DRAFT BASIC ASSESSMENT REPORT

DEA REFERENCE: 14/12/16/3/3/1/1412

THE WIDENING OF STRUCTURES ON NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 0.0) TO UPINGTON (KM 115.53)

Prepared for the South African National Roads Agency Soc Limited

May 2015



P O Box 11788 · Silver Lakes · 0054 · 15 Els St · Silver Lakes · Pretoria · Tel: 082 571 6920
082 452 1928 · 012 809 1704 · Fax: 086 6855 080 · ce.j@mwebbiz.co.za · ce.pc@mwebbiz.co.za
cc 2006/147146/23 · Members: J Bothma, P C Bothma

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.

15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

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

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

1. PROJECT DESCRIPTION

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

This project is situated on National Road 10, Sections 11 between the towns of Groblershoop and Upington.

The project will entail the widening of the following bridges and culverts:

STRUCTURE NUMBER	**NAME**	**CHAINAGE (KM)**	
N010-11N-IDB0145	Elmboogsloot River Bridge	34.99	35.005
N010-11N-B1017	Matjies River Bridge	93.25	93.280
N010-11N-B1018	Gifkloof River Bridge	96.63	96.659
N010-11N-B1013	Swartkopsleegte River Bridge	66.18	66.202
N010-11N-B1021	Louisvale River Bridge	112.1	112.139
CULVERT NUMBER:	**NAME**	**CHAINAGE (KM)**	
N010-11N-C1130	Boegoeberg Stream	61.9	61.908
N010-11N-C1147	Vaalkoppies Stream 1	107.75	107.757
N010-11N-C1150	Louisvale Stream 1	113.3	113.308
N010-11N-C1148	Vaalkoppies Stream 2	108.6	108.603
N010-11N-C1149	Vaalkoppies Stream 3	109.95	109.952

The current 10 structures are all in the region between 8.0- and 9.0 m wide and do not comply with the required abnormal load width requirements of 12.4m. The purpose of this project is to widen the structure to a cross section with of 12.4m that will enable safely and securely accommodate the current traffic and future abnormal loads. The current envisaged scope of work will include the following:

- Break down and remove current bridge balustrades and a portion of the decking.
- Excavate pier and abutment foundations in river bed.
- Extend piers and abutment walls by 1.8m-2.2m on both sides
- Widen existing concrete decks by 1.8m - 2.2m.
- New asphalt to bridge approaches and decks.
- Clearing of riverbed.
- Reshaping of riverbed.
- Installation of erosion protection.
- Concrete batching and mixing may be required on site.

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

Listed activity as described in GN 734, 735 and 736	Description of project activity
Example: ***GN 734 Item xx xx): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.***	***A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river***
GN R. 983, Item 19: The infilling or depositing of any material of more than 5 cubic metres into, or removal or moving of soil from a: (i) A watercourse.	Material of more than 5m^3 will be excavated from a water course.

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should

be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives – There is only one site alternative as these are existing infrastructure

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Culvert C1130 at Boegoeberg river at km 61.90	28°28'59.00"S	21°41'14.10"E
Culvert C1147 at Vaalkoppies river at km 107.75	28°27'2.56"S	21°18'42.76"E
Culvert C1148 at Vaalkoppies river at km 108.60	28°27'11.05"S	21°18'12.97"E
Culvert C1149 at Vaalkoppies river at km 109.95	28°27'26.61"S	21°17'25.12"E
Culvert C1150 at Louisvale river at km 113.30	28°28'36.23"S	21°16'12.48"E
Bridge B0145 at Elmboogsloot river at km 34.99	28°40'17.08"S	21°47'40.87"E
Bridge B1018 at Gifkloof river at km 96.63	28°27'23.00"S	21°24'31.00"E
Bridge B1021 at Louisvale river at km 112.10	28°28'18.26"S	21°16'43.65"E
Bridge B1017 at Matjies River at km 93.25	28°26'16.89"S	21°26'06.31"E
Bridge B1013 at Swartkopsleegte river at km 66.18	28°26'32.34"S	21°39'44.63"E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
None		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
None		

