is only one alternative for the proposed widening of the municipal access road from the Botshabelo Interchange to Botshabelo.

• Starting point of the activity (at the Botshabelo Interchange)	29°11'46.73"S	26°42'46.01"E
• Middle/Additional point of the activity	29°12'01.49"S	26°42'36.48"E
• End point of the activity	29°12'13.50"S	26°42'31.72"E

Alternative S2 (if any)

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

Alternative S3 (if any)

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

Please refer to Addendum 1 with the co-ordinates along the proposed widening of the municipal access road

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

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

b) Lay-out alternatives

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

c) Technology alternatives

Alternative 1 (preferred alternative)
None
Alternative 2
N/A
Alternative 3
N/A

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

Alternative Design Options

Alternative 1: Underpass

Geometry: The existing access road approaches the N8 at a grade of approximately 1.8%. At the crossing point, the N8 is approximately 1.5m above natural ground level.

The cross road would be constructed in cut, at a grade of 0.5% to pass under the N8, with a total clearance of 6.7m to allow for the minimum bridge clearance (see Drawing No. 1000273-013).

Bridge: Underpass

In this option the crossing road would pass under the N8. The bridge would be 3-spans, with the central span of 22.8m over the 4-lane access road.

Construction

The existing N8 would have to be closed to traffic for the construction of the underpass under the existing carriageway. Traffic would be accommodated on a temporary bypass, or along ramps C & D, depending on construction progress.

Traffic on Main Road would have to be diverted, via other links to the N8, or temporary works, to allow for the excavation and re-construction of the access road.

The extension of the underpass (phase 2) to accommodate the future westbound carriageway of the N8, could be constructed at some future date.

The cross road and ramps would all be in cut in this option. The surplus material (70 000m³) could be placed and compacted in fill to suit the construction of the future second carriageway.

Cost

There would be no significant difference in cost of road works between the two options, apart from the bulk earthworks. Therefore road works costs have only been compared on this basis.

The preliminary estimate of cost of the underpass bridge is R26.1mill.

Alternative 2: Overpass

Geometry: Assuming that the N8 is to be maintained as – is after the construction of the interchange, the vertical alignment required to achieve the minimum clearance over the N8 is severe. The approach and departure grades from Botshabelo (south) to north would be 3.56% and -3.85% respectively, with a 450m vertical curve to achieve a minimum K-factor of 60 (see Drawing No. 1000273 – 013).

Bridge: Overpass

In this option the cross road would pass over the N8. The bridge would be 4-spans, with the central spans of 19.200m over the existing eastbound carriageway of the N8, and the future westbound carriageway of the N8.

Construction

The complete two span bridge would have to be constructed at the initial stage to accommodate the cross road.

Traffic would essentially be accommodated on the N8, with the first (northern) span of the bridge constructed adjacent to and over the N8.

Traffic on the access road would have to be diverted to allow for the construction of the bridge and the new access road at the elevated level.

Under this option the crossing road and all ramps would be on fill. This would mean that some 150 000m³ of fill would have to be imported from a suitable source.

There is a major Eskom power line parallel to the N8, some 120m to the south. The existing clearance to natural ground is 11.8m. The proposed access road would be on approx 8.0m of fill immediately under the power lines, which would clearly require extremely costly relocation.

Cost

Assuming that the quantities, and cost, of the layer works and surfacing for the interchange would be similar for Alternatives 1 & 2, the essential difference in cost would be related to bulk earth works.

The initial estimate indicates that the (bulk earth work) cost of Alternative 2 would exceed the cost of Option 1 by R4 475 000 (excluding P&G; related road works & paving; VAT).

The preliminary estimate of cost of the overpass bridge is R26.3 mill.

Summary:

Alternative 1:

The approach grade on the access road would be easier and better suited to the existing topography.

The second stage of the underpass could be constructed at a later date if necessary.

The bulk earth work volume is considerably less than for option 2, and the surplus material could be placed to fill for the future westbound carriageway.

The preliminary estimate of cost of bulk earth works is R4,475mill less than that for Alternative 2.

The preliminary estimate of cost of the 3-span underpass bridge is R26.1 mill.

Alternative 2:

The approach and departure grades on the crossing road would be severe and unnatural;

The complete four-span bridge would have to be constructed initially, which may be appropriate, depending on the design;

The bulk earth work volume is considerably more than required for Alternative 1, all of which would have to be imported from borrow pits off site;

The preliminary estimate of cost of bulk earth works exceeds that of Alternative 1 by R4.475mill.

The preliminary estimate of cost of the 4-span overpass bridge is R26.3mill.

RECOMMENDATION

Given the easier vertical geometry; the benefits in terms of construction; and the substantial saving in cost, we would recommend that the underpass Alternative 1 be adopted.

Alternative 1 (preferred alternative)
Design Alternative 1 is the preferred alternative as per the discussions above.
Alternative 2
Design Alternative 2 is not preferred due to reasons discussed above.
Alternative 3
N/A

e) No-go alternative

This option assumes that a conservative approach would ensure that the environment is not impacted upon any more than is currently the case. It is important to state that this assessment is informed by the current condition of the area. Should the DEA decline the application, the 'No-development' option will be followed and the status quo of the site will remain.

If the proposed interchange is not constructed, the existing intersections will experience capacity problems in the medium to long terms, and thus would require some form of capacity improvements to support the projected growth in traffic over this period. With specific regards to the N8, failure to address these issues will potentially result in an increase in accidents over time as drivers will tend to accept smaller gaps due to the long delays experienced. The mix of light & heavy vehicles, taxi's & buses, exacerbates the safety concerns (Iliso, 2011).

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

Alternative A1¹ - Proposed Botshabelo Interchange (preferred activity alternative)

Alternative A1² - Proposed widening of the municipal access road (preferred activity alternative)

Size of the activity:

To be confirmed at Final Basic Assessment Report review stage.

3 400m²
300m of the access road will be widened by one lane (3.4m wide). The remaining 700m of the access road will be demolished and reconstructed through

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

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Alternative A2 (if any)
Alternative A3 (if any)

the interchange	
	m ²
	m ²

or, for linear activities:

Alternative:

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

Length of the activity:

	m
	m
	m

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

Alternative:

Alternative A1 (preferred activity alternative)

Size of the site/servitude:

SANRAL will only be crossing under two portions of the Eskom servitude with the construction of the southern two ramps. Negotiations are currently underway between SANRAL and Eskom.
The Telkom servitude is located within the SANRAL road reserve to the north of the N8. As a result of the proposed development, relocation of the Telkom servitude will be obtained through negotiation between SANRAL and Telkom.
N/A m ²
N/A m ²

Alternative A2 (if any)
Alternative A3 (if any)

4. SITE ACCESS

Does ready access to the site exist?

YES ✓	NO
N/A	

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

² "Alternative A.." refer to activity, process, technology or other alternatives.

Describe the type of access road planned:

The proposed development involves the upgrade of the existing municipal access road from the proposed Botshabelo Interchange to the Industrial Intersection in Botshabelo. The main/industrial intersection is a signalised intersection. The Highway Capacity Manual 200 estimates the service volumes for the Level of Service (LOS) D as being approximately 1010 vehicles per hour for a single lane facility and 1940 veh/h for a two lane facility. For the 2045 scenario, the single lane service volume for LOS D is exceeded in both directions and thus a minimum of two lanes in each direction is required. Therefore, with respect to the Botshabelo access road, approximately 700m of the existing municipal road will be demolished and reconstructed. Approximately 300m will be widened by one lane (3.4m wide). The industrial intersection will be upgraded for turning movements. All upgrades on the Botshabelo access road will take place within the existing municipal road reserve.

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

5. LOCALITY MAP

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

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

REFER TO THE LOCALITY MAP IN 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.

REFER TO THE LAYOUT MAP IN APPENDIX A

The site or route plans must indicate the following:

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

7. SENSITIVITY MAP

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

REFER TO THE SENSITIVITY MAP IN APPENDIX A

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

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

8. SITE PHOTOGRAPHS

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

Refer to 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.

Refer to the Site Layout Plan's in Appendix C for the proposed Botshabelo Interchange and the upgrade of the main access road.

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10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES ✓	NO	Please explain
The interchange ramps fall within public/private land and SANRAL road reserve. SANRAL is presently undergoing negotiations with the private landowners.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	NO	Please explain
SEF contacted the Mangaung Metropolitan Municipality and the Free State Department of Economic Development, Tourism and Environmental Affairs (FSDEDTEA) on a number of occasions (<i>from 24 June 2013 to 23 July 2013</i>) to obtain the Free State SDF, but were not successful in obtaining the SDF as the officials were unaware of the availability of this document. An internet search was conducted for this document to no avail.			
(b) Urban edge / Edge of Built environment for the area	YES ✓	NO	Please explain
<p>The proposed Botshabelo Interchange occurs within the 'urban edge'. The area enclosed by the Urban Edge is regarded as the designated area within which urban development/township establishment will be allowed to take place within the 5-year planning horizon of the SDF. Essentially the urban edge delimits the area within which sustainable urban development can take place whilst adhering to the principles for urban expansion as set out in the Mangaung Metropolitan Municipality's IDP.</p> <p>The strategic objective pertaining to future development in Botshabelo is to consolidate, contain and maintain the town. From this point of view, the following proposals are made in regard development within this urban centre: central business area of Botshabelo be cleaned and secured for pedestrians, national tenants be encouraged to develop here, the area be properly managed and be allowed to expand onto the undeveloped land directly to the north thereof.</p> <p>The following goals are proposed for Botshabelo:</p> <ul style="list-style-type: none"> • Mixed land use commercial development and higher density residential development be encouraged on the western side of the main road, directly opposite the central business area; and • Higher density residential development is encouraged on the undeveloped land directly to the south of the central business area and also along the western side of the main road. <p>Therefore, road links must be improved/upgraded to ensure accessibility to the respective areas and ensure that there is sufficient capacity on the surrounding road network. The proposed Botshabelo Interchange will cater for the anticipated traffic volumes in the future.</p>			

