NEAS:DEA/EIA/0000428/2011-
DEA:12/12/20/2375

Basic Assessment Report for the Rehabilitation of National Route (N11) section 13 in Mokopane a distance of about 24km, including Borrow-pits and a hard rock quarry along the route.

January 2012

A Report for: SANRAL

SSI
A DHV COMPANY
ENGINEERS AND ENVIRONMENTAL CONSULTANTS
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DOCUMENT DESCRIPTION

Client:
SANRAL

Report Name:
Basic Assessment Report for the Rehabilitation of National Route (N11) section 13 in Mokopane a distance of about 24km, including Borrow-pits and a hard rock quarry along the route.

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Date:
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Reviewer
Tebogo Sekoko

Approver
Malcolm Roods

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. 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.

3. Where applicable **tick** the boxes that are applicable in the report.

4. An incomplete report may be returned to the applicant for revision.

5. 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.

6. This report must be handed in at offices of the relevant competent authority as determined by each authority.

7. No faxed or e-mailed reports will be accepted.

8. The report must be compiled by an independent environmental assessment practitioner.

9. 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.

10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

SECTION A: ACTIVITY INFORMATION

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

If YES, please complete the form entitled "Details of specialist and declaration of interest"

for appointment of a specialist for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail[1]:

1.1. Project Description

The South African National Road Agency SOC Limited is proposing to Rehabilitate Section 13 of the National Route 11 (N11) which covers a distance of approximately 24km in Mokopane, Limpopo Province. The detailed Scope of Works for the project is described below.

A. Road works

The road works include amongst others the items listed below:

- Widening of the existing road to include surfaced shoulders which will be approximately 15 meters in total width
- Provision of climbing lanes / overtaking lanes where required.
- Upgrading of existing and installation of new storm water culverts
- Widening of major in-situ culverts.
- Vertical re-alignment of the road at several points along the route.
- Possible widening of the existing road reserve will also be necessary due to the narrow width of the existing road reserve.
- Upgrading of existing intersections.
- Relocation of utility services affected by the upgrading of the road.

B. Bridges

- Widening and rehabilitation of four (4) existing bridges which are numbered as follows:
  - Bridge 1 no 1582
  - Bridge 2 no 1241
  - Bridge 3 no 1170
  - Bridge 4 no 1115

C. Borrow Pits / Quarry

- Four natural gravel borrow pits and one hard rock quarry will be utilised for the rehabilitation of the project route.

1.2. Location of the study area

The proposed project is located along the N11 route in Mokopane which falls within the jurisdiction of the Mogalakwena Municipality in Limpopo Province (see below map). Section 13 of the N11 is surrounded by residential and small commercial business land uses.

[1] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

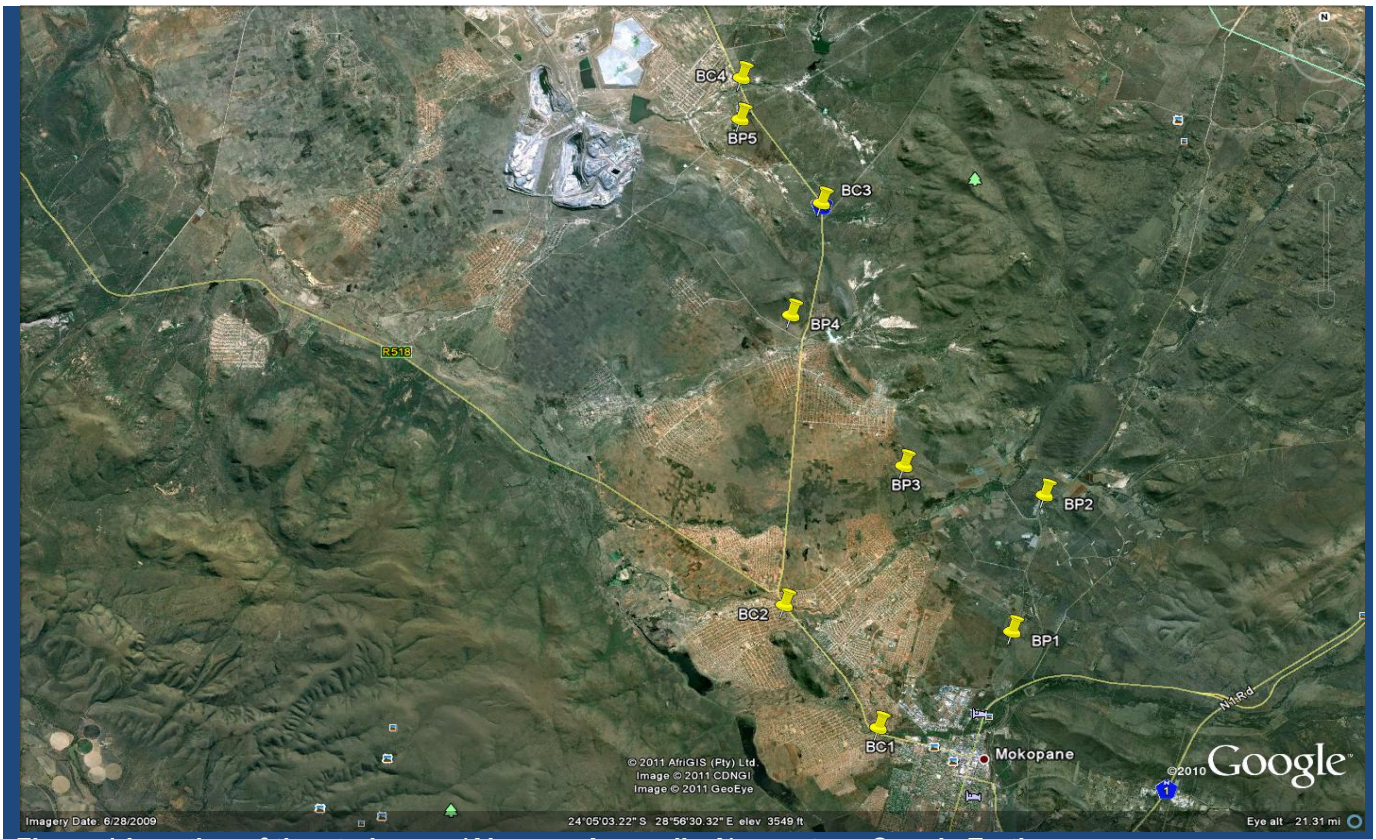


Figure 1 Location of the study area (Also see Appendix A), courtesy Google Earth.

Figure 2 Google image of the study area with bridge 1 & 2 and Borrowpits 1, 2, 3 & 3A, courtesy Google Earth.

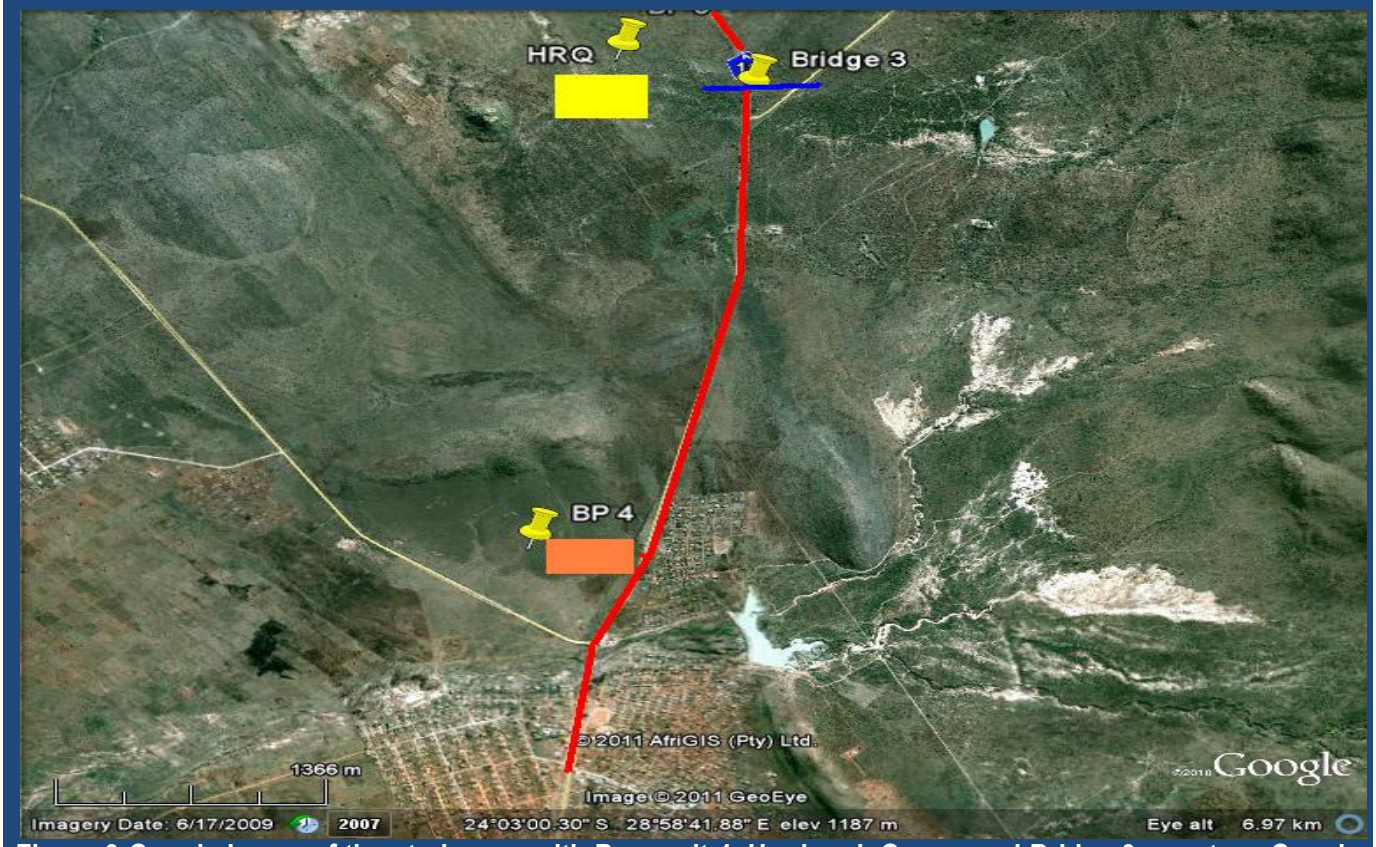


Figure 3 Google image of the study area with Borowpit 4, Hard rock Quarry and Bridge 3, courtesy Google Earth.