In the case of linear activities: NOT APPLICABLE

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

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

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

b) Lay-out alternatives - NONE

c) Technology alternatives - NONE

d) Other alternatives - DESIGN ALTERNATIVES

Alternative 1 (preferred alternative)
Replace Existing Decks with Continuous Deck
Alternative 2
Add Concrete Overlay to Top of Decks
Alternative 3
None

e) No-go alternative

Should the widening of the bridges and culverts not be undertaken, the traffic on the N10 could experience increasingly unsafe driving conditions. Investigations and analyses of bridge data of the bridges indicate that the bridge decks have several transverse cracks at the soffit, with void formers having floated resulting in the bottom reinforcing being in the wrong position. The parapets are out-dated and their steel top rail is missing.

The proposed widening of the bridges and culverts is therefore necessary to ensure the safety of the traveling public. This will also accommodate the predicted increase in traffic volume and avoid high driver frustration.

The volume of heavy vehicles is expected to increase significantly over the next 20 years. Traffic volumes and design principals determine that the bridge structures of the road need to be maintained to ensure the safety of the traveling public. If this is not done, the bridges could pose a severe safety hazard to the traveling public in future.

Indirect impacts:
Possible traffic accidents as a result of poor driving conditions.
Possible injury and death of travelling public.

Cumulative impacts:
High health care costs as a result of traffic accidents.

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

The information pertaining to 3-13 is similar for both alternatives.

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	Culvert C1130: 106.6 m^2 Culvert C1147: 76.5 m^2 Culvert C1148: 189 m^2 Culvert C1149: 119 m^2 Culvert C1150: 76.5 m^2 Bridge B0145: 145.0 m^2 Bridge B1018: 239.4 m^2 Bridge B1021: 329.3 m^2 Bridge B1017: 252.1 m^2 Bridge B1013: 181.2 m^2
Alternative A2 (if any)	Culvert C1130: 106.6 m^2 Culvert C1147: 76.5 m^2 Culvert C1148: 189 m^2 Culvert C1149: 119 m^2 Culvert C1150: 76.5 m^2 Bridge B0145: 145.0 m^2 Bridge B1018: 239.4 m^2 Bridge B1021: 329.3 m^2 Bridge B1017: 252.1 m^2 Bridge B1013: 181.2 m^2
Alternative A3 (if any)	None

or, for linear activities: NONE

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

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

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	Culvert C1130: 520 m^2 Culvert C1147: 360 m^2 Culvert C1148: 560 m^2 Culvert C1149: 560 m^2 Culvert C1150: 360 m^2 Bridge B0145: 576 m^2 Bridge B1018: 1140 m^2 Bridge B1021: 1568 m^2 Bridge B1017: 1208 m^2

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

Alternative A2 (if any)	Bridge B1013: 864 m^2 Culvert C1130: 520 m^2 Culvert C1147: 360 m^2 Culvert C1148: 560 m^2 Culvert C1149: 560 m^2 Culvert C1150: 360 m^2 Bridge B0145: 576 m^2 Bridge B1018: 1140 m^2 Bridge B1021: 1568 m^2 Bridge B1017: 1208 m^2 Bridge B1013: 864 m^2
Alternative A3 (if any)	None

4. SITE ACCESS

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

Describe the type of access road planned:

There is no access road planned. This project entails the widening of existing bridges and culverts on the existing N10 road.