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<p>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</p>	YES	NO ✓	Please explain
<p>According to the Mangaung Municipality IDP 2012, the construction of quality tarred roads with stormwater control and the upgrading and maintenance of all roads is a priority for the Municipality. The refurbishment of industrial infrastructure in Botshabelo is a provincial and national project in the IDP. Proper road infrastructure is required to meet the needs of the increased numbers of both heavy-duty and light motor vehicles.</p> <p>Botshabelo was spatially designed along a major access route that runs in a north/south direction through the centre of the area, giving rise to a linear urban form. The allocated business sites are not developed, which inhibits the sustainable neighbourhood development and contributes to the movement of people over long distances to the central business area in the north of the area.</p> <p>Approximately R80 million is annually spent on transport subsidies for bus transport in the MMM area of which the larger part is for bus transport between Botshabelo, Thaba Nchu and Bloemfontein.</p> <p>There are currently spatial fragmentation and interdependent development patterns, as observed from imbalanced linkages between the urban areas of Bloemfontein, Botshabelo and Thaba Nchu and remote rural dependants and neighbours in other municipalities.</p> <p>Improving the spatial integration and by reducing the separateness of these development patterns of the CBD, south-eastern, north-western areas, Botshabelo, Thaba Nchu and the rural areas will directly contribute to the long-term sustainability of Mangaung. Regional transport efficiency has been identified as a measure to improve spatial integration.</p> <p>Achieving this integration will reduce the competing pressures between each development pattern while reinforcing the soundness of the basic city structure, its inherent strengths and its development pattern, while optimising a more focused use of limited public and private sector resources.</p> <p>The objective for the SDF in the IDP is that the legacy of spatial distortions in Mangaung is diminishing and growth is occurring in a way that is sustainable and integrated spatially. The SDF strategies to achieve the objective are to consolidate, contain and maintain Botshabelo.</p> <p>In Botshabelo, five decentralised nodes have been identified at strategic areas throughout the urban area to improve accessibility of commercial and other services to the total community of the town.</p> <p>Commercial/Industrial development along the N8 route between Bloemfontein and Botshabelo / Thaba Nchu, in particular along the road section between the Bloemfontein CBD and the proposed intersection between the N8 and the Eastern Outer Ring road is proposed. It is proposed that the existing light industrial area in Botshabelo be allowed to expand along the N8 route towards the west.</p>			
<p>(d) Approved Structure Plan of the Municipality</p>	YES	NO ✓	Please explain
<p>According to the knowledge of the EAP, there is no approved structure plan for the Municipality.</p>			

BASIC ASSESSMENT REPORT

<p>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</p>	YES	NO ✓	Please explain
<p>On 16 July 2013, Ms. Mpokeng of the Environmental Department at the Mangaung Metropolitan Municipality confirmed that the EMF has not yet been adopted. The Strategic Environmental Management Plan (SEMP) component will undergo a tendering process before finalisation of the EMF.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>	YES	NO	Please explain
<p>N/A</p>			
<p>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</p>	YES ✓	NO	Please explain
<p>On 23 March 2011 and 11 April 2012, meetings were held with the Mangaung Metropolitan Municipality's Planning, Transportation, Roads Department and SANRAL to discuss any potential conflicts with the IDP, to determine plans for development along the N8 corridor and within Botshabelo and long-term plans for the north of the N8. The growth forecasts and development proposals in the current IDP were examined and in essence, the Mangaung Metropolitan Municipality indicated that there would be substantial mixed-use development, particularly to the north between the N8 and the railway line, and extending eastward toward Thaba Nchu as part of their future planning initiatives. Therefore, SANRAL, as custodians of the N8 route, would play a key role in the planning and development proposals. Proposals for future improvement of the existing road network, were included in the Maungaung Metropolitan Municipality IDP. At this meeting, the Mangaung Metropolitan Municipality (MMM) suggested that, until more detailed development plans become available, scenario planning would provide guidelines for the short and longer term traffic volumes, and appropriate design for the interchange. It was agreed that the MMM will interact with Iliso Consulting Engineers, and other parties to be agreed, to formulate scenario's for traffic distribution relative to design on the N8 and Interchange (refer to the minutes of the meeting in Appendix J).</p>			

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<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>A number of accidents have been experienced as drivers tend to use the smaller gaps to avoid long delays and therefore, the three intersections will be closed to have only one intersection.</p> <p>With the projected increase in traffic expected as a result of the future expansion of the light industrial area of Botshabelo, some form of improved capacity is required to accommodate the growth in traffic. The proposed Botshabelo Interchange will allow for an improved flow of traffic. SANRAL has long-term plans to upgrade the N8 to a four lane dual carriageway.</p> <p>Through the proposed Botshabelo Interchange project, the community will be provided with improved road safety on the N8 by closing at-grade intersections, eliminating turning movements and introducing a grade-separated interchange as the principal access to Botshabelo. The road links will be formalised and improved from the interchange into the existing Botshabelo road network and northwards to the existing gravel roads (Iliso, 2011).</p>			
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>YES</p>	<p>NO</p>	<p>Please explain N/A</p>
<p>This is a road development and does not require municipal services.</p>			
<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>Consultation between SANRAL, Iliso Consulting Engineers and the MMM has taken place and is ongoing (refer to the minutes of the meetings (23 March 2011 and 11 April 2012)) with these parties in Appendix J. The upgrade of the main road into Botshabelo and the proposed interchange form part of the future planning in the MMM IDP. The dualling of the main road into Botshabelo will form of the scope of work for the project. Comment will be sought from the Mangaung Metropolitan Municipality for the proposed SANRAL Botshabelo Interchange during the Public Participation Process. SANRAL will take ownership and maintenance responsibility of the interchange and the crossing road between the ramp terminals as per the proposed road reserve area. Mangaung Metropolitan Municipality would be responsible for maintenance of the remainder of the main road into Botshabelo.</p>			

BASIC ASSESSMENT REPORT

<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>YES</p>	<p>NO ✓</p>	<p>Please explain</p>
<p>To the knowledge of the EAP, this project is not a national programme. However, SANRAL as an independent statutory company is responsible to maintain and develop South Africa's expanding national road network, wherever such needs are identified.</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The land to the north of the N8 is owned by the state or the Mangaung Metropolitan Municipality with no indication of formal or informal farming, or any current development between the N8 and the railway line.</p> <p>To the south of the N8, the land falls within the Botshabelo (Mangaung Metropolitan Municipal area) with plans for future expansion of the light industrial area immediately to the south of the proposed interchange.</p> <p>SANRAL has long-term plans to upgrade the N8 to a four-lane dual carriageway to cater for the projected increase in traffic by 2045. The closure of the at-grade intersections and the formalisation of the existing main road/N8 intersection is the most appropriate location for the single access point due to its centrality and also a gateway to Botshabelo and its good connectivity to the other north-south spines.</p> <p>From a long-term road network development perspective, the location of the proposed interchange at the N8/Main Road intersection does not preclude the provision of further accesses in the future should the need arise.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>As mentioned earlier in this report, on 23 March 2011 and 11 April 2013, meetings were held with the Mangaung Metropolitan Municipality's Planning, Transportation, Roads Department and SANRAL to discuss any potential conflicts with the IDP, to determine plans for development along the N8 corridor and within Botshabelo and long-term plans for the north of the N8. The growth forecasts and development proposals in the current IDP were examined and in essence, the Mangaung Metropolitan Municipality anticipate that in future, there will be substantial mixed-use development, particularly to the north between the N8 and the railway line, and extending eastward toward Thaba Nchu. Therefore, SANRAL, as custodians of the N8 would play a key role in the planning and development proposals. Planning and design proposals for the N8 and the interchange would have to be undertaken consultation with the MMM and SANRAL to take into account, the future traffic volumes and distribution generated by the proposed development and the development of the road network, including need for access to, and crossing of, the N8.</p> <p>In light of the need being identified to improve safety and capacity constraints (<i>as per the findings of the Traffic Impact Assessment</i>) and the fact that the site is mainly transformed as a result of the existing intersection and municipal access road, the proposed Botshabelo Interchange and the upgrade of the municipal access road is therefore considered to be the best practicable environmental option for this site.</p>			

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10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES ✓	NO	Please explain
<p>The consolidation of the three existing accesses off the N8 into a single access point does not result in the total loss of accessibility or connectivity to areas or sections within Botshabelo itself. However, this does potentially result in an inconvenience to some travellers as the travel distances, and hence cost of travel, would increase.</p> <p>This inconvenience is mitigated to some extent by the extensive internal road network within Botshabelo as well as by ensuring the single access point is appropriately located to ensure that travel distances are minimised in so far as possible.</p> <p>The most appropriate location for the proposed single access point is deemed to be at the existing Main Road/N8 intersection, due to inter alia its centrality, it being the gateway to Botshabelo and its good connectivity to the other north-south spines.</p> <p>From a long term road network development perspective, the location of the proposed interchange at the N8/Main Road intersection does not preclude the provision of further accesses in the future should the need arise.</p>			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO ✓	Please explain
<p>The upgrade of road networks within local municipality's jurisdiction will be conducted on a case-by-case basis and is dependent on the outcome of specialist TIA's per site where the need for road improvements have been identified.</p>			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO ✓	Please explain
<p>The footprint of the proposed Botshabelo Interchange and the dualling of the main road to Botshabelo occur within the SANRAL road reserve and municipal owned land – therefore, there will not be any expropriation of land. The rights of landowners adjacent to the main road and proposed interchange, may be impacted by social issues such as noise, dust pollution and increased traffic during the construction phase.</p>			
13. Will the proposed activity/ies compromise the “urban edge” as defined by the local municipality?	YES	NO ✓	Please explain
<p>Refer to Point 2(b) herein.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO ✓	Please explain
<p>The proposed road Botshabelo Interchange is not an SIP project.</p>			

15. What will the benefits be to society in general and to the local communities?	Please explain
<p>In terms of its policies and guideline with respect to ten National Routes, SANRAL has identified the need to consolidate the existing at grade T-intersections along the N8 into Botshabelo i.e. the west intersection, main (central) intersection and the east intersection into a single grade separated interchange to <i>inter alia</i> protect the integrity of the N8 as a mobility route, increase the capacity and improve the safety/reduce conflict. With specific regard to the N8, failure to address capacity improvements on the N8 to support the projected growth in traffic will potentially result in accidents over time as drivers will tend to accept smaller gaps due to the long delays experienced. The Botshabelo residents are dependent on Bloemfontein as the economic hub of the region. This has resulted in a high volume of commuter traffic on a daily basis between Botshabelo and Bloemfontein, largely reliant on public transport. Through the proposed Botshabelo Interchange project, the community will be provided with improved road safety on the N8 by closing at-grade intersections, eliminating turning movements and introducing a grade-separated interchange as the principal access to Botshabelo. The road links will be formalised and improved from the interchange into the existing Botshabelo road network and northwards to the existing gravel roads.</p> <p>Expansion of the light industrial area immediately to the south of the proposed interchange is proposed and the proposed Botshabelo Interchange will accommodate increased traffic, a lot of which will include heavy-duty trucks. In addition, future mixed use developments are proposed within the MMM area and additional capacity on the N8 would ensure improved levels of service for the local community in terms of transportation requirements.</p>	