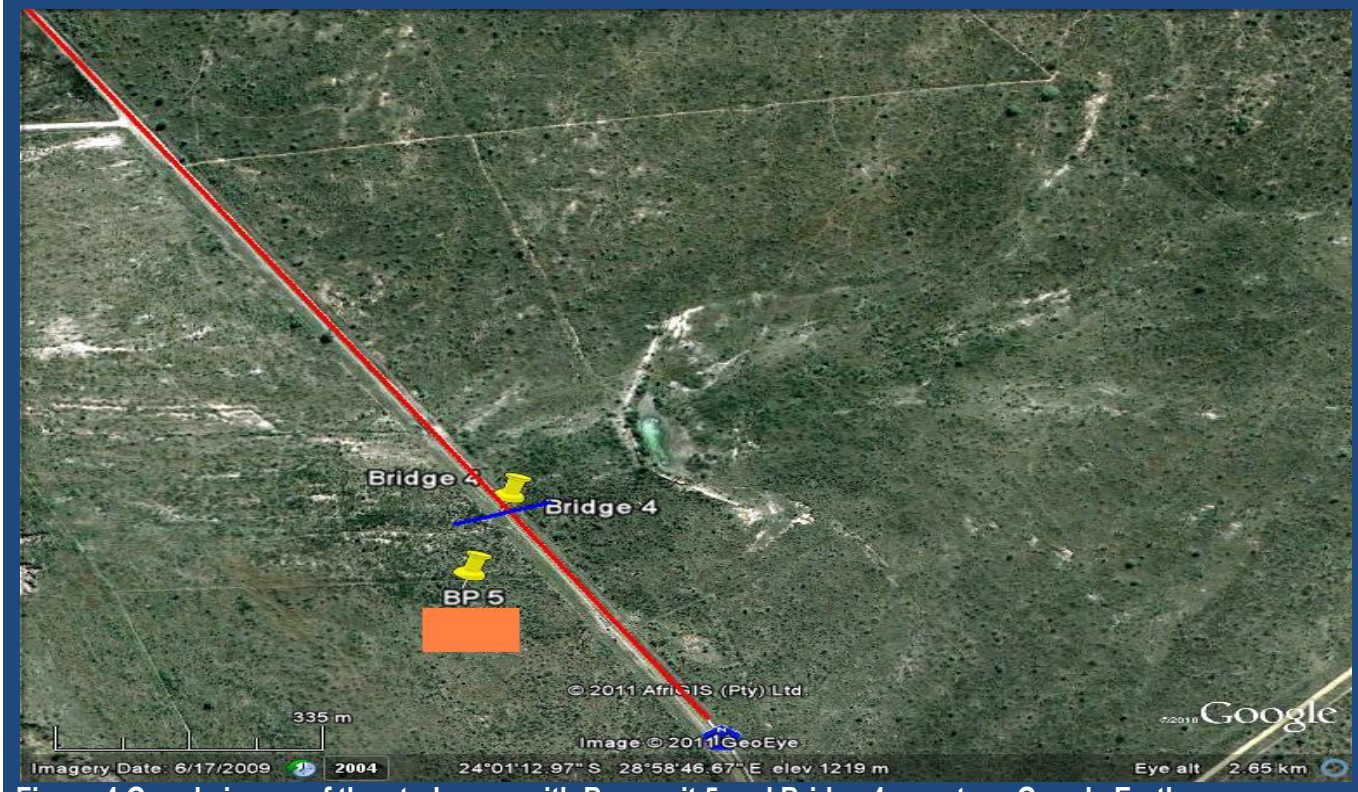


Figure 4 Google image of the study area with Borowpit 5 and Bridge 4, courtesy Google Earth.

1.3. Need for the project

The South African National Road Agency SOC Limited is mandated to strategically plan, design, construct, operate, rehabilitate and maintain South Africa's National Road Network. The need was identified to rehabilitate the N11 Section 13 from km 1.305 to km 24.500 in order to meet with the current demand for road users and also to enhance the road safety by providing additional lanes.

1.4. Relevant environmental legislation

A. EIA Regulations 2010

The Basic Assessment process is prescribed by the Environmental Impact Assessment Regulations (2010) as a pre-requisite to obtaining a decision from the Department of Environmental Affairs (DEA) in terms of the National Environmental Management Act (Act 107 of 1998) (as amended) for the activities applied for. The relevant activities requiring authorisation are listed in table 1 below.

Table 1 NEMA Listed Activities

Government Notice	Activity No	Activity Description
R 544	11	The construction of: (i) Canals; (ii) Channels; (iii) Bridges; (iv) Dams; (v) Weirs; (vi) Bulk storm water outlet structures; (vii) Marinas; (viii) Jetties exceeding 50 square meters in size; (ix) Slipways exceeding 50 square meters in size; (x) Buildings exceeding 50 square meters in size; or (xi) Infrastructure or structures covering 50 square meters or more 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.
R 544	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 or more than 5 cubic meters from: (i) A watercourse.
GN 544	22	The construction of a road outside urban areas, (i) With a reserve wider than 13.5 meters or; (ii) Where no road reserve exists where the road is wider than 8 meters 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.
GN 544	39	The expansion of: (i) Canals (ii) Channels (iii) Bridges (iv) Weirs (v) Bulk stormwater outlets structures (vi) Marinas Within a watercourse or within 32 meters of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.
GN 544	47	The widening of the road by more than 6 meters, or lengthening of the road by more

		1kilometer, (i) Where the existing road reserve is wider than 13.5 meters, or (ii) Where the road reserve exists, where the existing road is wider than 8 meters. Excluding the widening or lengthening occurring inside the urban areas.

B. Minerals and Petroleum Resources Development Act

The permitting of the material sources required for the project will have to be undertaken in accordance with the Minerals and Petroleum Resources Development Act (MPRDA). According to Section 106 (1) of the MPRDA, the South African National Road Agency SOC Limited is exempted from lodging a prospecting and mining right applications, obtaining permission for the removal and disposal of minerals and application of mining permit. Section 106(2) of MPRDA, states that the organ of the state may however submit an Environmental Management Programme for approval in terms of section 39(4).

Table 2 Mining Permit Procedure

Activity	Description
A baseline study of the affected environment.	• Assessment of the affected environment; • Identification of specific environmental features; & • Identification of closure and end use objective for the site.
Identification of all actions, activities or processes which may cause pollution or environmental degradation.	• Identification of aspects for the project which may cause pollution or environmental degradation; and • Compilation of maps showing the location of the identified environmental aspects.
Significance assessment of environmental impacts	• Details of the potential physical impacts; • Identification of environmental risks; and • Details of the public participation followed.
A comparative assessment of the nature, extent, duration, probability and significance of the identified potential impacts on any national estate	• A comparative assessment of the identified land use; • Details of the engagement process with interested and affected parties; • Details of the potential impacts on national heritage sites that were identified by interested and affected parties; • All the potential impacts on national heritage sites identified by State Departments charged with the administration of any law which relates to matters affecting the environment.
Description of the arrangements for monitoring and management of environmental impacts.	• Daily, weekly, monthly, quarterly, annually or periodically as the case may be in order to manage the aforesaid impacts effectively. • A categorization of action plans and a time schedule of actions to be undertaken to implement mitigation measures for each phase of the mining operation. • Detail of procedures for environmental related emergencies and remediation. • Details of the planned monitoring and environmental management programme.

C. National Water Act (Act No 36 of 1998)

The upgrade of the bridges will have an impact on the bed, bank, course and characteristics of the watercourse during the construction and operational phases and thus require a Water Use Licence from the Department of Water Affairs.

A Water Use License Application (WULA) is a legislative process governed by the Department of Water Affairs for the authorisation of all water uses defined in section 21 of the National Water Act (Act No 36 of 1998) [NWA]. This document describes a methodology for the assessment of a Section 21 (c) and/or Section 21 (i) water use.

Table 3 WUL Listed activities

Activity No	Description
Section 21 (c)	Impeding and diverting the flow of water in a watercourse
Section 21 (I)	Altering the bed, bank, course or characteristics of a watercourse

1.5 Description of the Receiving Environment and study area

A Climate

The study area is characterised by summer rainfalls and little to no rain during the winter months. Average rainfall is 472mm of rain per year. Average midday temperatures range from 19.8°C in June to 27.8°C in January.

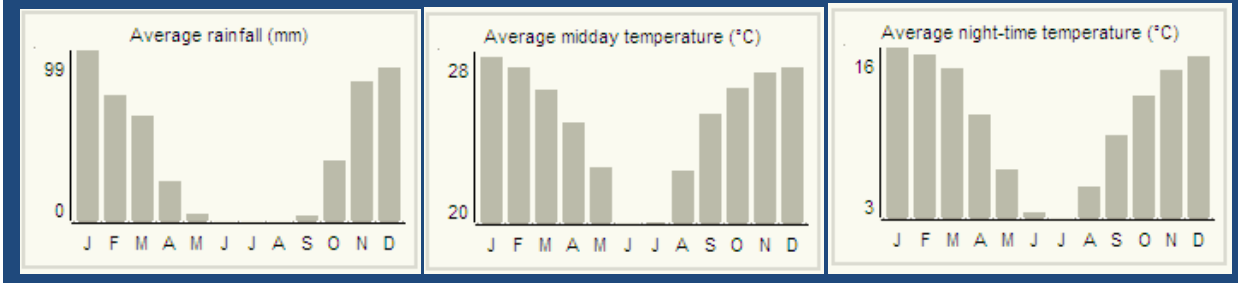


Figure 5 Monthly Rainfall and Temperature (courtesy SA Explorer 2011)

B Visual characteristics

The natural topography of the study area is characterized by undulating lowlands hills, low-lying mountains and moderately undulating plains. Drainage features, channeled and un-channeled hillslope wetlands, valley-bottoms; seasonal and perennial streams) – are found as part of the Mogalakwena River broader catchment. Draining features found within the development site are largely disturbed due to the rural and mining context of the study area.

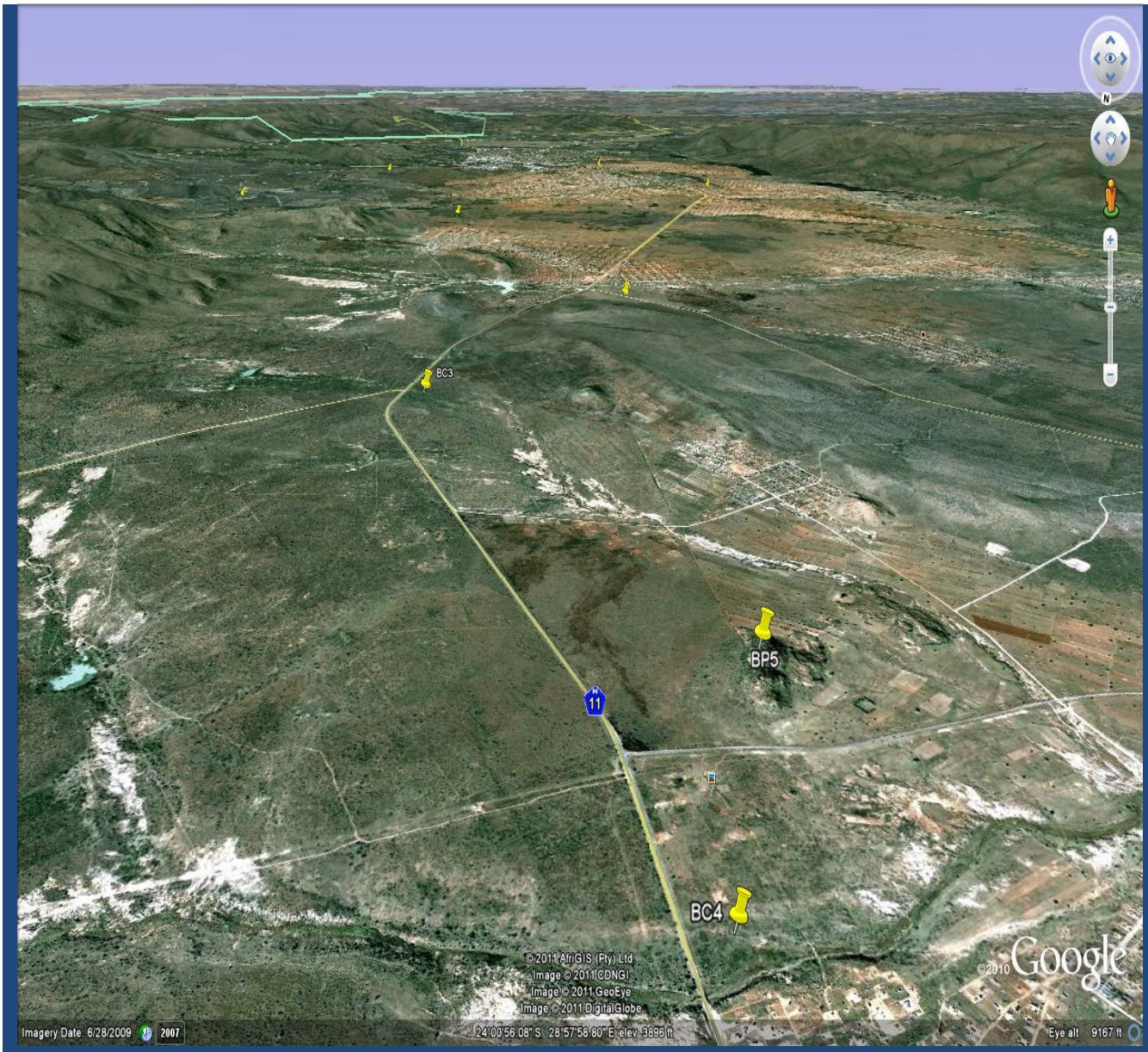


Figure 6 Digitised Map Representing the study area Topography, *courtesy Google Earth.*

C Geology and Soils of the study area

The project area falls within the Bushveld Complex. This Complex is composed of mafic and felsic rocks and contains the world's largest ore reserves of platinum-group elements, chromium and vanadium. Freely drained, structureless red soils, with high base status are dominant. These soils have restricted soil depth, excessive drainage, high erodibility and low natural fertility. Sources of organic material loading are related to fire, alien invasive vegetation and cattle disturbances.