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

5. LOCALITY MAP

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

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

6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

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

7. SENSITIVITY MAP

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

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

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

8. SITE PHOTOGRAPHS

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

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES x	NO	Please explain
The widening of structures on the N10 is undertaken in terms of the South African National Roads Agency Soc Limited (SANRAL's) mandate in terms of the South African National Roads Agency Limited and National Roads Act, 1998. The declaration of the N10 as a national road under section 40(1) of the Act creates the land use right within the declared road reserve.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES x	NO	Please explain
The SANRAL is given the power to perform all strategic planning, as well as the planning, design, construction, operation, management, control, maintenance and rehabilitation of all national roads in South Africa in terms of the South African National Roads Agency Limited and National Roads Act, 1998. The N10 is a national road and falls within the jurisdiction of the SANRAL and the development is not bound by the Municipality's PSDF in order to continue.			
(b) Urban edge / Edge of Built environment for the area	YES x	NO	Please explain
The SANRAL is given the power to perform all strategic planning, as well as the planning, design, construction, operation, management, control, maintenance and rehabilitation of all national roads in South Africa in terms of the South African National Roads Agency Limited and National Roads Act, 1998. The N10 is a national road and falls within the jurisdiction of the SANRAL and the development is not bound by the Municipality's urban edge in order to continue as it is not a residential development or municipal road development.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES x	NO	Please explain
The SANRAL is given the power to perform all strategic planning, as well as the planning, design, construction, operation, management, control, maintenance and rehabilitation of all national roads in South Africa in terms of the South African National Roads Agency Limited and National Roads Act, 1998. The N10 is a national road and falls within the jurisdiction of the SANRAL and the development is not bound by the Municipality's IDP in order to continue as it is not a residential development or municipal roads development.			
(d) Approved Structure Plan of the Municipality	YES x	NO	Please explain
The SANRAL is given the power to perform all strategic planning, as well as the planning, design, construction, operation, management, control, maintenance and rehabilitation of all national roads in South Africa in terms of the South African National Roads Agency Limited and National Roads Act, 1998. The N10 is a national road and falls within the jurisdiction of the SANRAL and the development is not bound by the Municipality's approved structure plan in order to continue as it is not a residential development or municipal roads development.			

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES	NO x	Please explain
The approval of this application will not compromise the integrity of the existing environmental management priorities for the area and it can it be justified in terms of sustainability considerations. No significant long term impact is foreseen as a result of the rehabilitation of the road.			
(f) Any other Plans (e.g. Guide Plan)	YES	NO x	Please explain
No significant long term impact is foreseen as a result of the widening of structures on the N10.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES x	NO	Please explain
The SANRAL is given the power to perform all strategic planning, as well as the planning, design, construction, operation, management, control, maintenance and rehabilitation of all national roads in South Africa in terms of the South African National Roads Agency Limited and National Roads Act, 1998. The N10 is a national road and falls within the jurisdiction of the SANRAL. The development is not bound by the Municipality's approved SDF in order to continue as it is not a residential development or municipal roads development.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES x	NO	Please explain
The area is in dire need of this project and it is a societal priority as the bridges could pose a severe safety hazard in future if no rehabilitation is undertaken with associated loss of lives.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES x	NO	Please explain
The contractor, once appointed through the tender process with SANRAL, will decide on the water, sewage and waste disposal services during the time of construction. There is adequate capacity available at the local Municipality for these services.			