16. Any other need and desirability considerations related to the proposed activity?	Please explain
<p>In terms of the policies and guidelines with regard to National Routes, SANRAL has identified the need to consolidate the at grade intersections along the N8 into Botshabelo into a single grade separated interchange to inter alia protect the integrity of the N8 as a mobility route, increase the capacity and improve the safety/reduce conflict. Whilst the study area is defined by the three intersections, known as the west and intersection and the main intersection (i.e. proposed Botshabelo Interchange), the area of influence is deemed to be far wider, covering the town of Botshabelo as the travel demand patterns to/from Botshabelo will be influenced by the proposed projected and future growth and development within Botshabelo, which will impact on the performance of the road network.</p> <p>According to the Traffic Impact Assessment (TIA) findings (refer to Appendix D), all the existing intersections on the N8 will experience capacity problems in the medium to long term, in particular the right turn movements from Botshabelo. Failure to address these issues will potentially result in an increase in accidents over time as drivers will tend to accept smaller gaps due to the long delays experienced.</p> <p>The main/industrial intersection also fails in the medium to long term, largely as a result of insufficient capacity in the north-south direction.</p> <p>A single interchange (based on a diamond interchange) has the requisite capacity to cater for the anticipated 2045 consolidated traffic volumes.</p> <p>The consolidation of the three existing accesses off the N8 into a single access point does not result in the total loss of accessibility or connectivity to areas or sections within Botshabelo itself. However, this does potentially result in an inconvenience to some travellers as the travel distances, and hence cost of travel, would increase.</p>	
<p>This inconvenience is mitigated to some extent by the extensive internal road network within Botshabelo as well as by ensuring the single access point is appropriately located to ensure that travel distances are minimised in so far as possible.</p> <p>The most appropriate location for the proposed single access point is deemed to be at the existing Main Road/N8 intersection, due to inter alia its centrality, it being the gateway to Botshabelo and its good connectivity to the other north-south spines.</p> <p>From a long term road network development perspective, the location of the proposed interchange at the N8/Main Road intersection does not preclude the provision of further accesses in the future should the need arise.</p> <p>There are several low utilised gravel/informal roads that connect directly to the N8, providing access to the area to the north of the N8. These roads are linked to each other by means of a gravel road that runs parallel to the N8, located approximately 800m to the north of the N8. The intention of this project is to restrict access to the N8 and these informal roads will have to be closed and accesses to the north will be via the proposed interchange and the parallel gravel road.</p>	

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The consolidation of the existing three at-grade accesses of the N8 serving Botshabelo into a single grade-separated interchange is feasible from a capacity perspective, whilst not significantly impacting on the accessibility and connectivity of the area as well as not precluding future road network improvements, including future interchanges should the need arise.

The road upgrades along the main road: For the 2045 scenario, a minimum of two lanes is required in each direction. For the 2025 scenario, a single lane in either direction will suffice. The main road will be upgraded to two lanes in each direction for this scope of works.

17. How does the project fit into the National Development Plan for 2030?	Please explain
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The project will in some way, broaden the opportunities through economic growth and the availability of jobs. The contract period is expected to be 18 months. It is estimated that between ten and twenty people will be employed between 6 to 9 months within the 10 month contract period. However, the exact number of people to be employed will be confirmed with the contractor prior to the commencement of construction.

Temporary jobs will be created during the construction phase and local labour will be sought. This will have a positive impact in terms of income generation and skills transfer to the local people.

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

There are various biophysical, social and economic impacts that may be impacted as result of the proposed development (refer to Section D of the Draft BAR). The procedure/methodology for the identification, prediction and evaluation of the actual and potential impact on the environment, the risks and consequences and alternatives and options for mitigation of activities, are as per the Section 31(2)(h) of GNR No. 543 of the NEMA, 1998 as amended and the EIA Regulations of 2010. Refer to Appendix F for the methodology that was undertaken for the assessment of impacts. Various mitigation measures for each of the identified impacts are provided in Section D and Appendix F (Impact assessment) of the Draft BAR and the EMPr (Appendix G). These mitigation measures are aimed at ensuring that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them; with a view to minimizing negative impacts and maximizing benefit, and promoting compliance with the principles of environmental management set out in section 2 of NEMA.

The Public Participation Process (PPP) has been conducted in accordance with Chapter 6 of NEMA, 1998 (Act NO. 107 of 1998) as amended and the EIA Regulations of 2010 to ensure an open and transparent process and adequate representation from 'organs of state', adjacent landowners, Non-Governmental Organisations, National Authorities, Provincial Authorities, Local Authorities, Ward Councillors, Parastatal/ Service Providers and local forums/ unions.

It is envisaged that the Draft BAR will provide the above stakeholders with adequate information for them to make an informed decision of the proposed development and the impacts it may have on the receiving biophysical and socio-economic environment. Comments from stakeholders on the Draft BAR will be incorporated into a Comments and Responses Report (CRR) that will be included in the Final BAR for public review. The Department of Environmental Affairs (DEA), as decision-makers will issue an Environmental Decision on whether or not the proposed development may proceed.

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

A TIA was undertaken to determine the future traffic growth and the capacity of the existing interchange and the N8. It has been predicted that the Botshabelo Interchange must be upgraded and there must be dualling of the N8 to meet the anticipated traffic growth. Environmental Authorisation (EA) is therefore required by way of the Basic Assessment Process to proceed with the construction of the proposed Interchange. Various specialist studies were undertaken such as Geotechnical Assessment (*to provide recommendations for construction, such as excavation requirements, founding conditions, use of materials, and need for foundation inspections*) that will ensure that the long-term stability of the proposed interchange and general safety for road users.

An Ecological Assessment was undertaken to determine the dominant floral and faunal species occurring in the study area, including floral composition and structure. The study confirmed that there are no sensitive, threatened, endemic, rare or protected plant and animal species, and/or potential habitats in the study area.

A Wetland Delineation and Functional Assessment was undertaken to delineate and classify (in terms of the Present Ecological State (PES) as well as the Ecological Importance and Sensitivity wetland and riparian areas within the study area. The proposed interchange will mainly affect the temporary zone of the wetland. Several specific and general mitigation measures are proposed to mitigate impacts on the wetland. Should the proposed interchange be approved the impact on the wetland and larger downstream aquatic ecosystem would be deemed to be low provided the suggested mitigation measures outlined in this report are adhered to.

The Heritage Impact Assessment confirmed that there were no heritage resources within the study area. However, should any heritage resources, become exposed during excavation activities (*construction phase*) then construction must stop immediately and the South African Heritage Resources Agency (SAHRA) must be contacted. Any archaeological sites exposed construction activities must not be disturbed prior to authorisation by SAHRA.

The Public Participation Process (PPP) has been conducted with the principal objective of achieving equitable and effective participation of all Interested and Affected Parties (I&APs) to make them better informed and enrich their decision-making. Public Participation is aimed at ensuring participation by all I&APs, which includes any person, group of persons or organization and any organ of state that may have jurisdiction over any aspect of the activity and is aware of the proposed development and have the opportunity to comment on the project and the Draft BAR. The social interests of the above parties will be accommodated through the PPP and concerns raised through this process will be addressed in the forthcoming Final BAR that will be available for public review to registered I&APs. Refer to the procedure undertaken for the PPP in Section C of the Draft BAR. The Department of Environmental Affairs (DEA) will make a decision and grant or refuse authorisation (in terms of the National Environmental Management Act, Act No. 107 of 1998) - Regulations 35(1)(a) and 35(1)(b) respectively). All registered I&AP's will be notified of the decision (i.e. Environmental Authorisation). This notification will also detail the appeal procedure should I&APs disagree with the decision.

There are various other legislations that are applicable to the proposed development and are discussed in Section A, Point 11 of the Draft BAR. The various 'organs of state' will be given an opportunity to comment on the Draft BAR for 40 days as per Regulation 56(9) (b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended and the EIA Regulations of 2010.

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The methodology for assessment of impacts for the proposed development is as per Section 31(2)(h) of GNR No. 543. The potential negative impacts associated with the proposed development have been assessed in Section D of the Draft BAR. To ensure that identified negative impacts are minimised and positive impacts enhanced, the mitigation measures in Sections D and Appendix F of the Draft BAR and the EMPr (Appendix G) must be implemented and the following clauses are recommended as conditions of the Environmental Authorisation:

- The Environmental Management Programme (EMPr) is a legally binding document and the mitigation measures stipulated within the document and the Draft BAR must be implemented;
- An independent Environmental Control Officer (ECO) must be appointed to manage the implementation of the EMPr during the construction phase. Environmental Audit Reports must be compiled and made available for inspection to the DEA and the Free State Department of Economic Development, Tourism and Environmental Affairs (FSDEDETEA).

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
South African Constitution, 1996 (Act No. 108 of 1996) is the supreme law of the land. The Constitution states that the people of South Africa have the right to an environment that is not detrimental to human health, and imposes a duty on the state to promulgate legislation and to implement policies to ensure that this right is upheld.	The receiving environment, including the rights of individuals must not be compromised by the proposed development.	National	4 February 1997
National Environmental Management Act, 1998 (Act No. 107 of 1998)	The DEA is the Competent Authority (CA) since the applicant, SANRAL is a Parastatal. The DEA will issue a decision on the EA.	National & Provincial	27 November 1998
Environmental Impact Assessment Regulations, 2010, Government Notice No. 543 and 544	There are listed activities as per the R544 (Listing Notice 1) that are triggered by the proposed development.	Department of Environmental Affairs of	18 June 2010
National Water Act, 1998 (Act No. 36 of 1998) (NWA)	The temporary zone of the small wetland identified on site will be affected by the proposed interchange. A Water Use License Application will be submitted to the DWA with respect to Section	Department of Water Affairs (DWA)	1998

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Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	21(c)(Altering the beds and banks of a watercourse and 21(i) (impeding or diverting the flow of water in a watercourse) of the NWA.		
Occupational Health and Safety Act (OHSA) No. 85 of 1993 Department of Labour 1993	Construction-related activities must be carried out with circumspection to provide for the health and safety of persons at work and for the health and safety of the general public in close proximity to the construction site.	Department of Labour	1993
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	N/A - Central Free State Grassland ecosystem is not currently listed in terms of Section 52 of NEMBA (Government Gazette, 2011).	KZN Department of Agriculture, Forestry and Fisheries (DAFF)	2004
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	A Cultural and Heritage Impact Assessment was conducted since the proposed development of the interchange and upgrade of the municipal road is a linear development exceeding 300 metres in length. The HIA revealed that there are no heritage sites that will be affected by the proposed development.	South African Heritage Resources Agency (SAHRA) and Free State Heritage Resources Agency	1999
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	Only two alien species, <i>Verbena bonariensis</i> (Purple top) and <i>Argemone mexicana</i> (Mexican poppy) were recorded in low numbers in the study area. <i>Argemone mexicana</i> is a Weed: Category 1 and <i>Verbena bonariensis</i> is not listed. SANRAL must eradicate the alien plants that occur on the site.	Department of Agriculture Forestry and Fisheries	1983
Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)	The Draft BAR has been made available for public review through the Public Participation Process to ensure that Interested and	Department of Justice and Constitutional Development	2000

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Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	Affected Parties (I&APs) have access to information that enables them to exercise and protect their rights, through an open and transparent process.		

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES ✓	NO
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If YES, what estimated quantity will be produced per month?

This cannot be determined at this stage m ³

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

Solid waste shall be stored within an appointed area in a covered, tip proof waste skip for collection and disposal. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the engineer. Disposal of solid waste shall be at a licensed landfill site. No waste shall be burnt or buried at or near the site.

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

Waste will be disposed of at the nearest licensed landfill site.

Will the activity produce solid waste during its operational phase?

YES	NO ✓
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If YES, what estimated quantity will be produced per month?

m ³

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

N/A

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

South landfill Site

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

N/A

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

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

YES	NO ✓
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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.