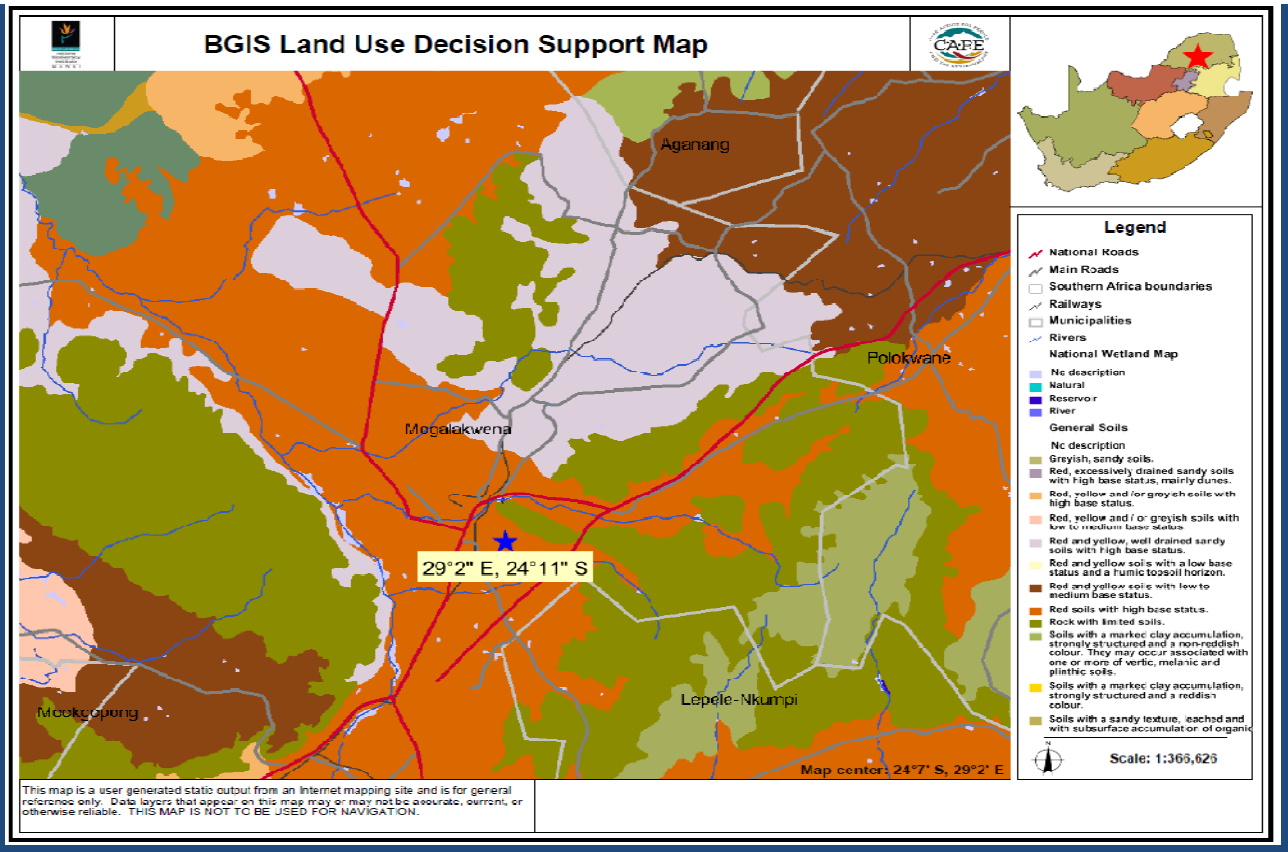


Figure 7 Geology and Soils Map for the study area (Courtesy SANBI BGIS 2011)

D Fauna and Flora

The general vegetation type within the region falls within the Central Bushveld Bioregion. The proposed development area and its surroundings are dominated by the Makhado Sweet Bushveld. This vegetation has a vulnerable Ecosystem Status. Waterberg-Magaliesberg Summit Sourveld is also found in the study surroundings and is well protected. Fauna was merely assessed on an ad hoc basis. No significant features were found on site in relation to biodiversity significance. However, it must be noted that this area has significant game and game park related resources throughout the study area's extended surroundings.

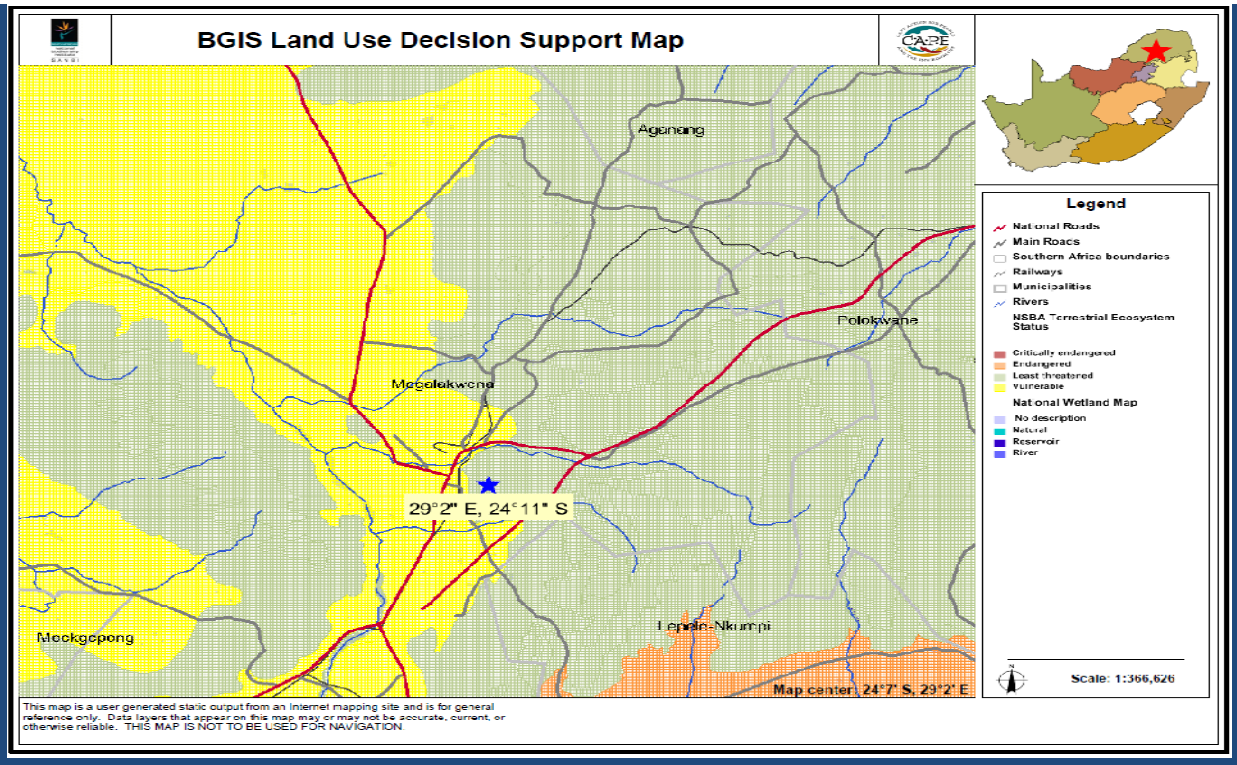


Figure 8 National Biodiversity Map of the Study area (SANBI BGIS 2011)

E Land use

The land use practice in the vicinity ranges from low-medium residential uses along the study area servitude, with subsistence farming, stock holdings and mining uses extended throughout the surroundings.

F Aquatic Features

The study area forms a sub-catchment to the Limpopo River Water Management Area (WMA) and falls within secondary catchment A6, the Mogalakwena River. The Mogalakwena River is the primary catchment within the study area and includes a collection of tributaries such as the Dorps River, Rooisloot River, Dithokeng River and the Grootsandsloot River. Unfortunately, due to the low dam yield per surface area water use need, the study area is largely inadequately supplied by river water and is largely dependent on groundwater. This area is therefore considered a priority for water management due to the high mining related water uses and contamination risk as well as residential groundwater and commercial use needs.

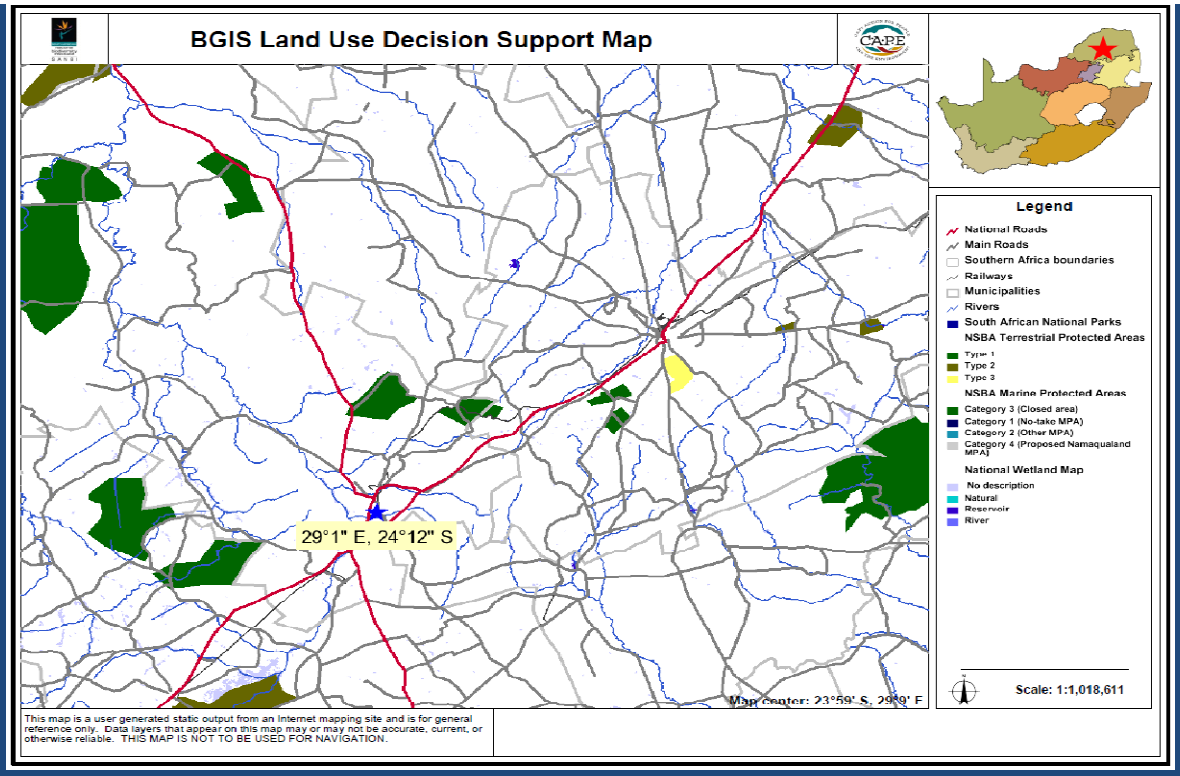


Figure 9 Digitised map of aquatic features in the study area (SANBI BGIS 2011)

G Wetland Delineation

DWA Wetland delineation techniques utilises a four wetland indicator process to provide an estimate of the class, character and extent of a wetland. They area landscape position (must be perched, flat or depressed), vegetation (must be hydrophilic), soil form (must compliment an existing wetland type) and soil wetness (water table must be within 50cm of soil profile and active mottling must be high). Sub-surface water movement through the study points (proposed bridge construction) is consistent with the wetland patterns discerned in the site investigation. Floodlines were mapped according to the proposed development routes and assessed in terms of type, current status and sensitivity for impact assessment considerations.