6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES x	NO	Please explain
The SANRAL is given the power to perform all strategic planning, as well as the planning, design, construction, operation, management, control, maintenance and rehabilitation of all national roads in South Africa in terms of the South African National Roads Agency Limited and National Roads Act, 1998. The N10 is a national road and falls within the jurisdiction of the SANRAL. The development is not bound by the Municipality's infrastructure planning in order to continue.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO x	Please explain
The rehabilitation of the bridges on the N10 became important as a result of the deterioration of the bridges and the safety hazard that the bridges could pose in this area with associated loss of lives.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES x	NO	Please explain
The structures on the N10 are situated on an existing national road from Upington to Groblershoop. The structures will be rehabilitated in terms of SANRAL's mandate in terms of the South African National Roads Agency Limited and National Roads Act, 1998.			
9. Is the development the best practicable environmental option for this land/site?	YES x	NO	Please explain
The bridge and culverts fall within the N10 road reserve and the widening of the structures will be conducted within the N10 road reserve. The potential impacts related to the activity were assessed together with specialist engineering and environmental input and the best practicable environmental option and mitigation measures recommended in the report.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES x	NO	Please explain
The benefits of the proposed development will outweigh the negative impacts as the local communities and road users are in dire need of this project as a result of the server safety risk if the bridges are not rehabilitated with associated loss of lives. The culvert and bridges will, therefore, be widened with a low impact to the environment but a high positive impact to the community and traveling public.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO x	Please explain
The SANRAL is given the power to perform all strategic planning, as well as the planning, design, construction, operation, management, control, maintenance and rehabilitation of all national roads in South Africa in terms of the South African National Roads Agency Limited and National Roads Act, 1998. The N10 is a national road and falls within the jurisdiction of the SANRAL. This development will therefore not set a precedent for similar activities as it is not bound by the Municipality's infrastructure planning in order to continue.			

12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO x	Please explain
It is not foreseen that any person's rights will be negatively affected by the proposed activity as no community displacement will take place. A public participation process was followed and the comments and concerns taken into account during the environmental process.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO x	Please explain
The SANRAL is given the power to perform all strategic planning, as well as the planning, design, construction, operation, management, control, maintenance and rehabilitation of all national roads in South Africa in terms of the South African National Roads Agency Limited and National Roads Act, 1998. The N10 is a national road and falls within the jurisdiction of the SANRAL and the development is not bound by the Municipality's urban edge in order to continue as it is not a residential development or municipal road development.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO x	Please explain
This project is not included in any of the SIP projects.			
15. What will the benefits be to society in general and to the local communities?			Please explain
The widening of the bridges and culverts offer several benefits to society in general, including: • Safer driving conditions for the road users; • Less traffic accidents; • Improved drainage and other services.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
• Employment opportunities for the local residents during construction. • Less accidents and associated loss of lives. • Improved drainage and other services. • Drainage channels will be improved.			
17. How does the project fit into the National Development Plan for 2030?			Please explain
The SANRAL is given the power to perform all strategic planning, as well as the planning, design, construction, operation, management, control, maintenance and rehabilitation of all national roads in South Africa. The N10 is a national road and falls within the jurisdiction of the SANRAL in terms of the South African National Roads Agency Limited and National Roads Act, 1998.			

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

The following general objective of integrated environmental management have been taken into account:

a) Identified, predicted and evaluated the actual and potential impact on the environment as a result of the widening of the bridges as well as the socio-economic conditions and cultural heritage,

b) Investigated alternatives and options for mitigation of activities, with a view to minimizing negative impacts.

c) Maximizing benefits to the environment as a result of the widening of the bridges;

d) Ensured that the effects of activities on the environment received adequate consideration before actions are taken in connection with them;

e) Ensured adequate and appropriate opportunity for public participation in decisions that may affect the environment;

f) Ensured the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and

g) Identified and employed the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2 of the NEMA.

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.
The following have been taken into account: • Identified all potential activities and associated environmental risks associated with the proposed project; • Consideration of all relevant ecological, social and economic factors in development; • Minimised adverse environmental impacts, pollution or degradation of the environment; • Avoiding or minimising the disturbance to ecosystems; • That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied; • That the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied; • That waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner; • That the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource; • That the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised; • That a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; • That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied. • Promotion of community participation through an extensive and open public participation process with I&APs; • Delivery of high quality information to government and other decision-makers in order to enable them to make informed decisions regarding the project and avoid unnecessary project delays.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
EIA Regulations GN R. 983 Activities 19.	Listed activities triggered in terms of the EIA Regulations, 2014	Department of Environment al Affairs	8 Decembe r
Department of	Guidance with regard to the	Department of	2010