N/A

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

YES	NO ✓
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If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

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

YES	NO ✓
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If YES, what estimated quantity will be produced per month?

N/A m³

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

YES	NO ✓
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If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

N/A

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

YES	NO ✓
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If YES, provide the particulars of the facility:

Facility name:	This section is not applicable.		
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

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

N/A

c) Emissions into the atmosphere

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

YES	NO ✓
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If YES, is it controlled by any legislation of any sphere of government?

YES	NO
N/A	

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:

<p>Limited dust and exhaust emissions will be produced during the construction phase. The volumes cannot be determined at this stage. This impact is likely to be of a very small scale and appropriate dust control management practices and procedures will be implemented as required. Vehicle emissions will emanate from construction vehicles (diesel fumes). Again, this impact will be of a very small scale, low intensity and low significance.</p>

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d) Waste permit

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

YES	NO ✓
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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

YES ✓	NO
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If YES, is it controlled by any legislation of any sphere of government?

YES	NO
N/A	

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

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

Construction activity and increased traffic will generate noise that will be of a temporary nature during the construction phase of the proposed development. Maintenance vehicles could generate noise during the operational phase. The waste removal trucks will be removing waste on a daily basis during the construction phase.

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	
-----	--

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

YES	NO
-----	----

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

14. ENERGY EFFICIENCY

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

The construction activity will not be reliant on electricity.

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

BASIC ASSESSMENT REPORT

The need to remove excavated material to spoil sites is being limited by utilizing suitable material as backfill during the construction of the proposed Botshabelo Interchange and the upgrade of the municipal access road.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

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

YES ✓	NO
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If YES, please complete the form entitled “Details of specialist and declaration of interest” for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Free State
District Municipality	N/A
Local Municipality	Mangaung Metropolitan Municipality
Ward Number(s)	28, 30 and 41
Farm name and number	Botshabelo No. 826 Sepane No. 901
Portion number	Portion 1, Portion 2 and Portion 11 of Botshabelo No. 826 Portion 2, 3, 4 and 8 of Sepane No. 901
SG Code	Please see below.

F	0	3	2	0	0	0	0	0	0	0	0	0	8	2	6	0	0	0	0	1
F	0	3	2	0	0	0	0	0	0	0	0	0	9	0	1	0	0	0	0	2
F	0	3	2	0	0	0	0	0	0	0	0	0	9	0	1	0	0	0	0	3
F	0	3	2	0	0	0	0	0	0	0	0	0	9	0	1	0	0	0	0	4
F	0	3	2	0	0	0	0	0	0	0	0	0	9	0	1	0	0	0	0	8
F	0	3	2	0	0	0	0	0	0	0	0	0	8	2	6	0	0	0	0	1
F	0	3	2	0	0	0	0	0	0	0	0	0	8	2	6	0	0	0	0	2
F	0	3	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0

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:

Proposed Botshabelo Interchange – Agricultural land occurs north of the interchange (SANRAL is presently undertaking property negotiations with the private landowner to acquire the property as SANRAL road reserve. Proposed widening of the municipal access road - Municipal road reserve.
To the south of the N8, the land is currently vacant and is owned by the MMM.

BASIC ASSESSMENT REPORT

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

Is a change of land-use or a consent use application required?

YES	NO ✓
-----	---------

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

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

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

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

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

2.1 Ridgeline <input type="checkbox"/>	2.4 Closed valley <input type="checkbox"/>	2.7 Undulating plain / low hills <input 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"/>

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

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Any other unstable soil or geological feature

YES	NO ✓
YES	NO ✓

YES	NO
YES	NO

YES	NO
YES	NO

An area sensitive to erosion

YES	NO ✓
YES	NO ✓

YES	NO
YES	NO

YES	NO
YES	NO

A Geotechnical Assessment was conducted by Worley Parsons RSA (Pty) Ltd for the proposed Botshabelo Interchange (refer to the Geotechnical Assessment in Appendix D).

The findings of the Geotechnical Assessment are as follows:

The site is underlain by a thin mantle of transported and residual soils overlying the weathered mudrock of the Adelaide Formation, Ecca Group. These rocks are frequently intruded by dolerite dykes/sills on both local and regional scales.

Groundwater seepage is likely to vary with seasonal flows, and can be expected to proliferate during the wet season.

The recommendations as per the Geotechnical Assessment for the long-term stability of excavations must be adhered to.

It is recommended that the foundations supporting the structures of the proposed bridge, be securely founded in bedrock.

The excavation for the underpass road under the N8 will yield a significant quantity of material which may be utilised as follows:

- 1) Soil material excavated from the interchange site will generally be suitable for use as a general fill, considered to be of at least G8 quality.
- 2) Rock material excavated will generally be suitable as general fill, and provided it can be gridded down and completely pulverized into a gravel-soil material will be suitable for use as G7 quality material.
- 3) A high compaction level of at least 95% MDD should be adopted for fills constructed of the fragmented and residual mudrock materials.
- 4) Fragments of rock larger than 2/3 of the fill layer being placed should be windrowed to spoil. The excavated mudrock/siltstone should under no circumstances be used as a dumprock material, as this material is notorious for ongoing rapid weathering.

It is important to note that excavations in shale bedrock will be prone to rapid deterioration (exfoliation) and all excavations should be inspected immediately after being opened, and immediately blinded with concrete once approved by the Engineer.

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.

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4. GROUNDCOVER

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

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

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

An Ecological Assessment was conducted by SEF (Pty) Ltd for the proposed Botshabelo Interchange (refer to the specialist study in Appendix D).

The study area was very small and together with disturbances such as overgrazing, roads and pollution, resulted in very low floral diversity. The site is dominated by Disturbed dry grassland. The dry grassland was disturbed due to overgrazing by cattle, goats and sheep as well as impact from humans (footpaths, pollution) was recorded throughout the study area.

5. SURFACE WATER

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

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

BASIC ASSESSMENT REPORT

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

A Wetland Delineation and Functional Assessment was conducted by SEF (Pty) Ltd for the proposed Botshabelo Interchange (refer to this study in Appendix D).

The study area falls within the quaternary catchment C52B which is part of the Riet-Modder sub-catchment area and the Upper Orange Water Management Area. The Sepane River flows to the north of the proposed intersection and the Klein-Modder River to the south.

No FEPA wetland areas or wetland clusters were identified within the study area.

A small wetland area was delineated that will be affected by the proposed interchange. This wetland was categorised as a hillslope seepage wetland connected to a watercourse. From a functional perspective, hillslope seepage wetlands provide a variety of ecosystem services such as, flood attenuation, erosion control, streamflow regulation and nitrogen and toxicant removal. A functional assessment of the hydrogeomorphic unit was carried out using the Wet-Health approach and the wetlands was deemed to be largely modified as a result of surrounding land uses, including infrastructure and overgrazing.

This wetland unit is presented in Figure 2 in Appendix D. The permanent, seasonal and temporary zones have been separated to show that the temporary zone will most likely be affected by the proposed interchange. Due to the soils identified on site, i.e. of the vertic type, water inputs into this wetland are dominated by surface water contributions particularly at the beginning of the wet season before the soil swells to its capacity.

The Ecological Importance and Sensitivity (EIS) assessment was undertaken to rank water resources in terms of provision of goods and service or valuable ecosystem functions which benefit people, biodiversity support and ecological value, and reliance of subsistence users (especially basic human needs uses). The low Ecological Importance and Sensitivity assigned to the wetland was attributed primarily to the disturbed nature of the wetland.

6. LAND USE CHARACTER OF SURROUNDING AREA

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

Natural area		Dam or reservoir		Polo fields	
Low density residential	✓	Hospital/medical centre		Filling station ^H	
Medium density residential	✓	School	✓	Landfill or waste treatment site	
High density residential	✓	Tertiary education facility		Plantation	
Informal residential ^A		Church		Agriculture	✓
Retail commercial & warehousing	✓	Old age home		River, stream or wetland	✓
Light industrial	✓	Sewage treatment plant ^A		Nature conservation area	
Medium industrial ^{AN}	✓	Train station or shunting yard ^N		Mountain, koppie or ridge	✓

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Heavy industrial ^{AN}		Railway line ^N		Museum	
Power station	✓	Major road (4 lanes or more) ^N		Historical building	
Office/consulting room	✓	Airport ^N		Protected Area	
Military or police base/station/compound	✓	Harbour		Graveyard	
Spoil heap or slimes dam ^A		Sport facilities		Archaeological site	✓
Quarry, sand or borrow pit		Golf course		Other land uses (describe)	✓ Powerlines

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

N/A

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

The area surrounding the site consists mainly of industrial and commercial land uses and further development of industrial uses are proposed in the future. Therefore, in order to improve capacity on the N8, to support the projected growth in traffic, the Botshabelo Interchange is proposed.

The proposed Botshabelo Interchange occurs within the SANRAL road reserve and hence, no other development would be allowed to occur in the road reserve.

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

N/A

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

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

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

7. CULTURAL/HISTORICAL FEATURES

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

YES	NO ✓
Uncertain	

A Heritage Impact Assessment (HIA) was conducted by SEF (Pty) Ltd in July 2013 (refer to Appendix D). The aim of the cultural heritage survey (Phase I Heritage Survey, in accordance with the National Heritage Resources Act, 1999 (Act No. 25 of 1999)) was to locate, identify, document and assess sites of cultural heritage and archaeological significance that may occur within the proposed study area for the proposed Botshabelo Interchange.

The study revealed no heritage resources of significance within the study area. However, there is a circular structure ruin that occurs approximately 150m west of the study area boundary of the proposed interchange. It will be unaffected by construction activities. This site has low heritage significance. It is therefore recommended from a heritage point of view that the proposed Interchange, proceed with acceptance of the conditions stated in Section 8 of this report.

Archaeological material, by its very nature, occurs below ground. The developer should therefore keep in mind that archaeological sites might be exposed during the construction phase. If anything is noticed, work in that area should be stopped and the occurrence should immediately be reported to the South African Heritage Resources Agency (SAHRA) or a museum, preferably one at which an archaeologist is available. The find should then be investigated and evaluated by the archaeologist, who will provide recommendations on when construction activities in the area where the discovery was made can resume.

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:

Refer to response above.

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

YES	NO ✓
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Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	NO ✓
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If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

N/A

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

The following information was extracted from the Mangaung Metropolitan Municipality (MMM) IDP Review (2011/2012):

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The number of unemployed residents has marginally decreased but of critical importance is that the number of the employed has increased significantly. Therefore the material condition of the people of Mangaung has been undergoing a steady movement for the better.

Economic Status	Census 2001	Community Survey 2007
Employed	156 830	221 232
Unemployed	104 934	94 313
Not Economically Active	169 978	179 529

Source: Statsa

Economic profile of local municipality:

The following information was extracted from the MMM IDP review (2011-2012).

MMM displays a positive upward migration of residents from low income to middle and higher income levels. As exhibited in the below table the number of low income earners between no income and R800 has decreased significantly between 2001 and 2007. Most importantly the number of residents with no income has reduced by more than 40% and indicating that the socio-economic conditions of our residents have improved.