Wetland health and habitat integrity

In general, both systems (bridge crossing 3 & 4) are very important wetland features for the study area from a flooding and ecosystem goods and services perspective, as well as from a biotic perspective. Its low habitat integrity score is a testament to high water use needs and bad water use practice throughout the region and places a higher risk on the systems sensitivity and ultimately its sustainability in lieu of potential irreversible transformation.

- The wetlands found in association with bridge crossing 3 (BC3) are ephemeral in nature and is significantly different to those found throughout the study area, in that:
  - It is more conducive to erosion.
  - It provides alternate drainage to the Grootsandsloot River, a tributary of the Mogalakwena River.
  - It is sensitive to change and represents the ingredients for a sensitive and unique biotic ecology.
  - It does not provide significant short and mid-term ecosystem services for human exploitation.

- The wetlands found in association with bridge crossing 4 (BC4) are perennial in nature and represents the irregular wetland depressions found throughout the study area, and is characterised by:
  - Direct human disturbance, bank stabilisation.
  - Are found within the greater Mogalakwena River Catchment (instream and off-channel)
  - It is less sensitive to change compared to the drier systems (due to wetland and alien vegetation stabilisation). However, it is regarded as moderately conducive to erosion.
  - Provides a corridor and habitat to wetland biota
  - Provides short and mid-term resource exploitation water uses

The instream habitat integrity of river tributaries understudy was largely harmogenous with the surrounding disturbance pressures from the road, industry and rural land-uses. Major impact pressures are indicated by water quality impairment, flow modification and bank erosion. In the case with bridge crossing 3 (BC3) seasonal/ephemeral drainage channel, the habitat integrity results may be pronounced more than what it should be, as a result of the lack of knowledge in dealing with these type of systems (often perceived as over-disturbed due to lack of flow).

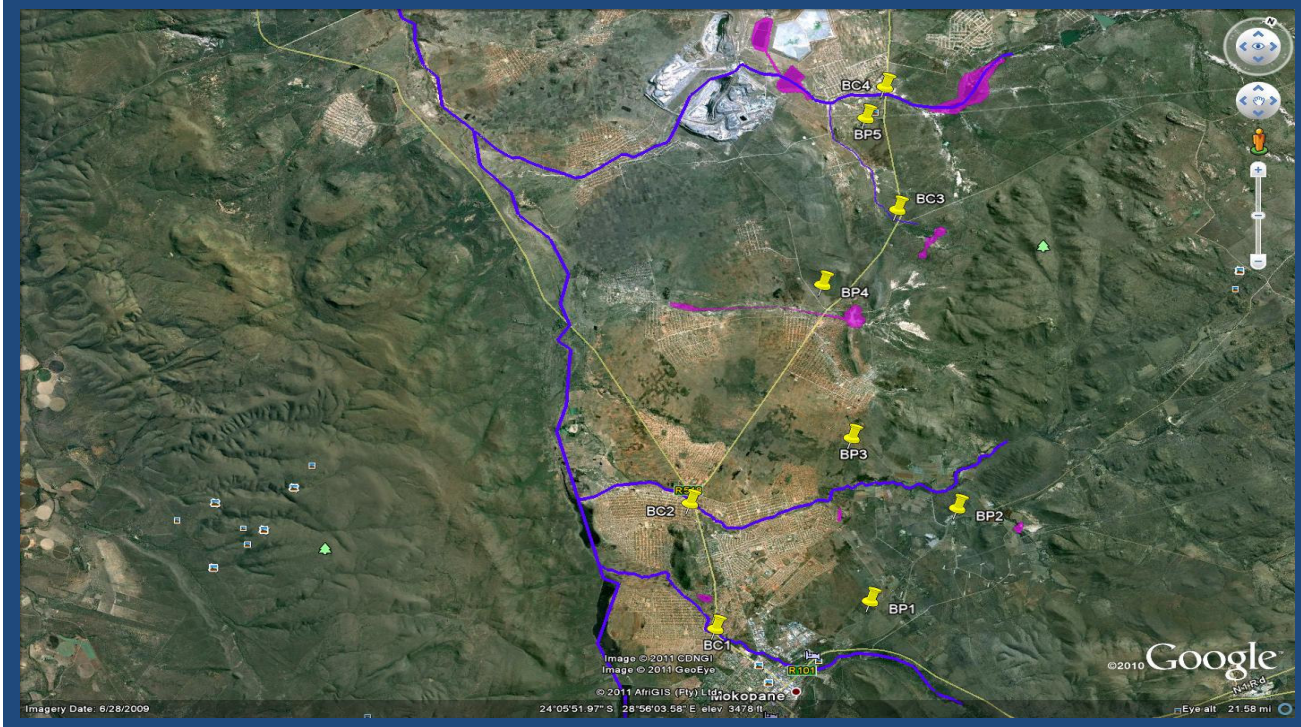


Figure 10 Wetland and drainage line map for the proposed development site, courtesy Google Earth.

H Heritage

The study area is located in the area of the Northern Transvaal Ndebele, consisting of the tribes of Kekana, Langa, Letwaba, Maraba and Seleka. The Kekana, Langa and Seleka can all be found in the Mokerong magisterial district, whereas the others live not only in Mokerong, but also in the Seshego and Thabamoopo magisterial districts. The Transvaal Ndebele is usually divided into two groups, southern and northern, but claim a similar origin in the region of north western Natal. From here they moved, during the early 1600s, in two streams to the former Transvaal province. The first group, under chief Musi, settled in the vicinity of Pretoria, and over time subdivided into the Manala, Ndzundza, Hwaduba and Mathombeni. Of this latter group, one section eventually settled to the south west of Mokopane (Potgietersrust). A junior branch of this group came to be known as the Kekana of Mokopane and, in 1854, was responsible for the murder of a group of white Trekkers at Moorddrift. The punitive expedition against them had to dislodge them from the Makapansgat caves where they took refuge.

The second group, under the leadership of Masebe I, after following a long and circuitous route, eventually settled at Fothane Hill in the Mokerong district. Similar to the Southern Ndebele, some subdivision took place over time. The Seleka section first settled near Rustenburg and, after a sojourn in Botswana, moved back to the Mokerong district in 1899. The Langa is also known as the Mapela, after one of their leaders, who died c. 1826 and was buried at Fothane Hill. They are also referred to as the baga Mankopane, with reference to one of their earlier leaders, who was also in 1854 responsible for the death of a number white Trekkers at what was to become known as Moordkoppie. Later, as a result of a dispute over succession, the tribe broke into two, the Langa of Mapela and a more junior branch, the Langa of Bakenberg. The Letwaba and Maraba share similar histories, and after long wanderings, settled, as different smaller tribes, in the

region of Mokopane. Some of the groups are the Mašašane, the Letwaba of Eland and the Nkidikitlana. The Maraba sections are the Sekgopetšana and the Mapangula.

- Archaeological sites

Figure 11:Tools dating to the MSA found in an erosion donga

- Cemeteries

Most of these cemeteries, irrespective of the fact that they are for land owner or farm labourers (with a few exceptions where they were integrated), are family orientated. They therefore serve as important 'documents' linking people directly by name to the land.

Figure 12: Local Cemeteries

- Public monuments

Although most of these usually occur in urban areas, some also occur in rural areas where some event of significance took place.

Figure 13 Monuments in town and in the rural area.

- Infrastructure and industrial heritage

In many cases this aspect of heritage is left out of surveys, largely due to the fact that it is taken for granted. However, the land and its resources could not be accessed and exploited without the development of features such as roads, bridges, railway lines, electricity lines and telephone lines.

Figure 14 Four Bridges of the Study Area

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. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity 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.

Route/ Location Alternatives

The proposed project is for the rehabilitation of an existing road hence alternative routes/ location for the road have not been considered. The existing horizontal alignment will be upheld.

Engineering Technology Alternatives

The technology alternatives considered are for:

- the cross-sections of the road,
- surfacing of the road, and
- bridge improvement.

A Cross sections

Three different cross sections are proposed for three different road conditions and they are described below:

(i) 1,305 to 8,000km Urban Area (Higher volume traffic)

- Maintain existing cross-section 2x3.0m lanes with 2x2.5m gravel shoulders (area=73645m2, surfaced area=40170m2)
- Widen cross-section to 2x3.7m lane with 2x2.5m surfaced shoulders, 2x0.45m semi mountable kerb channels and 2x1.8m paved sidewalks (area=113146m2, surfaced area=83018m2)
- Widen cross-section to dual carriageway including 4x3.7m lanes, 2x0.3m surfaced shoulders, 2x0.1m surfaced shoulders, 2x0.3m semi mountable kerb channels, 1x1.4m median island, 2x0.45m semi mountable kerb channels and 2x1.8m paved sidewalks (area=147960m2, surfaced area=104442m2)

The first option to maintain the existing cross-section is not a preferred option because it does not comply with our client's minimum standard for road cross-sections and is considered to be unsafe for the road users and pedestrians using the area adjacent to the road. The second and third option can be considered as it provides an acceptable pathway for the road users and a protected sidewalk area for the pedestrians. The third option is the preferred option in this area because of the higher volumes of traffic and the higher percentage of heavy vehicle in the traffic mix.

(ii) 8,000 to 10,000km and 13,165 to 16,525km Urban Area (Lower volume traffic)

- Maintain existing cross-section 2x3.0m lanes with 2x2.5m gravel shoulders (area=58960m^2, surfaced area=32160m^2)
- Widen cross-section to 2x3.7m lane with 2x1m surfaced shoulders, 2x0.45m semi mountable kerb channels and 2x1.8m paved sidewalks (area=74504m^2, surfaced area=50384m^2)
- Widen cross-section to 2x3.7m lane with 2x2.5m surfaced shoulders, 2x0.45m semi mountable kerb channels and 2x1.8m paved sidewalks (area=90584m^2, surfaced area=66464m^2)

The first option to maintain the existing cross-section is not a preferred option because it does not comply with our client's minimum standard for road cross-sections and is considered to be unsafe for the road users and pedestrians using the area adjacent to the road. The second and third option can be considered as it provides an acceptable pathway for the road users and a protected sidewalk area for the pedestrians. The third option is the preferred option in this area because the traffic volumes justify the use of a 2.5m paved shoulder and it will provide safer driving condition.

(iii) 10,000 to 13,165km and 16,525 to 24,512km Rural Area

- Maintain existing cross-section 2x 3.0m lanes with 2x2.5m gravel shoulders (area=122705m^2, surfaced area=66930m^2)
- Widen cross-section to 2x3.7m lane with 2x2.5m surfaced shoulders (area=138322m^2, surfaced area=138322m^2)

The first option to maintain the existing cross-section is not a preferred option because it does not comply with our client's minimum standard for road cross-sections and is considered to be unsafe for the road users and pedestrians using the area adjacent to the road. The second and option is the preferred option as it provides an acceptable pathway for the road users and a recovery area in case of an incident or a breakdown.

B Surfacing

- Surfacing km 1.305 to km 8.300 asphalt surfacing,
- Surface area 120000m2.
- Seal surface area is 220000m2.

For the urban area km 1,305 to km 10,000 an ***asphalt*** surfacing will be proposed because of the higher traffic movement and the higher volume of heavy vehicles in the traffic mix as well as the turning movement at the closely space intersection. This is a surfaced area of 107818m^2. For all other areas a ***seal*** will be proposed because the traffic volumes do not justify the additional cost for applying an asphalt surfacing. This is a surfaced area of 136413m^2.

C Bridges

Three alternatives are considered for the four bridges along the route

- Maintain existing bridge as is and do rehabilitation where required, or
- Widen existing bridge to comply with new proposed road cross-sections and/or provide structural support to replace existing parapets with standard F-shape parapets, or
- Breakdown existing bridge and construct complete new bridge structure.