Environmental Affairs Departmental Guidelines under www.environment.gov.za	execution of the Basic Assessment process	Environmental Affairs	
National Environmental Management Act, 1998 (Act No. 107 of 1998) The National Environmental Management Act, 1998 (Act No. 107 of 1998): [NEMA] was enacted in November 1998. NEMA provides for cooperative governance by establishing principles for decision-making on matters affected the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions, public participation and sustainable development.	General objectives of Integrated Environmental Management as set out in section 23 of NEMA taken into account	The National Department of Environmental Affairs	27 November 1998
National Water Act (Act No. 36 of 1998) The application for a Water Use License in terms of the National Water Act, 1998.	Stream crossings and possible application of Water Use License or general authorization at the Department of Water Affairs	Department of Water Affairs	20 August 1998
National Heritage Resource Act 1999 (Act No. 25 of 1999) In terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) comment was obtained from SAHRA.	Any linear activity that exceeds 300 m in extent requires input from SAHRA.	South African Heritage Resources Agency (SAHRA)	1999

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES x	NO
If YES, what estimated quantity will be produced per month?	10 m^3	

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

Waste skips will be provided at the construction camp site and strategically at the bridge and culvert sites. These waste bins will be regularly emptied by a contractor who in turn will dispose of the waste at a recognized waste disposal site.

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

The solid waste will be disposed of at a recognized waste disposal site. Waste will feed into the Local Municipality municipal waste stream.

Will the activity produce solid waste during its operational phase?	YES	NO x
If YES, what estimated quantity will be produced per month?		m^3

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

n/a

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

The solid waste will be disposed of at the landfill site at the Local Municipality in Upington or Groblershoop.

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

n/a

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

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

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

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

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

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	NO x
If YES, what estimated quantity will be produced per month?		m^3
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	NO x

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

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

If YES, provide the particulars of the facility:

Facility name:	NOT APPLICABLE
Contact person:	
Postal address:	

Postal code:			
Telephone:		**Cell:**	
E-mail:		**Fax:**	

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

Recycling of wastewater will be undertaken if an asphalt plant with a wet scrubber system will be utilised for the production of asphalt after the widening of the bridges and culverts.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	YES	NO x
If YES, is it controlled by any legislation of any sphere of government?	YES	NO

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
If NO, describe the emissions in terms of type and concentration:

During the construction phase some dust might be generated in low concentrations. Dust will be suppressed through regular water spraying of surfaces as indicated in the EMPr.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	YES	NO x

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

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

Describe the noise in terms of type and level:

Construction noise will be generated during normal working hours. Mitigation measures for noise generated during construction are included in the EMPr.

13. WATER USE

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

Municipal x	Water board	Groundwater	River, stream, dam or lake	Other x	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:		litres
Does the activity require a water use authorisation (general authorisation or water	YES x	NO

use license) from the Department of Water Affairs?		

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

14. ENERGY EFFICIENCY

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

The following energy efficient measures will be taken on the project: • Equipment generating energy will be properly insulated to prevent energy loss. • Compact fluorescent lights will be installed in the site offices.

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

The use of solar geysers will be investigated for use at the contractor camp site during construction. Compact fluorescent lights will be installed in the site offices.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

Section B Copy No. (e.g. A): **A1 and A2**

2. Paragraphs 1 - 6 below must be completed for each alternative. **The information pertaining to paragraphs 1-6 is similar for both alternatives.**

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

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Northern Cape
District Municipality	ZF Mgcawu District Municipality
Local Municipality	//Khara Hais Local Municipality (Upington) !Kheis Local Municipality (Groblershoop)
Ward Number(s)	To be determined by speaker
Farm name and number	Upington, Groblershoop
Portion number	N10 road reserve
SG Code	N10 road reserve