Income Category	2001	2007
No income	421 836	222 865
R 1 - R 400	41 675	24 932
R 401 - R 800	71 007	39 613
R 801 - R 1 600	35 139	79 897
R 1 601 - R 3 200	32 255	42 097
R 3 201 - R 6 400	25 282	35 271
R 6 401 - R 12 800	12 388	26 207
R 12 801 - R 25 600	3 515	10 564
R 25 601 - R 51 200	1 025	3 911
R 51 201 - R 102 400	687	823
R 102 401 – R 204 800	500	399
R 204 801 or more	132	378

Source: Statsa

Level of education:

The following information was extracted from the IDP review (2011/2012) for the Mangaung Metropolitan Municipality.

Access to education is one of the instruments that unlock the income mobility of the poor and society. Furthermore in the current age of the knowledge economy, access to education is one key determinants of The Municipality's positioning within the national and global economy. Mangaung has institutions that cater for all levels of education commencing from pre-school, primary and secondary education to FETs and tertiary institutions. Within the context of a "City Region", Mangaung is well placed to position itself as a regional centre for educational excellence and human capital development.

The table below illustrates that the levels of residents with no schooling has reduced by 53 %

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whereas access to primary and secondary education is on the rise. The table also reflects that access to Further Education and Training (FETs) and tertiary education has increased significantly. One of the key challenges for Mangaung will be the ability to absorb and retain those skills for the future development of our Metropolitan.

Education Level	2001	2007
No schooling	42833	23018
Grade 0	*	1770
Grade 1/Sub A	4027	4817
Grade 2/Sub B	6171	7141
Grade 3/Standard 1	10147	11014
Grade 4/Standard 2	14075	16787
Grade 5/Standard 3	16353	17766
Grade 6/Standard 4	22780	25199
Grade 7/Standard 5	29879	31913
Grade 8/Standard 6/Form 1	34635	33858
Grade 9/Standard 7/Form 2	25256	30430
Grade 10/Standard 8/Form 3/NTC1	36760	43150
Grade 11/Standard 9/Form 4/NTCII	27006	29014
Grade 12/Standard 10/Form 5/NTCIII	85183	99932
Certificate with less than Grade 12	1094	5171
Diploma with less than Grade 12	959	4155
Certificate with Grade 12	7533	6190
Diploma with Grade 12	14465	15359
Bachelors degree	6081	11714
Bachelors degree and diploma	2773	5134
Honours degree	2095	3937
Higher degree	2823	4068
* Data Not Available		

Source: Statsa

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

What is the expected yearly income that will be generated by or as a result of the activity?

Will the activity contribute to service infrastructure?

Is the activity a public amenity?

R 150 million	
N/A	
YES ✓	NO
YES ✓	NO

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How many new employment opportunities will be created in the development and construction phase of the activity/ies?	10 to 20 (to be confirmed by the contractor at the construction phase)
What is the expected value of the employment opportunities during the development and construction phase?	R 800 000.00
What percentage of this will accrue to previously disadvantaged individuals?	60 %
How many permanent new employment opportunities will be created during the operational phase of the activity?	0
What is the expected current value of the employment opportunities during the first 10 years?	R 0
What percentage of this will accrue to previously disadvantaged individuals?	0 %

9. BIODIVERSITY

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

The Ecological Sensitivity Map is in Appendix D.

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

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR) ✓	<p>The study area was very small and together with disturbances such as overgrazing, roads and pollution, resulted in very low floral diversity.</p> <p>The temporary wetland that was delineated within the study area, is deemed to be largely modified as a result of surrounding land uses, including infrastructure and overgrazing.</p>

- b) **Indicate and describe the habitat condition on site**

Habitat Condition	Percentage of	Description and additional Comments and
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	habitat condition class (adding up to 100%)	Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	
Degraded (includes areas heavily invaded by alien plants) ✓	90%	Dry disturbed grassland which was disturbed due to overgrazing by cattle, goats and sheep as well as impact from humans (footpaths, pollution) was recorded throughout the study area and due to the level of disturbance as well as the timing of the survey, very few floral species were identified.
Transformed (includes cultivation, dams, urban, plantation, roads, etc) ✓	10%	The construction of the existing N8 has transformed the study area. Only two alien species, <i>Verbena bonariensis</i> (Purple top) and <i>Argemone mexicana</i> (Mexican poppy) were recorded in low numbers in the study area.

c) Complete the table to indicate:

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

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

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

Description of the Vegetation Type

The findings of the Ecological Assessment by SEF (Pty) Ltd (see Appendix D) were as follows:
 The study area was very small and together with disturbances such as overgrazing, roads and pollution, resulted in very low floral diversity. Furthermore, the survey was conducted during May when most of the floral species have become dormant. Although it is likely that higher species diversity will be

recorded during summer, no suitable habitat was observed for species of conservation concern or provincially protected species within the study area.

Dry Disturbed Grassland

The site is dominated by Disturbed dry grassland. The dry grassland was disturbed due to overgrazing by cattle, goats and sheep as well as impact from humans (footpaths, pollution) was recorded throughout the study area and due to the level of disturbance as well as the timing of the survey, very few floral species were identified. Species recorded at the time of the survey included *Themeda triandra* (Red grass), *Hyparrhenia hirta* (Common Thatching grass), *Aristida* sp. and *Seriphium plumosum* (Bankrupt bush).

Rocky outcrop

A small rocky outcrop was located approximately 100m north east of the study area and although this area was not directly associated with the study area, it might be impacted on due to its close proximity to the study area.

Rocky areas create micro-habitats for faunal and floral species and therefore species diversity associated with rocky areas is generally higher than the surrounding areas. Although low species diversity was recorded on this rocky outcrop, it could be attributed to the survey being conducted in winter when most floral species are dormant and it is therefore likely that more species will be recorded during the summer period.

Low faunal activity was recorded at the time of the survey and this could be attributed to the high level of disturbance (human settlements and overgrazing), timing of the survey (winter) as well as cold and windy conditions experienced at the time of the survey. However, the identified wetland areas are likely to provide suitable habitat for amphibians and avifaunal species during summer months. Based on observed ecological attributes, the northern part of the study area was classified as having a medium to low ecological sensitivity while the rocky outcrop 100m north east of the study area was identified as having a medium to high sensitivity and should not be impacted on during construction. The remainder of the site was classified as having a low ecological sensitivity.

While no amphibian species were identified during the field survey, the presence of a temporary zone in the western part of the study area, with a seasonal or permanent zone immediately north-west of the study area is likely to support amphibian activity during the summer season when the temporary, seasonal and permanent zones have water.

Description of the Aquatic Ecosystem

A Wetland Delineation and Functional Assessment was conducted by SEF (Pty) Ltd for the proposed Botshabelo Interchange (refer to this study in Appendix D).

The study area falls within the quaternary catchment C52B which is part of the Riet-Modder sub-catchment area and the Upper Orange Water Management Area. The Sepane River flows to the north of the proposed intersection and the Klein-Modder River to the south.

No FEPA wetland areas or wetland clusters were identified within the study area.

A small wetland area was delineated that will be affected by the proposed interchange. This wetland was categorised as a hillslope seepage wetland connected to a watercourse. From a functional perspective, hillslope seepage wetlands provide a variety of ecosystem services such as, flood attenuation, erosion control, streamflow regulation and nitrogen and toxicant removal. A functional assessment of the hydrogeomorphic unit was carried out using the Wet-Health approach and the wetlands was deemed to be largely modified as a result of surrounding land uses, including infrastructure and overgrazing.

This wetland unit is presented in Figure 2 in Appendix D. The permanent, seasonal and temporary zones have been separated to show that the temporary zone will most likely be affected by the proposed interchange. Due to the soils identified on site, i.e. of the vertic type, water inputs into this wetland are dominated by surface water contributions particularly at the beginning of the wet season before the soil swells to its capacity.

The Ecological Importance and Sensitivity (EIS) assessment was undertaken to rank water resources in terms of provision of goods and service or valuable ecosystem functions which benefit people, biodiversity support and ecological value, and reliance of subsistence users (especially basic human needs uses). The low Ecological Importance and Sensitivity assigned to the wetland was attributed primarily to the disturbed nature of the wetland.

The hillslope seepage wetland was determined to be largely modified (PES Category D) and has a large loss of natural habitats and basic ecosystem functions. Modifications to this system include overgrazing and the resultant loss of surface roughness as well as an increase in runoff from adjacent hard surfaces (i.e. infrastructure including housing and roads upslope of the wetland). Due to the nature of the soils present, vertic clay types and the susceptibility of the soils to erosion the increase in surface runoff from the adjacent infrastructure has created erosion channels to form downslope of the study area. Sediment deposit was also identified within the wetland as a result of the movement of soil within this wetland.

The wetland area was assigned a low Ecological Importance and Sensitivity as a result of the wetland being largely modified owing to current land uses, including overgrazing and increased runoff of stormwater into the wetland from upslope infrastructure. The Hydrological Functional Importance scored low as a result of the modification to the hydrological and geomorphologic processes within the wetland associated with infilling from the road, the movement of sediment and the resultant creation of erosion channels. Overgrazing in the area has led to a reduction in surface roughness and basal cover of the vegetation and this coupled with hard surface infrastructure has increased the velocity of water entering the wetland creating erosion channels. Direct human benefits were associated with the presence of a dam outside of the study area and cattle grazing.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	An advert will be placed in the Express Newspaper and the Daily Sun to inform Interested and Affected Parties (I&APs) of the proposed development.	
Date published	31 July 2013	
Site notice position	Latitude	Longitude
	Site notices will not be erected on site since the site occurs on the N8 freeway. However, a site notice will be placed at the Botshabelo Library.	
Date placed	31 July 2013	

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

Please refer to the newspaper advert text and site notice text in Appendix E1. Please note that the proof of placement of the newspaper advertisement and site notices will be provided in the Final BAR in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

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

The SEF Geographic Information Systems (GIS) Unit extrapolated data from the Surveyor General Cadastral data of the properties adjacent to the site for the proposed interchange and the main access road into Botshabelo (*this forms part of the study area*). The contact details of the owners of the adjacent properties were obtained from Windeed Searches. The database drew on past project experience in the Free State Region.

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

Refer to the contacted Interested and Affected Parties (I&APs) database in Appendix E.

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Mr. Mareka Mark Eseu	Owner Erf 10 of Botshabelo A	P.O Box 7000 Bloemfontein 9300
Mr. James Nkosana Radebe	Owner Erf 20 of Botshabelo A	20A Section, Botshabelo, 9781
Mr. Mhlola Krisjan Nkunzi	Owner Erf 21 of Botshabelo A	House 21A, Botsabelo, 9781
Mr. Sechaba Piet Lebeoana	Owner Erf 127 of Botshabelo A	127 A, Botshabelo, 9781
Mrs. Mabu Rebecca Mohlabi		1870 Mahabane Street, Batho Bloemfontein, 9307
Mr. Tsokulo Piet Sefali	Owner Erf 135 of Botshabelo A	135 Section A, Botshabelo, 9781
Mrs. Mahlapane Allina Ramolahlehi	Owner Erf 180 of Botshabelo A	A180 Botshabelo, 9781

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

The proof of delivery will be provided in the Final BAR

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

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
The Comments and Responses Report will be provided in the Final Basic Assessment Report that will be available for public review. Comments from Interested and Affected Parties (I&APs) will be acknowledged and addressed to the parties concerned as and when received.	