Early indication in the result of the flood calculations indicate that it might be required to breakdown all the existing structures and construct new bridge structures.

D No go option

If the proposed project does not proceed as planned the status quo will remain the same and thus making it unfavourable.

For the environmental impacts assessment purposes the following alternatives will be assessed in section E below:

- Breakdown existing bridge and construct complete new bridge structure (nominated preferred alternative with regards to the bridges).
- Widen existing bridge to comply with new proposed road cross-sections and provide structural support to replace existing parapets with standard F-shape parapets (optional alternative number 2).

Commonality with the two alternatives, with respect to ***new base and new surface***

The following bullets points succinctly given an indication with regards to the anticipated procedure to be followed when the afore-mentioned is carried out;

- Traffic accommodations
- Lengthen existing box culverts
- Construction of concrete open drains including subsoil drainage
- Finishing of the road reserve
- Construction of new in and outlet structures
- Clear and grubbing at sections where widening is required
- Excavation to roadbed level
- Roadbed preparation
- Construction of widening, fill and gravel layers
- Construction of pavement layers
- Mill and replace existing distressed asphalt layers where indicated by the Engineer, e.g. over the bridges
- Undertake road marking
- Road furniture upgrade

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

3. ACTIVITY POSITION

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.

The site alternatives for the road are not considered as the proposed project is for the rehabilitation of the existing road. However the widening and construction of bridges is considered.

List alternative sites, if applicable.

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1[2] (preferred or only site alternative)	°	‘	°	‘
Alternative S2 (if any)	°	‘	°	‘
Alternative S3 (if any)	°	‘	°	‘

The below coordinates indicates the location of the four existing bridges which will be upgraded to accommodate the rehabilitation of the road.

In the case of linear activities:

Alternative:	**Latitude (S):**		**Longitude (E):**	
Bridge 1				
• Starting point of the activity	24°10’21.87”	‘	28°59’12.64”	‘
• Middle/Additional point of the activity	24°10’21.03”	‘	28°59’11.70”	‘
• End point of the activity	24°10’20.37”	‘	28°59’10.93”	‘
Bridge 2				
• Starting point of the activity	24°09’34.17”	‘	°28°58’51.21”	‘
• Middle/Additional point of the activity	24°09’33.62”	‘	°28°58’50.96”	‘

[2] “Alternative S.” refer to site alternatives.

• End point of the activity	24°09'33.17	'		°28°58'50.66"	'	

Bridge 3

• Starting point of the activity	24°08'13.14"	'		28°57'50.46"	'	
• Middle/Additional point of the activity	24°08'11.71"	'		28°57'49.65"	'	
• End point of the activity	24°08'10.62"	'		28°57'48.94"	'	

Bridge 4

• Starting point of the activity	24°07'05.70	'		28°57'55.17"	'	
• Middle/Additional point of the activity	24°07'05.70	'		28°57'55.17"	'	
• End point of the activity	24°07'05.70	'		28°57'55.17"	'	

4. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	**Size of the activity:**
Alternative A1[3] (preferred activity alternative)	The area of the road is 450000m^2
Alternative A2 (if any)	The area of the road is 390000m^2.
Alternative A3 (if any)	
or, for linear activities:	
	Length of the activity:
Alternative:	
Alternative A1 (preferred activity alternative)	The length of the road is 23200m
Alternative A2 (if any)	The length of the road is 23200m
Alternative A3 (if any)	

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

	Size of the site/servitude:
Alternative:	
Alternative A1 (preferred activity alternative)	The servitude is 980000m^2
Alternative A2 (if any)	The servitude is 980000m^2
Alternative A3 (if any)	

5. SITE ACCESS

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

Describe the type of access road planned:

N/A

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.

[3] "Alternative A.." refer to activity, process, technology or other alternatives.

6. SITE OR ROUTE PLAN

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

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;
6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
6.4 the exact position of each element of the application as well as any other structures on the site;
6.5. the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
6.6 all trees and shrubs taller than 1.8 metres;
6.7 walls and fencing including details of the height and construction material;
6.8 servitudes indicating the purpose of the servitude;
6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):

- rivers;
- 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 invested with alien species);

6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
6.11 the positions from where photographs of the site were taken.

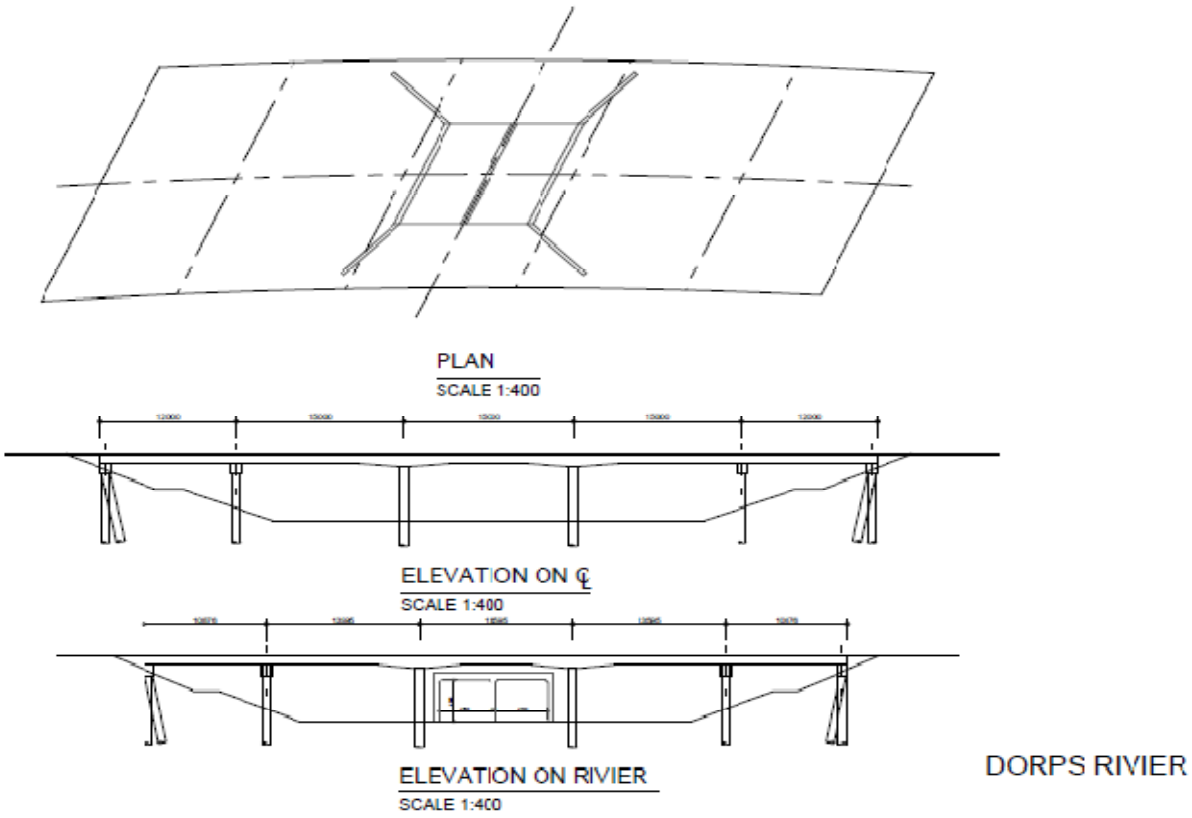
7. SITE PHOTOGRAPHS

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 form**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

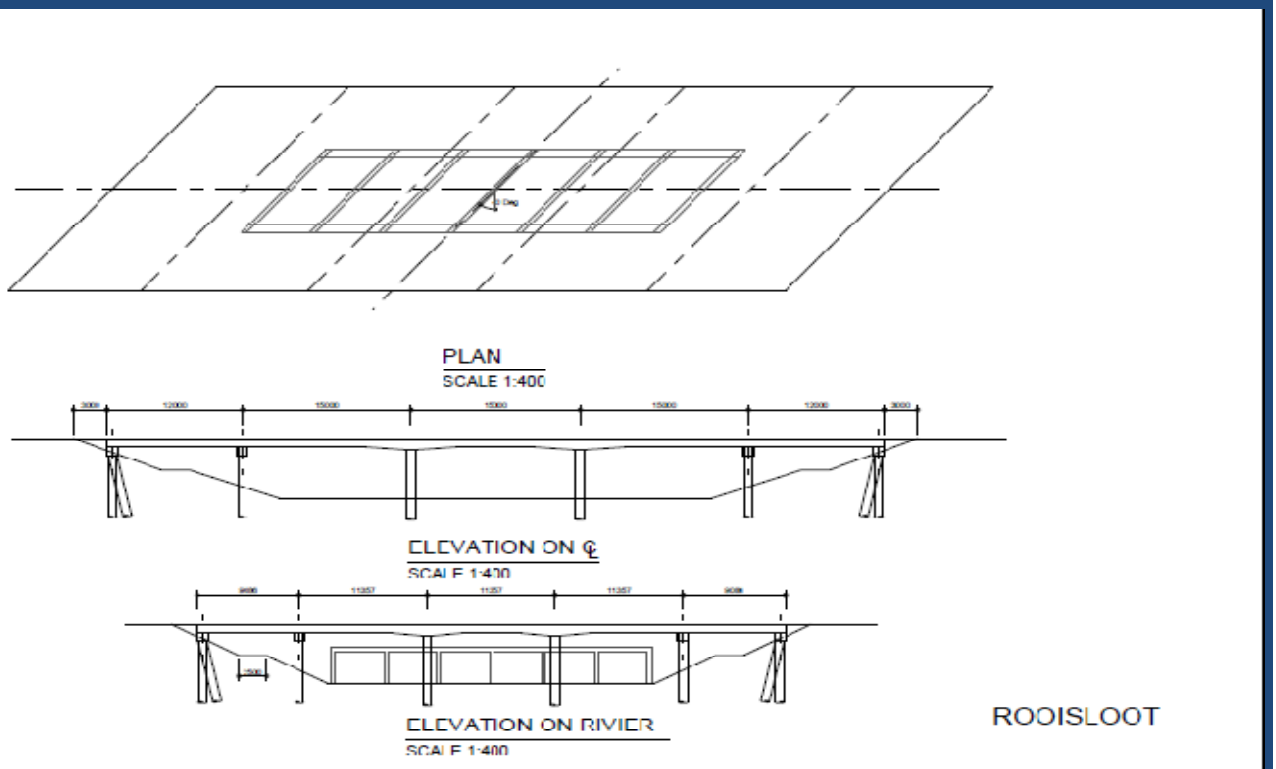
8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 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.

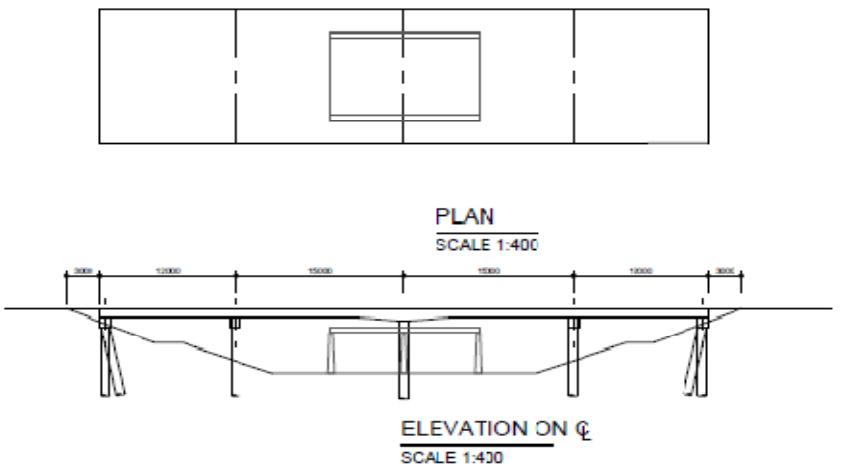
See on the next page sketches of the new proposed bridges superimposed on to sketches of the exiting bridges for the four bridges that need to be demolished and re-constructed.