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

N10 road reserve

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

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

YES	NO x

THERE IS ONLY 1 SITE ALTERNATIVE APPLICABLE TO THIS PROJECT

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

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

Alternative S2 (if any): NONE

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

Alternative S3 (if any): NONE

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

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

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} x	Natural veld with heavy alien infestation^{E}	Veld dominated by alien species^{E}	Gardens
Sport field	Cultivated land	Paved surface x	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. SURFACE WATER

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

Perennial River	YES	NO x	UNSURE
Non-Perennial River	YES x	NO	UNSURE

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

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

An aquatic assessment was undertaken by Flori Horticultural Services with the following discussion of the area:

- There is only one wetland area in the vicinity of Bridge B1021 on Louisvale River, which is an unchannelled valley bottom wetland.
- Most of the watercourses are small, non-perennial streams or drainage lines. These are dry for most of the year with highly erratic flow.
- Watercourses typically have very shallow, narrow channels.
- Riparian zones are typically non-distinct, narrow and patchy.
- During field investigations in March 2015, all watercourses at culverts were dry. While only a few watercourses at bridges had water in them. No watercourses were flowing actively and strongly.
- The watercourses are very seasonal, non-perennial small streams with narrow, shallow main channels. Lack of distinct riparian zones is due mainly to a lack of genuine floodplains and regular flood water, which typically contain nutrient-rich silt and high moisture content.
- None of the watercourses in the study are seen as highly sensitive (no-go zones). However, all watercourses, even dry streambeds, still need to be approached as being sensitive environments.
- The PES values of all the watercourses were found to be moderately modified (Category C), except Louisvale Stream (C1150) which was largely modified (Category D).
- Generally the PES values of the riparian zones of the watercourses were slightly lower than the holistic values.
- The EIS ratings of all the watercourses were calculated to be moderate (Category C), except Louisvale River (B1021) which was found to be high (Category B).
- The EMCs of all the watercourses were deemed to be Category C.
- The medium to long-term impact of rehabilitating the bridges and culverts is low.
- Water use licences or general authorisations will be required for the project.

Flori Horticultural Services, 2015

6. LAND USE CHARACTER OF SURROUNDING AREA

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

Natural area x	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation

Informal residential[A]	Church	Agriculture x
Retail commercial & warehousing	Old age home	River, stream or wetland x
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge x
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site x
Quarry, sand or borrow pit	Golf course	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? Specify and explain:

No impact

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

No impact

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

No impact

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

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

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

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES x	NO
	Uncertain	
Based on the dates on the bridges, the bridge structures seem to be older than 60 years of age.		

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

It is a recommendation that a heritage specialist should investigate the bridges and document the bridges should they be older than 60 years of age. The necessary permitting from SAHRA should also be in place.

Will any building or structure older than 60 years be affected in any way?	YES x	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES x	NO

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

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

//Khara Hais Local Municipality

The //Khara Hais Local Municipality is a Category B municipality and is located in the Siyanda District Municipality, which is the second-largest district in the Northern Cape. It is the acknowledged commercial, educational, military, agricultural, medical, transport and tourist center of the area. The unusual spelling of the name of the local municipality, with the // glyph, is a result of the transcription of the click consonant used in the Kxoe language from which the name originates. The municipality has a total population 93,494.

Unemployment rate 22,1%
Youth unemployment rate 29%

Sources: www.statssa.gov.za

!Kheis Local Municipality

!Kheis Municipality had a total population of approximately 16 637 according to the community survey by census of 2011. The population growth rate is 0.06%. !Kheis local Municipality is divided into 4 wards, 7 towns or settlements, and surrounding farms.

The economically active population (people aged 18 and above that are able and willing to work) of the !Kheis area is estimated at 46%, which resulting in an official unemployment rate of 54% which is a big concern.