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.

SEF follows the process of notifying I&APs of the Public Participation Process (PPP), the project, invitation to comment and the availability of the Draft BAR for public review. The comments on the Draft BAR will be addressed in the Comments and Responses Report and the Final BAR that will also be available for public review and comment. The availability of the Final BAR for public review will be communicated to the registered I&APs in due course.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Refer to the Database of Interested and Affected Parties in Appendix E for a complete list.

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Agriculture, Forestry and Fisheries: Directorate - Land Use and Soil Management (Admin)	Mr. Limpho Mogoato	012 319 7609	012 329 5938	limphom@daff.gov.za	Private Bag X250 Pretoria 0001
South African Heritage Resources Agency	Mr. Andrew Salomon	021 462 4502	021 462 4509	ASALOMON@sahra.org.za	P O Box 4637 Cape Town 8000
Free State	Mr. Grace	051 400	051 400 4842	mkhosana@detea.fs.gov.za	Private Bag

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Department of Economic Development, Tourism and Environmental Affairs: Environmental Impact Assessments Section	Mkhosana	4812/4812			X20801 Bloemfontein 9300
Free State Provincial Heritage Resources Agency	Ms. Loudine Philip	078 4489307		loudinep@gmail.com	P.O. Box 266 Bloemfontein 9300
Free State Land Claims Commissioner	Ms. J.D. Fortuin	051 403 0700		emmorake@ruraldevelopment.gov.za	PO Box 4376 Bloemfontein 9300
Department of Water Affairs: (Regional Co-ordinator)	Mr. T.P Ntiti	051 405 9281		ntilit@dwa.gov.za	P.O. Box 528 Bloemfontein 9300

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

Please refer to the response in Section 4 above. SEF will advertise the project, and invite registrations as an I&AP with release of the Draft BAR that will also be released simultaneously for public review and comment. Therefore, proof of notification to the key state departments will be provided in the Final BAR.

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

N/A

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.

Please refer to the response in Section 4 above. SEF will advertise the project, and invite registrations as an I&AP with release of the Draft BAR that will also be released simultaneously for public review and comment. Therefore, the list of registered I&APs will be provided in Appendix E5 in the forthcoming Final BAR.

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

Please refer to the response in Section 4 above. SEF will advertise the project, and invite registrations as an I&AP with release of the Draft BAR that will also be released simultaneously for public review and comment.

Further correspondences will be provided in Appendix E of the Final BAR.

SECTION D: IMPACT ASSESSMENT

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

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

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

It should be noted that due to the nature of the proposed development, impacts associated with construction and operation are applicable and thus discussed below.

The decommissioning and closure phases are not applicable and have thus not been included as decommissioning is not anticipated for this project.

Refer to Appendix F: Impact Assessment for details of how impacts were assessed.

CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative) - Underpass			

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>Clearing of natural vegetation for the construction of the road, stock piles and construction camps will lead to destruction of natural vegetation and faunal habitat in some areas, resulting in the possible mortality of plants and animals. Furthermore, there is a small rocky outcrop located immediately north east of the study area which could provide suitable habitat for faunal and floral species and this rocky outcrop might be impacted on during construction.</p>	<p>Direct impacts: Destruction of natural vegetation and faunal habitat</p>	<p>Without Mitigation (WOM) = Medium With Mitigation (WM) = Low</p>	<ul style="list-style-type: none"> • The rocky outcrop to the north east of the study area should not be impacted on during the construction phase. Fences should be erected during the construction phase to prevent vehicles and people from impacting on this rocky outcrop; • Notice boards in English, Afrikaans and Sotho should be erected informing the construction crew that the rocky outcrop area is out of bounds; • Construction activities through areas containing natural vegetation should commence during the winter months to decrease impacts on breeding faunal species which might have been overlooked due to the timing of this survey; • Areas which have been disturbed or where natural vegetation has been removed, should be rehabilitated using species naturally occurring in the area; • An independent Environmental Control Officer (ECO) should be appointed to oversee all construction activities; • No open fires should be allowed, especially during the dry season; and • All remaining areas after road construction should be rehabilitated with indigenous plant species.

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>The removal of surface vegetation will cause exposed soil conditions where rainfall and high winds can cause mechanical erosion. Rainfall and inadequate drainage systems would lead to sediments washing down into low lying areas, causing sedimentation. In addition, indigenous vegetation communities are unlikely to colonise eroded soils successfully and seeds from proximate alien invasive trees can spread easily into these eroded soil</p>	<p>Direct impacts: Exposure to erosion</p>	<p>WOM = Medium-Low WM = Low</p>	<ul style="list-style-type: none"> • An ecologically-sound stormwater management plan must be implemented during construction and appropriate water diversion systems put in place; • A stormwater management plan must be compiled and approved post authorisation; • Erosion must not be allowed to develop on a large scale before effecting repairs; • Vegetation and soil must be retained in position for as long as possible, and removed immediately ahead of construction / earthworks in that area (DWAF, 2005); • Runoff must be managed to avoid erosion and pollution problems; • Stormwater management such as culverts over the riparian and drainage line crossings must be implemented; • All areas susceptible to erosion must be protected and it must be ensured that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas; • Remaining areas exposed to erosion due to construction should be vegetated with species naturally occurring in the area; and • Surface water or stormwater must not be allowed to concentrate, or

BASIC ASSESSMENT REPORT

CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
			flow down cut or fill slopes without erosion protection measures being in place.

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>During construction, vegetation will be removed and soil disturbed. The seeds of alien invasive species that occur on and in the vicinity of the construction area could spread into the disturbed areas. In addition, construction vehicles and equipment were likely used on various other sites and could introduce alien invasive plant seeds or indigenous plants not belonging to this vegetation type to the construction site.</p>	<p>Direct impacts: Potential increase in invasive vegetation</p>	<p>WOM = Medium to low WM = Low</p>	<ul style="list-style-type: none"> • During construction, the construction area and immediate surroundings should be monitored regularly for emergent invasive vegetation; • Surrounding natural vegetation should not be disturbed in order to minimize chances of invasion by alien vegetation; • All alien seedlings and saplings must be removed as they become evident for the duration of construction and operational phase; • Manual / mechanical removal is preferred to chemical control to ensure that the surrounding wetlands are not contaminated by chemicals; • All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction site. This should be verified by the ECO; and • An alien invasive eradication and monitoring plan must be compiled and implemented during the construction phase whereby all emergent invasive species are removed during construction.

BASIC ASSESSMENT REPORT

CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>Contamination of surface water and groundwater due to hydrocarbon spillage from the storage of fuel on site and the spillages from vehicles.</p>	<p>Direct impacts: Surface and groundwater contamination</p>	<p>WOM = Medium to low WM = Low</p>	<ul style="list-style-type: none"> • Construction should preferably take place during the dry season. • All construction vehicles should be kept in good working condition. • The contractor must provide method statements for the “handling & storage of oils and chemicals”, “fire”, and “emergency spills procedures”. • These substances must be confined to specific and secured areas within the contractor’s camp, and in a way that does not pose a danger of pollution even during times of high rainfall. These areas must be imperviously bunded with adequate containment (at least 1.5 times the volume of the fuel) for potential spills or leaks. • 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. • The surface area of the drip trays will be dependent on the vehicle and must be large enough to catch any hydrocarbons that may leak from the vehicle while standing. • 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.

BASIC ASSESSMENT REPORT

CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>Contamination of surface water and groundwater due to hydrocarbon spillage from the storage of fuel on site and the spillages from vehicles.</p>	<p>Direct impacts: Surface and groundwater contamination</p>	<p>WOM = Medium to low WM = Low</p>	<ul style="list-style-type: none"> • Spill kits must be available on site and in all vehicles that transport hydrocarbons for dispensing to other vehicles on the construction site. Spill kits must be made up of material/product that is in line with environmental best practice (SUNSORB is a recommended product that is environmentally friendly). • All spilled hazardous substances must be contained in impermeable containers for removal to a licensed hazardous waste site, (this includes contaminated soils, and drenched spill kit material).

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>Although low faunal activity was observed at the time of the survey, the presence of the construction site may result in negative faunal interactions that could be associated with construction personnel including poaching, trapping and hunting of faunal species. Construction at night and the use of lights may attract certain nocturnal faunal species to the construction site, placing them in danger of collisions by construction vehicles and vehicles on the adjacent road. Food and rubbish can attract wildlife to the area, increasing risk of negative interactions.</p>	<p>Direct impacts: Interference with faunal activities by human presence</p>	<p>WOM = Medium-Low WM = Low</p>	<ul style="list-style-type: none"> • It is preferable that construction should commence in the winter months in order to minimise the impacts on the breeding activities of the terrestrial floral and faunal species which might have been dormant or absent during the survey which was conducted in winter; • As far as possible, construction should be limited to the daylight hours in order to minimise the need for lights; • An education programme should be compiled for all contractors, subcontractors and workers to ensure compliance to all aspects of the EMPr as well as educating personnel in the safe and proper conduct within areas of natural habitat; • No wild animal may under any circumstance be handled, removed or be interfered with by construction workers; • No wild animal may be fed on site; • No wild animal may under any circumstance be hunted, snared, captured, injured or killed. This includes animals perceived to be vermin. Checks of the surrounding natural vegetation must be regularly undertaken to ensure no traps have been set. Any snares or traps found on or adjacent to the site must be removed and disposed of; and

BASIC ASSESSMENT REPORT

CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
Please see above.	Direct impacts: Interference with faunal activities by human presence	WOM = Medium-Low WM = Low	<ul style="list-style-type: none"> • All food should be securely stored away to prevent attraction of faunal species and all rubbish should be disposed off away from the site. • Bins located around the infrastructure should have tightly fitting lids to prevent faunal species raiding the bins and thereby becoming habituated to humans.

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>Hazardous materials such as fuel and oil for construction vehicles have the potential to contaminate soils, watercourses and ground water while uncontrolled dumping of rubbish will lead to pollution of the natural environment as well as potential faunal injury and mortality.</p>	<p>Direct impacts: Contamination of the environment by hazardous materials and rubbish</p>	<p>WOM = Medium to low WM = Low</p>	<ul style="list-style-type: none"> • During the construction phase hazardous waste should be stored in compliance with regional, national and local legislation; and • Water passing through vehicle bays and workshops must pass through oil traps to ensure that all hazardous material is removed.