Sketch No. 1: The Existing and Future Plan and Elevation for the Dorps Bridge

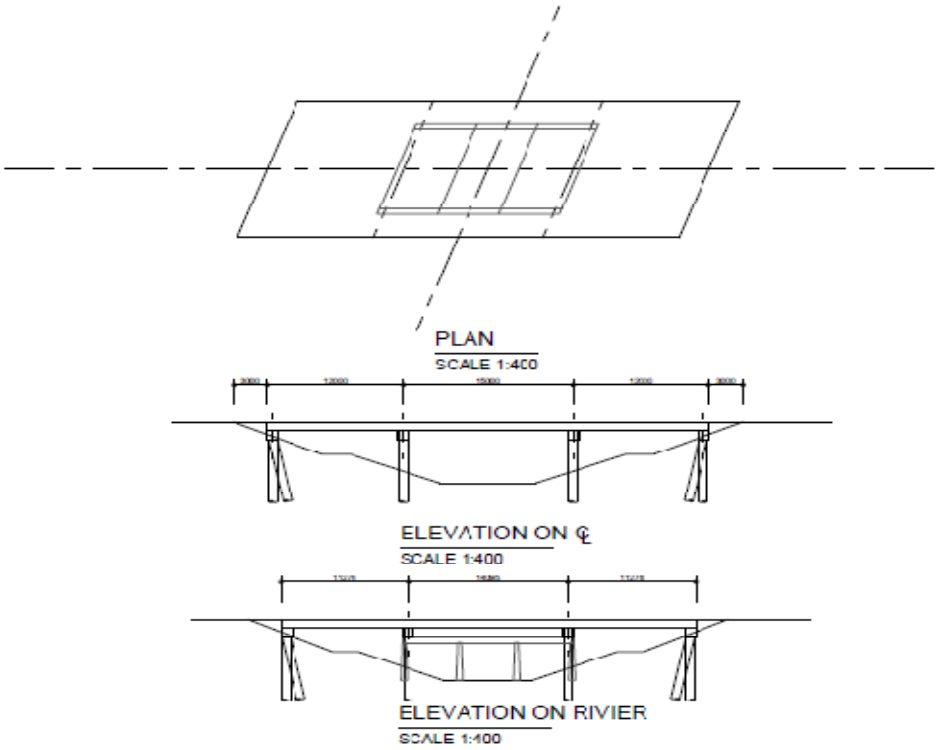


Sketch No. 2: The Existing and Future Plan and Elevation for the Rooisloot Bridge



GROOTSANDSLOOT

Sketch No. 3: The Existing and Future Plan and Elevation for the Grootsandsloot Bridge



DITHOKENG

Sketch No. 4: The Existing and Future Plan and Elevation for the Dithokeng Bridge

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 250 million
What is the expected yearly income that will be generated by or as a result of the activity?	N/A
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development phase of the activity?	3600
What is the expected value of the employment opportunities during the development phase?	R16.2 million
What percentage of this will accrue to previously disadvantaged individuals?	80%
How many permanent new employment opportunities will be created during the operational phase of the activity?	N/A
What is the expected current value of the employment opportunities during the first 10 years?	N/A
What percentage of this will accrue to previously disadvantaged individuals?	N/A

9(b) Need and desirability of the activity

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

NEED:			
1.	Was the relevant provincial planning department involved in the application?	YES	
2.	Does the proposed land use fall within the relevant provincial planning framework?	YES	
3.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		
	The South African National Road Agency SOC Limited is mandated to strategically plan, design, construct, operate, rehabilitate and maintain South Africa's National Road Network. SANRAL identified a need to rehabilitate N11 in order to meet with the current demand for road users and also enhance safety by providing additional lanes.		

DESIRABILITY:			
1.	Does the proposed land use / development fit the surrounding area?	YES	
2.	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	YES	
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YES	
4.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:		
	N/A		
5.	Will the proposed land use / development impact on the sense of place?		NO
6.	Will the proposed land use / development set a precedent?		NO
7.	Will any person's rights be affected by the proposed land use / development?		NO
8.	Will the proposed land use / development compromise the "urban edge"?		NO
9.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.		
	N/A		

BENEFITS:			
1.	Will the land use / development have any benefits for society in general?	YES	
2.	Explain:		
	The proposed road rehabilitation will assist the Mokopane town with a smooth flow of traffic and reduce the potential accidents on the road.		

3.	Will the land use / development have any benefits for the local communities where it will be located?	YES	
4.	Explain:		
	The road which is being rehabilitated is for public use and the rehabilitation will ensure that the public can use the road for access in the foreseeable future.		

10. 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:	Administering authority:	Date:
The Constitution of South Africa (Act No 108 of 1996)	National & Provincial	1996
National Environmental Management Act (Act No 107 0f 1998)	National & Provincial	1998
National Environmental Management: Waste Act (Act 59 of 2008)	National & Provincial	2008
National Conservation of Agricultural Resources Act (No 43 of 1983)	National & Provincial	1983
National Environmental Management : Air Quality Act (Act No 39 of 2004)	National & Provincial	2004
National Heritage Resources Act (No 25 of 1999)	National & Provincial	1999
National Environmental Management: Biodiversity Act (10 of 2004)	National & Provincial	2004
National Forests Act (Act no 84 of 1998)	National & Provincial	1998
National Water Act (Act No 36 of 1998)	National & Provincial	1998
Minerals and Petroleum Resources Development Act (28 of 2002)	National & Provincial	2002
National Road Traffic Act (No 93 of 1996)	National & Provincial	1996
Occupational Health and Safety Act (No 85 of 1973)	National & Provincial	1993
Hazardous Substances Act (No 15 of 1973)	National & Provincial	1973
Fertiliser, Farm Feeds, Agricultural Remedies and Stock Remedies Act (36 of 1947)		
All relevant Provincial regulations, Municipal bylaws	Provincial	

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

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

If yes, what estimated quantity will be produced per month? It is not known

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

The construction waste generated on site will be collected weekly on site and disposed of at a registered landfill site determined by the contractor.

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

Construction solid waste will be disposed at a registered landfill site determined by the contractor.

Will the activity produce solid waste during its operational phase? NO

If yes, what estimated quantity will be produced per month? N/A

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

N/A

Where will the solid waste be disposed 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 relevant legislation? NO

If yes, inform the competent authority and request a change to an application for scoping and EIA.

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

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

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	NO
If yes, what estimated quantity will be produced per month?	N/A
Will the activity produce any effluent that will be treated and/or disposed of on site?	NO

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

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

If yes, provide the particulars of the facility:

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

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

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES
If yes, is it controlled by any legislation of any sphere of government?	NO

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

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

During the construction phase, dust and vehicular emissions will be released as a result of earth moving machinery and trucks transporting construction material. The emissions will however have short term impacts on the immediate surrounding areas and thus the authorisation of such emissions will not be required.

11(d) Generation of noise

Will the activity generate noise?	YES
If yes, is it controlled by any legislation of any sphere of government?	NO

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

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

The movements of construction trucks, machinery and other construction activities will generate noise on site and surrounding communities. However the noise will be of short term, localised and will last during the construction activities/phase of the project. The noise level is anticipated to be less than 50dBA as required by SANS 10103 and thus authorisation will not be required for the noise.

12. WATER USE

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

Municipal	water board	groundwater	river, stream, dam or lake	other	the activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Does the activity require a water use permit from the Department of Water Affairs? YES

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

A Water Use Licence will be required for impeding and diverting the watercourses during the upgrade of four bridges located along section 13 of N11. The Department of Water Affairs has been consulted with in a form of a site visit, however the consultation with the authorities will continue through out the project process and a Water Use Licence Application (WULA) will be also be submitted to the Department of Water Affairs in the Polokwane Region for approval prior to the construction process of the project.

13 ENERGY EFFICIENCY

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

The contractor will be advised to transport all construction materials on site at the same time where possible and the collection of waste material conducted simultaneous with other activities to reduce the amount fuel usage for such transportation.

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

Diesel engines will be utilised on site instead of electricity for construction purposes.

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 C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A): **1**

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

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

Property description/physical address:

Vaal kop 819LR; Sandsloot 236KR; Bultongfontein 239KR; Rietfontein 240KR, Turfspruit 241 KR; Macalacaskop 243KR.

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

N/A

In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.

Current land-use zoning:

Residential and Agriculture

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?	NO
Must a building plan be submitted to the local authority?	NO

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 indication of the project site position as well as the positions of the alternative sites, if any;
- 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)

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1: (Bridges 1 site)

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S1: (Bridge 2 site)

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S1: (Bridge 3 site):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S1: (Bridge 4 site):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

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

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Bridge 1		Bridge 2		Bridge 3		Bridge4	
Shallow water table (less than 1.5m deep)	YES		YES			NO	YES	
Dolomite, sinkhole or doline areas		NO		NO		NO		NO
Seasonally wet soils (often close to water bodies)	YES		YES		YES		YES	

Unstable rocky slopes or steep slopes with loose soil		NO		NO		NO		NO
Dispersive soils (soils that dissolve in water)		NO		NO		NO		NO
Soils with high clay content (clay fraction more than 40%)		NO		NO		NO		NO
Any other unstable soil or geological feature		NO		NO		NO		NO
An area sensitive to erosion		NO		NO		NO		NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

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

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.

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that does 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:

5.1 Natural area
5.2 Low density residential
5.3 Medium density residential
5.4 High density residential
5.5 Informal residential[A]
5.6 Retail commercial & warehousing
5.7 Light industrial
5.8 Medium industrial [AN]
5.9 Heavy industrial [AN]
5.10 Power station
5.11 Office/consulting room
5.12 Military or police base/station/compound
5.13 Spoil heap or slimes dam[A]
5.14 Quarry, sand or borrow pit
5.15 Dam or reservoir
5.16 Hospital/medical centre
5.17 School
5.18 Tertiary education facility
5.19 Church
5.20 Old age home
5.21 Sewage treatment plant[A]
5.22 Train station or shunting yard [N]

5.23 Railway line [N]
5.24 Major road (4 lanes or more) [N]
5.25 Airport [N]
5.26 Harbour
5.27 Sport facilities
5.28 Golf course
5.29 Polo fields
5.30 Filling station [H]
5.31 Landfill or waste treatment site
5.32 Plantation
5.33 Agriculture
5.34 River, stream or wetland
5.35 Nature conservation area
5.36 Mountain, koppie or ridge
5.37 Museum
5.38 Historical building
5.39 Protected Area
5.40 Graveyard
5.41 Archaeological site
5.42 Other land uses (describe)

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

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

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity.
If YES, specify and explain:
If YES, specify:

6. 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 palaeontological sites, on or close (within 20m) to the site?	YES	[redacted]
If YES, explain:	During the survey, the following sites features and objects of cultural significance have been identified to occur within the boundaries of the study area namely, Cemeteries, Infrastructure and Industrial heritage.	

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

Briefly explain the findings of the specialist:	According to Dr J van Schalkwyk a heritage specialist, large village cemetery was identified to occur in close proximity to the N11 and four bridges dating to the early 1950s and would therefore soon have a general protection under the Heritage Act.	
Will any building or structure older than 60 years be affected in any way?	YES	[redacted]
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	[redacted]

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

It is recommended that SANRAL prior to the construction process lodges a permit application to SAHRA for the demolition of the existing bridges that occur along section 13 of N11.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

(a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  (i) the site where the activity to which the application relates is or is to be undertaken; and
  (ii) any alternative site mentioned in the application;

(b) giving written notice to—
  (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  (v) the municipality which has jurisdiction in the area;
  (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  (vii) any other party as required by the competent authority;

(c) placing an advertisement in—
  (i) one local newspaper; or
  (ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;

(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in subregulation 54(c)(ii); and

(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  (i) illiteracy;
  (ii) disability; or
  (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and
(b) state—
(i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
(ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;

(iii) the nature and location of the activity to which the application relates;

(iv) where further information on the application or activity can be obtained; and

(iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application 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 this application. The comments and response report must be attached under Appendix E.

6. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

List of authorities informed:

- Limpopo Department of Economic Development ,Environment and Tourism
- Department of Water Affairs
- Tribal authority
- Municipal authorities.

List of authorities from whom comments have been received:

- Limpopo Department of Economic Development, Environment and Tourism
- Department of Water Affairs
- Tribal authorities
- Municipal authorities

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation 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.

Has any comment been received from stakeholders? [redacted] No

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

There are no comments received thus far, however all comments will be included in the final Basic Assessment Report once received.

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. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

Issues and comments provided by interested and affected parties will be included in the final report.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as Annexure E):

Responses to the issues raised by interested and affected parties will be included in the final report.

2.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

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) 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.

The following parameters are used to describe the impact/issues in this assessment:

(i) The risk or likelihood of the impact/issue occurring; and
(ii) The degree of confidence placed in the assessment of the impact/issue

Please note that the rating number is provided in brackets next to the scale interval. Negative impacts are minus (-) values and positive impacts are plus (+) values. Higher negative valued impacts are more detrimental than lower negative valued impacts.

1. Temporal Scale

The temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.

- **Short Term (1)** – less than 5 years.
- **Medium Term (2)** – between 5 and 15 years.
- **Long Term (3)** – between 15 and 30 years.
- **Permanent (4)** – over 30 years and resulting in a permanent and lasting change that will always be there.

2. Spatial Scale

The spatial scale defines physical extent of the impact.

- **Individual (0)** – this scale applies to person/s in the area.

- **Household (1)** – this scale applies to households in the area.
- **Localised (2)** – small scale impacts from a few hectares in extent e.g. local district area.
- **Regional (3)** – the scale applies to impacts on a provincial level.
- **National (4)** – the scale applies to impacts that will affect the whole South Africa.
- **International (5)** – the scale of the impact will extend beyond the borders of South Africa.

3. Significance Scale

- **Very High (4)**

The impacts would be considered by society as constituting a major and usually permanent change to the environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects.

- **High (3)**

These impacts will usually result in long-term effects on social and/or natural environment. Impacts rated as *High* will need to be considered by society as constituting an important and usually long term change to the environment, Society would probably view these impacts in a serious light.

- **Moderate (2)**

These impacts will usually result in medium to long-term effects on the social and/or natural environment. Impacts rated as *Moderate* will need to be considered by society as constituting a fairly important and usually medium-term change to the environment, These impacts are real but not substantial.

- **Low (1)**

These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as *Low* will need to be considered by the public and/or the specialist as constituting a fairly unimportant and usually short term change to the environment. These impacts are not substantial and are likely to have little real effect.

- **Non Significant (0)**

There are no primary or secondary effects at all that are important to scientists or the public.

4. Risk or likelihood

The risk or likelihood of all impacts taking place as a result of project actions differs. Although these impacts may be severe, the likelihood of them occurring may affect their overall significance and will be taken into account.

- **Very unlikely to occur (1)** – the chance of these impacts occurring is extremely slim.
- **Unlikely to occur (2)** – the risk of these impacts occurring is slight.
- **May occur (3)** – the risk of these impacts is more likely, although not definite.
- **Will definitely occur (4)** –this impact will occur.

5. Degree of confidence or certainty

It is also necessary to state the degree of certainty or confidence with which one has predicted the significance of an impact. For this reason, a 'degree of certainty' scale has been provided to enable the reader to ascertain how certain we are of our assessment of significance:

- Definite – More than 90% sure of a particular fact. The use this one will need to have substantial supportive data.
- Probable – Over 70% sure of a particular fact, or of the likelihood of that impact occurring.
- Possible – Only over 40% sure of a particular fact or of the likelihood of an impact occurring.
- Unsure – Less than 40% sure of a particular fact or the likelihood of an impact occurring.

2.1 IMPACTS THAT MAY RESULT FROM THE, CONSTRUCTION PHASE

Alternative 1 (preferred alternative) Breakdown existing bridge and construct new bridge structure			
Potential impacts: Construction Phase	**Significant rating of impacts**	**Proposed Mitigation Measures**	**Significant rating of impacts after mitigation**
General construction impacts	**Collective Rating= 10**		**Collective Rating= 7**
• Movements of trucks delivering construction material, and other construction activities will constitute the main impacts during the construction phase. • Extraction of construction material on Borrowpits located along N11 and R101 will results in aesthetic/visual impacts and air quality impacts. • The demolition of old bridges will results in dust, old metal steel material and concrete rubble.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** High (3) **Likelihood:** Definitely (4) **Certainty:** Probable	• Dust suppression measures need to be implemented on site when necessary to reduce the dust impacts. Waste managed accordingly and collected regularly to prevent accumulation on site. Oil spillages must be minimised on site and should there be accidental spillage it need to be disposed of accordingly. Chemical sanitary facilities need to be provided to workers and serviced weekly. Where possible noise need to be minimised by conducting construction activities between 07H00-17H00. The construction site including Borrowpits should be barricaded all the time to prevent unauthorised access from the public. • Vegetation should be cleared in a phased manner to prevent exposure of soil which may result in erosion and siltation of nearby streams. • It is also recommended that concrete rubble and metal steel from demolition of bridges be recycled where possible and if not be disposed in a registered landfill site.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** May occur (3) **Certainty:** Possible
Ecological Impacts			
• During the construction period there may be an increase in run-off which is associated with greater surface area of denuded vegetation and compaction of soil resulting in infiltration reduction.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** High (3) **Likelihood:** May occur (3) **Certainty:** Probable	• Structures such as culverts, drains and erosion protection mechanism should consider existing drainage channels, development in flood-prone areas (e.g. 1:50 year floodline) and the depth of the water table.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating=9		**Rating=7**

• The excavation of soil, stockpiling and use of materials associated with construction activities may reduce the quality of the surface water near the sites.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** High (3) **Likelihood:** Definitely (4) **Certainty:** Probable	• Refurbishment, repair and servicing of equipment should be performed 50 meters away from surface water on oil trays or sealed surfaces to prevent contamination of soil and run-off.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating=10		**Rating =7**
• It is not foreseen that the construction activities and excavation at the borrowpit will have significant impacts on groundwater quality.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** Unlikely (2) **Certainty:** Possible	• During the construction phase, special care should be taken not to damage seepage areas adjacent to water courses.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (2) **Certainty:** Possible
	Rating=7		**Rating =6**
• Impacts on vegetation species are minimised due to the proposed project being situated within current reserve and Borrowpits being degraded. • A protected Marula (Sclerocarya birrea subsp.Caffra) tree was observed within the road reserve and borowpit 5. Should there be a requirement to remove these species a permit need to be obtained from the Department Agriculture, Forestry and Fisheries.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** Unlikely (2) **Certainty:** Possible	• Vegetation clearance should be minimised during construction to mitigate against erosion, dust and unnecessary destruction of species. • Large aloes, geophytes and bulbous plants in the affected areas should be removed and replanted in suitable habitat. • No trees shall be felled for fuel purposes and disturbed outside the road reserve and borrowpit areas during the construction period.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (2) **Certainty:** Possible
	Rating=7		**Rating =6**
• The conversion of transformed Bushveld/grassland will impact on the smaller sedentary species (insects, arachnids, reptiles, amphibians and mammals) adapted to their terrestrial habitats. • Children and animals may fall into trenches if not barricaded.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** High (3) **Likelihood:** May occur (3) **Certainty:** Possible	• Construction workers should be restricted to the construction areas and prohibited from entering natural areas. • No animals or other species should be harmed unnecessarily through the duration of the project. • Trenches should be barricaded appropriately all the time to prevent access of animals and unauthorised people in the construction site. The edges surrounding the Borrowpits should	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (2) **Certainty:** Possible

		be gentle sloped preventing possible drowning of animals, livestock and children.	
	Collective Rating=9		**Rating=6**
Heritage Impacts			
• One large village cemetery was identified to occur in close proximity to the N11.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible	• This site borders on the road reserve, but on the outside. It therefore would not be impacted on. However, care should be taken to avoid the site when construction takes place.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (1) **Certainty:** Possible
	Rating 8		**Rating =5**
• Four bridges were identified along the section of the N11 road that is to be upgraded. The bridges date to the early 1950s and would soon have general protection under the Heritage Act.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible	• It is recommended that all the bridges be documented by Heritage Specialist before they are upgraded.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** Unlikely (1) **Certainty:** Possible
	Rating =8		**Rating=6**
Social Impacts			
• Section 13 of N11 which is proposed to be upgraded is located between residential and commercial land uses. The rehabilitation activities will impact the residential houses as they have encroached on the SANRAL servitude.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** high (3) **Likelihood:** Definitely (4) **Certainty:** Possible	• It is recommended that SANRAL and the appointed contractor liaise with the Chief and affected residents to resolve the encroachment issue.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating =10		**Rating =8**
Wetland Impacts			
• Loss of wetland habitat and bed/bank of fresh water system modification due to construction activities.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** high (3) **Likelihood:** May occur (3)	• A buffer zone of at least 20m should be adopted for all activities that are not compulsory within the riparian zone and a buffer of at least 50m should be adopted for rehabilitation within the impact footprint.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** May occur (3)

	Certainty: Possible		**Certainty:** Possible
	Rating =9		**Rating=7**
• Stormwater quality impairment (sedimentation and construction related effluent)	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible	• Runoff should be prevented from directly entering the wetlands and associated water features. Wetland buffer should be maintained to reduce the impact of runoff from the developed site's activities after the construction phase of the project.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating=8		**Rating=7**
• Loss of terrestrial and wetland biodiversity.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible	• Heavy construction vehicles should be not be utilised in the proximity of the wetland where possible. All alien vegetation should be cleared within the construction servitude.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating= 8		**Rating=8**
Cumulative Impacts			
(i) *Parent material:* The primary material from which the soil is formed. Soil parent material could be bedrock, organic material, an old soil surface, or a deposit from water, wind, glaciers, volcanoes, or material moving down a slope. (ii) *climate:* Weathering forces such as heat, rain, ice, snow, wind, sunshine, and other environmental forces, break down parent material and affect how fast or slow soil formation processes go. (iii) *Organisms:* All plants and animals living in or on the soil (including micro-	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible	• Provided the mitigation measures are followed during construction, the cumulative effect of the impacts is expected to be very low to insignificant. The cumulative impacts with regards to landscape aspects during the construction phase are anticipated to be of a low significance as the site happens to be far from the sensitive noise receptors such as residential houses.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible

organisms and humans!). The amount of water and nutrients, plants need affects the way soil forms. The way humans use soils affects soil formation. Also, animals living in the soil affect decomposition of waste materials and how soil materials will be moved around in the soil profile. On the soil surface remains of dead plants and animals are worked by microorganisms and eventually become organic matter that is incorporated into the soil and enriches the soil. (iv) *Topography:* The location of a soil on a landscape can affect how the climatic processes impact it. Soils at the bottom of a hill will get more water than soils on the slopes, and soils on the slopes that directly face the sun will be drier than soils on slopes that do not. Also, mineral accumulations, plant nutrients, type of vegetation, vegetation growth, erosion, and water drainage are dependent on topographic relief. (v) *Time:* All of the above factors assert themselves over time, often hundreds or thousands of years. Soil profiles continually change from weakly developed to well developed over time.			
	Collective Rating=8		**Collective Rating=8**