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>Exposure of archaeological sites during excavation activities</p>	<p>Direct impacts: Potential destruction of heritage resources</p>	<p>WOM = Medium to low WM = Low</p>	<ul style="list-style-type: none"> • In terms of the National Heritage Act, 1999 (Act No. 25 of 1999), construction personnel must be alert and must inform the local heritage agency should they come across any findings of heritage resources within 24 hours. • Should any archaeological artefacts be exposed during construction activities, work on the area where the artefacts were found must cease immediately and SAHRA Cape Town (021 462 4502) must be informed of the find immediately. • Upon receipt of such notification, the ECO will arrange for the excavation to be examined by an Archaeologist. • Under no circumstances must archaeological artefacts be removed, destroyed or interfered. • The ECO must indicate when construction may resume. • Any archaeological sites exposed during demolition or construction activities must not be disturbed prior to authorisation by the South African Heritage Resources Agency on the appropriate provincial heritage resource agency.

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
Supply of local labour for construction activities	Direct impacts: Job creation and transfer of skills to local communities	High positive significance.	<ul style="list-style-type: none"> • Temporary employment opportunities will be created during the construction phase, via construction related activities. Local labour must be sought. This will positively impact on the surrounding community and local economy due to possible skills development and income generation. • Interviews with and hiring of potential labourers should not occur on site. This will reduce the potential for loitering and potential road accidents.

BASIC ASSESSMENT REPORT

CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>The footprint of a new road could infringe or destroy the wetland habitat and associated biota through removal of hydrophytic vegetation and or hydric soils.</p>	<p>Direct impacts: Destruction of wetland habitat</p>	<p>WOM = Medium WM = Low</p>	<p>Should the proposed interchange be approved the impact on the wetland and larger downstream aquatic ecosystem would be deemed to be low provided the suggested mitigation measures outlined in this report are adhered to.</p> <ul style="list-style-type: none"> • Re-vegetation of disturbed areas must be undertaken with site indigenous species and in accordance with the instructions issued by the ECO. A list of species is given in Appendix B of the Wetland Delineation and Functional Assessment in Appendix D to be utilised in each of the different wetland zones for rehabilitation: • Excavated material must be used as fill during the interchange construction process. Should borrow pits be required, the required permits from the Department of Mineral Resources (DMR) will be required. • After completion of the construction phase, a wetland monitoring program must be initiated that ensures that all wetland protection infrastructure and storm-water systems are properly installed and that all affected wetland areas are adequately rehabilitated; • Any proclaimed weed or alien species that germinates during the contract period shall be cleared by hand before flowering. <p>necessary.</p>

BASIC ASSESSMENT REPORT

CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>The footprint of a new road could infringe or destroy the wetland habitat and associated biota through removal of hydrophytic vegetation and or hydric soils.</p>	<p>Direct impacts: Destruction of wetland habitat</p>	<p>WOM = Medium WM = Low</p>	<ul style="list-style-type: none"> • Infilling, excavation, drainage and hardened surfaces (including asphalt) should not occur in the wetland area. • Caution must be taken to ensure road-building materials are not dumped or stored within the delineated wetland area. • To prevent erosion of material that is stockpiled for long periods, the material must be retained in a bermed area; • The design of drainage systems must ensure there is no contamination, eutrophication or increased erosion of the wetland areas. Drainage systems should be maintained regularly in order to minimize the runoff of harmful chemical substances into the wetland areas. • Stormwater outflows should not enter directly into a wetland. The velocity of water that may reach wetlands should be slowed before it is intercepted by virgin soils using a siltation and erosion control structure. • It should be ensured that the road has minimal effect on the flow of water through the wetland (e.g. by using a bridge or box culverts rather than pipes). • During construction, disturbance to the wetland at and adjacent to, the road crossing site should be minimised.

BASIC ASSESSMENT REPORT

CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>The footprint of a new road could infringe or destroy the wetland habitat and associated biota through removal of hydrophytic vegetation and or hydric soils.</p>	<p>Direct impacts: Destruction of wetland habitat</p>	<p>WOM = Medium WM = Low</p>	<ul style="list-style-type: none"> • Imported fill material should be monitored during and after construction for the presence of any alien species. Any such species should be removed immediately. • Emergency plans must be in place in case of spillages into the wetland system. • All stockpiles must be protected from erosion, stored on flat areas where runoff will be minimized, and be surrounded by bunds. It should also only be stored for the minimum amount of time Silt traps and culverts should be regularly maintained and cleared so as to ensure effective drainage. • Weather forecasts from the South African Weather Bureau of up to three days in advance must be monitored on a daily basis to avoid exposing soil or building works or materials during a storm event and appropriate action must be taken in advance to protect construction works should a storm event be forecasted; • Littering and contamination of water sources during construction must be mitigated by effective construction camp management;

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>The footprint of a new road could infringe or destroy the wetland habitat and associated biota through removal of hydrophytic vegetation and or hydric soils.</p>	<p>Direct impacts: Destruction of wetland habitat</p>	<p>WOM = Medium WM = Low</p>	<ul style="list-style-type: none"> • All construction materials including fuels and oil should be stored in a demarcated area that is contained within a bunded impermeable surface to avoid spread of any contamination (outside of wetlands); • Cement and plaster should only be mixed within mixing trays. Washing and cleaning of equipment should also be done within a bermed area, in order to trap any cement or plaster and avoid excessive soil erosion; • These sites must be rehabilitated prior to commencing the operational phase.

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>Hydrocarbons-based fuels or lubricants spilled from construction vehicles, construction materials that are not properly stockpiled, and litter deposited by construction workers may be washed into the wetland and surface water bodies located downstream of the study site. Should appropriate toilet facilities not be provided for construction workers at the construction crew camps, the potential exists for surface water resources and surrounds to be contaminated by raw sewage.</p>	<p>Direct impacts: Surface water pollution</p>	<p>WOM = Medium WM = Low</p>	<ul style="list-style-type: none"> • Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants; • A walled concrete platform, dedicated store with adequate flooring or bermed area should be used to accommodate chemicals such as fuel, oil, paint, herbicide and insecticides, as appropriate, in well-ventilated areas; • Storage of potentially hazardous materials should be above any 100-year flood line, or as agreed with the ECO. These materials include fuel, oil, cement, bitumen etc.; • Sufficient care must be taken when handling these materials to prevent pollution; • Surface water draining off contaminated areas containing oil and petrol would need to be channelled towards a sump which will separate these chemicals and oils; • Oil residue shall be treated with oil absorbent such as Drizit or similar and this material removed to an approved waste site; • Concrete, if used, is to be mixed on mixing trays only, not on exposed soil; • Concrete and tar shall be mixed only in areas which have been specially demarcated for this purpose;

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
See above	Direct impacts: Surface water pollution	WOM = Medium WM = Low	<ul style="list-style-type: none"> • All concrete and tar that is spilled outside these areas shall be promptly removed by the Contractor and taken to an approved dumpsite; • After all the concrete / tar mixing is complete all waste concrete / tar shall be removed from the batching area and disposed of at an approved dumpsite; Storm water shall not be allowed to flow through the batching area. Cement sediment shall be removed from time to time and disposed of in a manner as instructed by the Consulting Engineer; • All construction materials liable to spillage are to be stored in appropriate structures with impermeable flooring; • Portable septic toilets are to be provided and maintained for construction crews. Maintenance must include their removal without sewage Portable septic toilets are to be located outside of the 1-100year floodline; • Under no circumstances may ablutions occur outside of the provided facilities; • At all times care should be taken not to contaminate surface water resources;

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
See above	Direct impacts: Surface water pollution	WOM = Medium WM = Low	<ul style="list-style-type: none"> • No uncontrolled discharges from the construction crew camps to any surface water resources shall be permitted. Any discharge points need to be approved by the relevant authority; • Store all litter carefully so it cannot be washed or blown into any of the water courses within the study area; • In the case of pollution of any surface or groundwater, the Regional Representative of the Department of Water Affairs (DWA) must be informed immediately.
Construction activities and more specifically transportation of construction materials/ rubble on gravel roads will result in elevated ambient dust levels within the area. Increased dust levels may adversely affect persons working and/ or residing in the nearby area.	Direct impacts: Increase in ambient dust levels	WOM = Medium to low WM = Low	<ul style="list-style-type: none"> • Appropriate dust suppression methods must be applied (if necessary). • The clearing of vegetation must be kept to a minimum and only where required. • Avoid unnecessary movement of construction vehicles on site (refer to additional mitigations measures in the EMPr). • Vehicles travelling on gravel roads/ tracks must travel at a speed that creates minimal dust entrainment.
Construction activities and the movement of construction vehicles will increase the ambient noise levels within	Direct impacts: Increase in ambient noise levels	WOM = Medium to low WM = Low	<ul style="list-style-type: none"> • Construction times must be restricted to working hours (06:00-18:00). • All construction equipment or machinery should be switched off when not in use. • Construction equipment

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
the area during the construction phase.			must be kept in good working condition.
Temporary employment opportunities will be created during the construction phase, via construction related activities. This will positively impact on the surrounding community and local economy due to possible skills development and income generation. This impact is predicted to have a high positive significance.	Direct impacts: Creation of employment and skills transfer	High Positive impact	N/A
Cumulative impacts			
The existing N8 would have to be closed to traffic for the construction of the underpass under the existing carriageway.	Impact on traffic flow	WOM = Medium WM = Low	<ul style="list-style-type: none"> • Traffic would be accommodated on a temporary bypass, or along ramps C & D, depending on construction progress. • Traffic on Main Road would have to be diverted, via other links to the N8, or temporary works, to allow for the excavation and reconstruction of the access road. This would be a temporary impact during construction and should there be other developments proposed in the vicinity of the site during construction of the

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CONSTRUCTION PHASE			
Activity	Impact summary	Significance	Proposed mitigation
			interchange, stop/go traffic control should be adopted to maintain road safety. <ul style="list-style-type: none"> On the N8, speed will be controlled through sign posts and construction flagman controlling traffic.
Alternative 2: Overpass (not preferred)			
Overpass			
The activity will be the same as per the underpass.	Direct impacts: The proposed impacts will be the same as that for Alternative 1.		
Cumulative impacts			
Traffic would essentially be accommodated on the N8, with the first (northern) span of the bridge constructed adjacent to and over the N8.	Impact on traffic flow	WOM = Medium WM = Low	<ul style="list-style-type: none"> Traffic on the access road would have to be diverted to allow for the construction of the bridge and the new access road at the elevated level. This would be a temporary impact during construction and should there be other developments proposed in the vicinity of the site during construction of the interchange, stop/go traffic control should be adopted to maintain road safety.
Alternative 3			
	Direct impacts: N/A		
	Indirect impacts: N/A		
	Cumulative impacts: N/A		
No-go option			
The activities listed above will not occur if the no-go option is followed.	Direct impacts: Should the project not go ahead, construction would not take place. The site would remain intact and none of the impacts listed above would occur.	There will be no mitigation measures required if construction does not take place.	N/A

BASIC ASSESSMENT REPORT

OPERATIONAL PHASE			
Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
<p>Roads generally have a negative impact on fauna as many animals are killed by collisions with vehicles while trying to cross busy roadways. Road-users may also be at risk when trying to avoid collisions or if collisions cause damage to vehicles. Increasing the width of the road not only increases the distance over which crossing fauna need to travel, but will also lead to an increase in traffic volume as well as an overall increase in speed of the vehicles. Furthermore, the temporary and seasonal or permanent zones identified by the wetland specialist (see wetland report) are likely to support</p>	<p>Direct impacts: Negative interactions between fauna and vehicles</p>	<p>WOM = Medium to low WM = Low</p>	<ul style="list-style-type: none"> • The environmental conditions within the artificial passageways should not be different from the environmental conditions in the adjacent habitat. This includes the lack of light which might deter amphibians from using the passageways. It is therefore recommended that larger tunnels are constructed to provide sufficient light; • Cooler temperatures within the tunnels relative to the outside environment may also deter amphibians from using the passages while a lack of moisture within the tunnels will make it unsuitable for amphibians which are dependant on moist habitats for movement. It is therefore it is important to consider the site and landscape, local topography and behaviour of the amphibian species involved when constructing the passageways; • Where possible, the passageways should be vegetated to encourage use by ampibians; • Passages and fences should be complementary to each other since fences are used to guide the amphibians towards the passageways; • No holes or gaps should be present in the fences which are intended to exclude amphibians, especially where these fences are constructed close to the

BASIC ASSESSMENT REPORT

OPERATIONAL PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>amphibian species during summer. The construction of roads has many impacts on amphibians and reptiles which includes high rates of road mortality which usually occurs over a large geographical area (Malt, 2012). The species which are likely to occur in the vicinity of the study area include two <i>Amietophrynus</i> species (Toads), <i>Cacosternum boettgeri</i> (Boettger's caco) and two <i>Tomopterna</i> species (Sand frogs) are highly mobile and not dependant on moist habitat for movement, making them vulnerable to the impacts associated with the road. Road underpasses and drift fencing are common</p>			<p>culvert or passageways.</p>

BASIC ASSESSMENT REPORT

OPERATIONAL PHASE			
Activity	Impact summary	Significance	Proposed mitigation
<p>mitigation measures in road construction and the following is recommended by Malt (2012) for the construction of these underpasses and fences:</p>			
<p>Only two alien species were recorded at low densities at the time of the survey but it is likely that additional alien species can be introduced to the area during and after construction and could therefore spread further into the surrounding areas.</p>	<p>Direct impacts: Decrease in biodiversity and indigenous vegetation, as a result in potential increase in alien invasive vegetation</p>	<p>WOM = Medium to low WM = Low</p>	<ul style="list-style-type: none"> • An alien invasive eradication and monitoring plan must be compiled post authorisation and implemented during the construction and operational phases whereby all emergent invasive species are removed and the surrounding vegetation monitored regularly for emergent invasive vegetation; • All alien seedlings and saplings must be removed as they become evident for the duration of the operational phase; • Surrounding natural vegetation should not be disturbed in order to minimize chances of invasion by alien vegetation; and • Manual / mechanical removal is preferred to chemical control.
<p>The increase in impermeable surfaces as a result of the construction of</p>	<p>Direct impacts: Increased erosion</p>	<p>WOM = Medium to low WM = Low</p>	<ul style="list-style-type: none"> • Should any work be conducted on the culverts present, box culverts are to be used; • An ecologically-sensitive stormwater management

BASIC ASSESSMENT REPORT

OPERATIONAL PHASE			
Activity	Impact summary	Significance	Proposed mitigation
new roads, will lead to an associated increase in flow velocities and erosion potential within the wetland habitat. Runoff from the road surface may enter into the associated watercourse and wetland, resulting in, wetland scouring and increased flooding of downstream areas. Additionally, the incorrect choice of culvert structure may concentrate the water flow, and result in downstream erosion.			plan should be developed that does not allow concentrated stormwater to enter into a wetland or watercourse directly, but instead makes use of flow diffusers and retention areas (such as artificial wetland areas, swales, baffles and gabion structures).
Improved level of service in terms of traffic flow along the N8 (positive impact).	Direct impacts: The proposed interchange and dualling of the access road will have a positive impact in terms of improvement of capacity of the road network and road safety issues.	Positive impact	N/A

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

REFER TO APPENDIX FOR THE IMPACT ASSESSMENT

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the

environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

The impacts associated with the proposed development as described on Section D1 above are:

Construction phase:

Direct Impacts:

- Destruction of natural vegetation and faunal habitat.
- Potential increase in invasive vegetation.
- Surface and groundwater contamination.
- Interference with faunal activity and human presence.
- Contamination of environment by hazardous materials and rubbish
- Increase in ambient dust levels.
- Increase in ambient noise levels.
- Potential destruction of heritage resources.
- Destruction of wetland habitat.
- Job creation and transfer of skills (positive impact).

Cumulative impact:

- Increased traffic congestion

Operational Phase:

Direct Impacts:

- Negative interaction between fauna and vehicles.
- Decrease in biodiversity and indigenous vegetation.
- Increased erosion.
- Improved level of service in terms of traffic flow along the N8 (positive impact).

All of the impacts stated above have been assessed and if the environmental management programme (EMPr) is correctly implemented, the impacts will be mitigated to acceptable levels, to allow the development to proceed. The positive socio-economic benefits that can potentially be fulfilled by the development outweigh the negative impacts that are foreseen.

Alternative B

N/A

No-go alternative (compulsory)

Direct impacts:

This option assumes that a conservative approach would ensure that the environment is not impacted upon any more than is currently the case. It is important to state that this assessment is informed by the current condition of the area. Should the DEA decline the application, the 'No-Go' option will be followed and the status quo of the site will remain.

If the Botshabelo Interchange and the main access road to Botshabelo are not constructed, there will be poor levels of service along the N8 and there will not be any intervention to prevent accidents and provide safer road conditions.

The biophysical and social impacts as per the construction phase listed above will not occur and the status quo of the site will remain.

SECTION E. RECOMMENDATION OF PRACTITIONER

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

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

N/A

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

Construction Phase:

The following mitigation measures must be in place to prevent destruction of the natural vegetation and faunal habitat:

- The rocky outcrop to the north east of the study area should not be impacted on during the construction phase. Fences should be erected during the construction phase to prevent vehicles and people from impacting on this rocky outcrop;
- Signposts in English, Afrikaans and Sotho must be placed on fences and must be clearly visible to the public to ensure that they do not encroach into the rocky outcrop area.
- Construction activities through areas containing natural vegetation should commence during the winter months to decrease impacts on breeding faunal species which might have been overlooked due to the timing of this survey;
- Areas which have been disturbed or where natural vegetation has been removed, should be rehabilitated using species naturally occurring in the area;
- An independent Environmental Control Officer (ECO) should be appointed to oversee all construction activities;
- No open fires should be allowed, especially during the dry season; and
- All remaining areas after road construction should be rehabilitated with indigenous plant species.

The following mitigation measures must be in place to prevent soil erosion and silting of the wetlands and associated watercourses:

- An ecologically-sound stormwater management plan must be implemented during construction and appropriate water diversion systems put in place;
- The stormwater management plan must be compiled and approved post authorisation;
- Erosion must not be allowed to develop on a large scale before effecting repairs;
- Vegetation and soil must be retained in position for as long as possible, and removed immediately ahead of construction / earthworks in that area (DWAF, 2005);
- Runoff must be managed to avoid erosion and pollution problems;
- Stormwater management such as culverts over the wetland and drainage line crossings must be implemented;
- All areas susceptible to erosion must be protected and it must be ensured that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas;
- Remaining areas exposed to erosion due to construction should be vegetated with species naturally occurring in the area; and
- Surface water or stormwater must not be allowed to concentrate, or flow down cut or fill

slopes without erosion protection measures being in place.

The following mitigation measures must be in place to ensure minimal destruction of the wetland:

- As far as possible, infilling, excavation, drainage and hardened surfaces (including asphalt) should not occur in the wetland area;
- Should there be construction activity within the wetland, a Water Use License Application (WULA) must be obtained from the DWA for approval prior to construction;
- The construction footprint must be clearly demarcated with red danger tape to prevent construction activity within the wetland.
- Signposts in English, Afrikaans and Sotho must be placed in the areas to be cordoned off to the construction crew to ensure that there is no encroachment of construction activity within the wetland.
- Caution must be taken to ensure road-building materials are not dumped or stored within the delineated wetland area;
- To prevent erosion of material that is stockpiled for long periods, the material must be retained in a bermed area;
- The design of drainage systems must ensure there is no contamination, eutrophication or increased erosion of the wetland areas. Drainage systems should be maintained regularly in order to minimize the runoff of harmful chemical substances into the wetland areas;
- Stormwater outflows should not enter directly into a wetland. The velocity of water that may reach wetlands should be slowed before it is intercepted by virgin soils using a siltation and erosion control structure;
- It should be ensured that the road has minimal effect on the flow of water through the wetland (e.g. by using a bridge or box culverts rather than pipes);
- During construction, disturbance to the wetland at and adjacent to, the road crossing site should be minimised;
- Imported fill material should be monitored during and after construction for the presence of any alien species. Any such species should be removed immediately;
- Emergency plans must be in place in case of spillages into the wetland system;
- All stockpiles must be protected from erosion, stored on flat areas where runoff will be minimized, and be surrounded by bunds. It should also only be stored for the minimum amount of time necessary;
- Silt traps and culverts should be regularly maintained and cleared so as to ensure effective drainage;
- Weather forecasts from the South African Weather Bureau of up to three days in advance must be monitored on a daily basis to avoid exposing soil or building works or materials during a storm event and appropriate action must be taken in advance to protect construction works should a storm event be forecasted;
- Littering and contamination of water sources during construction must be mitigated by effective construction camp management;
- All construction materials including fuels and oil should be stored in a demarcated area that is contained within a bunded impermeable surface to avoid spread of any contamination (outside of wetlands);
- Cement and plaster should only be mixed within mixing trays. Washing and cleaning of equipment should also be done within a bermed area, in order to trap any cement or plaster and avoid excessive soil erosion;
- These sites must be rehabilitated prior to commencing the operational phase.

Operational Phase:

BASIC ASSESSMENT REPORT

The following mitigation measures must be in place to prevent vehicle collisions with fauna that cross busy freeways

- The environmental conditions within the artificial passageways should not be different from the environmental conditions in the adjacent habitat. This includes the lack of light which might deter amphibians from using the passageways. It is therefore recommended that larger tunnels are constructed to provide sufficient light;
- Cooler temperatures within the tunnels relative to the outside environment may also deter amphibians from using the passages while a lack of moisture within the tunnels will make it unsuitable for amphibians which are dependant on moist habitats for movement. It is therefore it is important to consider the site and landscape, local topography and behaviour of the amphibian species involved when constructing the passageways;
- Where possible, the passageways should be vegetated to encourage use by ampibians;
- Passages and fences should be complementary to each other since fences are used to guide the amphibians towards the passageways;
- No holes or gaps should be present in the fences which are intended to exclude amphibians, especially where these fences are constructed close to the culvert or passageways.

Is an EMPr attached?

YES ✓	NO
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The EMPr must be attached as Appendix G.

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

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

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

NAME OF EAP

NAME OF EAP

SIGNATURE OF EAP

DATE

SIGNATURE OF EAP

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information