Alternative 2: Widen existing bridge to comply with new proposed road cross-sections and provide structural support to replace existing parapets with standard F-shape parapets.			
Potential impacts: Construction Phase	**Significant rating of impacts**	**Proposed Mitigation Measures**	**Significant rating of impacts after mitigation**
General construction impacts	**Rating =11**		**Rating =8**
• Movements of trucks delivering construction material, and other construction activities will constitute the main impacts during the construction phase. • Extraction of construction material on Borrowpits located along N11 and R101 will results in aesthetic/visual impacts and air quality impacts.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Very High (4) **Likelihood:** Definitely (4) **Certainty:** Probably	• Dust suppression measures need to be implemented on site when necessary to reduce the dust impacts. Waste managed accordingly and collected regularly to prevent accumulation on site. Oil spillages must be minimised on site and should there be accidental spillage it need to be disposed of accordingly. Chemical sanitary facilities need to be provided to workers and serviced weekly. Where possible noise need to be minimised by conducting construction activities between 07H00-17H00. The construction site including Borrowpits should be barricaded all the time to prevent unauthorised access from the public. • Vegetation should be cleared in a phased manner to prevent exposure of soil which may result in erosion and siltation of nearby streams.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible
Ecological Impacts			
• During the construction period there may be an increase in run-off which is associated with greater surface area of denuded vegetation and compaction of soil resulting in infiltration reduction.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Very high (4) **Likelihood:** Definitely (4) **Certainty:** Possible	• Structures such as culverts, drains and erosion protection mechanism should consider existing drainage channels, development in flood-prone areas (e.g. 1:50 year floodline) and the depth of the water table.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating=11		**Rating =8**
• The excavation of soil, stockpiling and use of materials associated with construction activities may reduce the quality of the surface water near the sites.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** high (3) **Likelihood:** Definitely (4)	• Refurbishment, repair and servicing of equipment should be performed 50 meters away from surface water on oil trays or sealed surfaces to prevent contamination of soil and run-off.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3)

	Certainty: Possible		**Certainty:** Possible
	Rating=10		**Rating=8**
• It is not foreseen that the construction activities and excavation at the borrowpit will have significant impacts on groundwater quality.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible	• During the construction phase, special care should be taken not to damage seepage areas adjacent to water courses.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (2) **Certainty:** Possible
	Rating=8		**Rating =6**
• Impacts on vegetation species are minimised due to the proposed project being situated within current reserve and Borrowpits being degraded. • A protected Marula (Sclerocarya birrea subsp.Caffra) tree was observed within the road reserve and borrowpit 5. Should there be a requirement to remove these species a permit need to be obtained from the Department of Forestry.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible	• Vegetation clearance should be minimised during construction to mitigate against erosion, dust and unnecessary destruction of species. • Large aloes, geophytes and bulbous plants in the affected areas should be removed and replanted in suitable habitat. • No trees shall be felled for fuel purposes and disturbed outside the road reserve and borrowpit areas during the construction period.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate(2) **Likelihood:** Unlikely (2) **Certainty:** Possible
	Rating=8		**Rating= 7**
• The conversion of transformed Bushveld/grassland will impact on the smaller sedentary species (insects, arachnids, reptiles, amphibians and mammals) adapted to their terrestrial habitats. • Children and animals may fall into trenches if not barricaded.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** high (3) **Likelihood:** May occur (3) **Certainty:** Probably	• Construction workers should be restricted to the construction areas and prohibited from entering natural areas. • No animals or other species should be harmed unnecessary through the duration of the project. • Trenches should be barricaded appropriately all the time to prevent access of animals and unauthorised people in the construction site. The edges surrounding the Borrowpits should be gentle sloped preventing possible drowning of animals, livestock and children.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate(2) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating=9		**Rating=8**

Heritage Impacts			
• One large village cemetery was identified to occur in close proximity to the N11.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Probably	• This site borders on the road reserve, but on the outside. It therefore would not be impacted on. However, care should be taken to avoid the site when construction takes place.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** May occur (3) **Certainty:** Probably
	Rating=8		**Rating=7**
• Four bridges were identified along the section of the N11 road that is to be upgraded. The bridges date to the early 1950s and would soon have general protection under the Heritage Act.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Probably	• It is recommended that all the bridges be documented by Heritage Specialist before they are upgraded.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating=8		**Rating =7**
Social Impacts			
• Section 13 of N11 which is proposed to be upgraded is located between residential and commercial land uses. The rehabilitation activities will impact the residential houses as they have encroached on the SANRAL servitude.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** high (3) **Likelihood:** May occur (3) **Certainty:** Probably	It is recommended that SANRAL and the appointed contractor liaise with the Chief and affected residents to resolve the encroachment issue.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating=9		**Rating=8**
Wetland Impacts			
• Loss of wetland habitat and bed/bank of fresh water system modification due to construction activities.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** high (3) **Likelihood:** May occur (3) **Certainty:** Probably	A buffer zone of at least 20m should be adopted for all activities that are not compulsory within the riparian zone and a buffer of at least 50m should be adopted for rehabilitation within the impact footprint.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (1) **Certainty:** Possible
	Rating=9		**Rating=5**

• Stormwater quality impairment (sedimentation and construction related effluent)	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** high (3) **Likelihood:** May occur (3) **Certainty:** Probably	Runoff should be prevented from directly entering the wetlands and associated water features. Wetland buffer should be maintained to reduce the impact of runoff from the developed site's activities after the construction phase of the project.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible
	Rating=9		**Rating=8**
• Loss of terrestrial and wetland biodiversity.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** high (3) **Likelihood:** May occur (3) **Certainty:** Probably	Heavy construction vehicles should be not be utilised in the proximity of the wetland where possible. All alien vegetation should be cleared within the construction servitude.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low(1) **Likelihood:** May occur (3) **Certainty:** Probably
	Rating =9		**Rating=7**
Cumulative Impacts			
(vi) *Parent material:* The primary material from which the soil is formed. Soil parent material could be bedrock, organic material, an old soil surface, or a deposit from water, wind, glaciers, volcanoes, or material moving down a slope. (vii) *climate:* Weathering forces such as heat, rain, ice, snow, wind, sunshine, and other environmental forces, break down parent material and affect how fast or slow soil formation processes go. (viii) *Organisms:* All plants and animals living in or on the soil (including micro-organisms and humans!). The amount of water and nutrients, plants need affects the way soil forms. The way	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible	• Provided the mitigation measures are followed during construction, the cumulative effect of the impacts is expected to be very low to insignificant. The cumulative impacts with regards to landscape aspects during the construction phase are anticipated to be of a low significance as the site happens to be far from the sensitive noise receptors such as residential houses.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Possible

humans use soils affects soil formation. Also, animals living in the soil affect decomposition of waste materials and how soil materials will be moved around in the soil profile. On the soil surface remains of dead plants and animals are worked by microorganisms and eventually become organic matter that is incorporated into the soil and enriches the soil. (ix) *Topography:* The location of a soil on a landscape can affect how the climatic processes impact it. Soils at the bottom of a hill will get more water than soils on the slopes, and soils on the slopes that directly face the sun will be drier than soils on slopes that do not. Also, mineral accumulations, plant nutrients, type of vegetation, vegetation growth, erosion, and water drainage are dependent on topographic relief. (x) *Time:* All of the above factors assert themselves over time, often hundreds or thousands of years. Soil profiles continually change from weakly developed to well develop over time.			
	Collective Rating=8		**Collective Rating=8**

SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO EACH ALTERNATIVE DURING THE CONSTRUCTION PHASE

Impact	Alternative 1 (without mitigation measure)	Alternative 1 (with mitigation measure)	Alternative 2 (without mitigation measure)	Alternative 2 (with mitigation measure)
Construction activities	10	7	11	8
Ecology	8.4	6.6	9.2	7.4
Heritage	8	5.5	8	7
Social	10	8	9	8
Wetland	8.3	7.3	9	6.6
Cumulative	8	8	8	8
Total average	52.7	42.4	54.2	45

2.2 IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

Alternative 1(Preferred) Breakdown existing bridge and construct new bridge structure			
Potential Impacts: Operational Phase	**Significant rating of impacts**	**Proposed Mitigation Measures**	**Significant rating of impacts after mitigation**
Ecological Impacts			
• The upgrade of the road will have negligible impacts on surface water quality. The Borrowpits will result in positive impacts in the surrounding area. After completion of mining activities the Borrowpits will act as reservoirs for surrounding runoff.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (1) **Certainty:** Possible	• Erosion preventative mechanisms and natural succession of vegetation must be implemented around Borrowpits.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** low (1) **Likelihood:** Unlikely (1) **Certainty:** Possible
	Rating=5		**Rating=5**
• Constant overgrazing by livestock will result in massive erosion of surrounding soils, siltation and sedimentation of dammed water.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate (2) **Likelihood:** May occur (3) **Certainty:** Probably	• Stormwater runoff should be channelled through natural grasses and sedges surrounding the Borrowpits. Borrowpits could act as sediment trap reducing sedimentation in surrounding seasonal tributaries.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (2) **Certainty:** Possible
	Rating=8		**Rating=6**
Borrowpits & Rehabilitation			

• Borrowpits and construction sites affected should be rehabilitated accordingly as soon as construction activities are completed to avoid indirect impacts.	Not Applicable	Not Applicable	Not Applicable
Social Impacts			
• Encroachment to the servitude by residents.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** high (3) **Likelihood:** May occur (3) **Certainty:** Probably	• Buffer zones need to be created, residents and municipal authorities be sensitised about the encroachment.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (2) **Certainty:** Probably
	Rating=9		**Rating=6**
Road Maintenance Impacts			
• Disturbance of vegetation, water resources and surrounding environments.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Moderate(2) **Likelihood:** May occur (3) **Certainty:** Probably	• It is recommended that care be taken during the maintenance of the road not disturb the vegetation, water resources and other environmental features on site.	**Temporal:** Short-term (1) **Spatial:** Localised (2) **Significance:** Low (1) **Likelihood:** Unlikely (2) **Certainty:** Probably
	Rating=8		**Rating=6**
Cumulative Impacts			
None			

SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO THE PREFERRED ALTERNATIVE DURING THE OPERATIONAL PHASE

Impact	Alternative 1 (without mitigation measures)	Alternative 1(with mitigation measures)
Ecology	6.5	5.5
Borrowpits and Rehabilitation	Not Applicable	Not Applicable
Social	9	6
Road Maintenance	8	6
Cumulative Impacts	9	8
Total Average	32.5	25.5

3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative 1 (preferred alternative) - Breakdown existing bridge and construct complete new bridge structure (nominated preferred alternative with regards to the bridges).

Alternative 1 consists of the demolition of old bridges and re-constructing new ones within the same footprint to accommodate the road upgrade. From an environmental perspective and with the consideration of existing impacts, we are of the view that the nominated preferred alternative will, thus result in medium to low impacts. The impact assessment table scale included in the above section also indicated that this nominated preferred alternative has less impacts compared to option 2 hereunder. However, care should still be taken to ascertain that the impacts identified even though they might be medium to low, do not become increased in significance due to the contractor's non-conformance to the recommended mitigation measures contained in this report and the Environmental Management Programme which will accompany this document.

Alternative 2 - Widen existing bridge to comply with new proposed road cross-sections and provide structural support to replace existing parapets with standard F-shape parapets (optional alternative number 2).

This alternative is the least preferred option from the environmental and engineering technology perspective. The following briefly give explanatory notes in that regard:

Environmental perspective

Option 2 is unfavourable when compared with the nominated preferred alternative, owing to the fact that the anticipated potential impacts far exceed those of the preferred alternative. Reference can be made to the rating tables above.

Engineering technology perspective

Option 2 fails to address the objective of supplying a road surface with a certain serviceability standard. This serviceability standard typically includes aspects such as road condition, capacity, costs incurred with respect to short-lived maintenance and safety of the road.

No-go alternative (compulsory)

The current status of the road poses a safety risk and does not accommodate the traffic volumes between the Mokopane town and the villages located towards the north west of the town. The status quo is therefore not preferred.

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 [redacted]

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:

The findings of the specialist studies undertaken within the Basic Assessment provide assessment of both benefits and potential negative impacts anticipated as the results of the proposed project. The findings conclude that there are no environmental fatal flaws that should prevent the proposed from proceeding , provided that the mitigation measures contained within this report and the Environmental Management Programme are implemented throughout the project lifecycle.

Is an EMPr attached?	YES [redacted]

The EMPr must be attached as Appendix F.

APPENDICES

Appendix A: Site Plans

Appendix B: Photographs

Appendix C: Facility Illustration

Appendix D: Specialist Reports

Appendix E: Public Participation Documents

Appendix F: Environmental Management Programme