IDP 2013-2014

Economic profile of local municipality:

//Khara Hais Local Municipality

Total population 93,494
Young (0-14) 29,8%
Working Age (15-64) 64,6%
Elderly (65+) 5,5%
Dependency ratio 54,7

Source: www.statssa.gov.za

!Kheis Local Municipality

!Kheis is predominantly populated by youth under the age of 35. Of the 16 027 inhabitants, 35% are still financially dependent, that is between the ages 1 and 14 years. 65% are potentially economically active, that is between the age of 15 and 65 years. The huge number of this age group call for a need for creation of employment opportunities to cater for their needs.

Source: IDP 2013-2014

Level of education:

//Khara Hais Local Municipality

No schooling aged 20+ 7,1%
Higher education aged 20+ 7,8%
Matric aged 20+ 26%

Source: www.statssa.gov.za

!Kheis Local Municipality

Persons	2011
No Schooling	13.50%
Higher Education	14.10%
Matric	4.40%

Source: IDP 2013-2014

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Approximately R33 million

What is the expected yearly income that will be generated by or as a result of the activity?	R 0	
Will the activity contribute to service infrastructure?	YES x	NO
Is the activity a public amenity?	YES x	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Approximately 80 per day over a 24 month construction period	
What is the expected value of the employment opportunities during the development and construction phase?	Approximately R32 million	
What percentage of this will accrue to previously disadvantaged individuals?	Approximately 80 %	
How many permanent new employment opportunities will be created during the operational phase of the activity?	None	
What is the expected current value of the employment opportunities during the first 10 years?	None	
What percentage of this will accrue to previously disadvantaged individuals?	None	

9. BIODIVERSITY

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

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

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	

b) Indicate and describe the habitat condition on site

Habitat Condition	**Percentage of habitat condition class (adding up to 100%)**	**Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).**

Natural	%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	100 %	The study area within the N10 road reserve.
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	%	

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

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

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

The study site is situated in the Nama-Karoo Biome of South Africa and in the Eastern Kalahari Bushveld subregion. The Nama-Karoo is subdivided into three sub regions, namely, Bushmanland and West Grigualand, Upper Karoo; and Lower Karoo. From a wetland ecoregion perspective the study area falls within the Nama Karoo Bushmanland (**Error! Reference source not found.**). The veld types in which the study area falls are:

Category Description	Classification
Biome	Nama-Karoo
Bioregion	Bushmanland
NFEPA wetland ecoregions	Nama Karoo Bushmanland
Vegetation Types	Bushmanland Arid Grassland; Kalahari Karroid Shrubland; Lower Gariep Alluvial Vegetation.

The vegetation encountered in the study area directly associated with the watercourses and their riparian zones includes the following:

Trees and Shrubs

Acacia luederitzii, Acacia mellifera; Lycium hirsutum, Rhigozum obovatum, Searsia tridactyla, Tarchonanthus camphoratus, *Searsia tenuinervis*

Grasses/sedges

Schmidtia pappophoroides, Stipagrostis uniplumis, Aristida congesta, Brachiaria serrata, Digitaria eriantha

Aquatic plants

Cyperus sexangularis; Juncus effuses; Persicaria decipiens; Phragmites australis; Phragmites mauritianum; Schoenoplectus brachyceras; Typha capensis;

Alien species

Bidens pilosa; Conyza canadensis; Datura ferox; Eucalyptus spp., Hibiscus trionum; Ligustrum japonicum; Malva verticillata; Solanum elaeagnifolium; Tagetes minuta; Verbena bonariensis; Xanthium strumarium.

When it comes to water environments priority areas such as Important Bird Areas (IBAs) need to be considered. These areas are oftentimes wetland and riverine areas that support either large numbers or species of birds, or priority birds. The study area does not fall within, nor is it nearby to, any IBAs.

Flori Horticultural Services, 2015.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Gemsbok	
Date published	27 March 2015	
Site notice position	**Latitude**	**Longitude**
Culvert C1130 at Boegoeberg river at km 61.90	28°28’59.00”S	21°41’14.10”E
Culvert C1147 at Vaalkoppies river at km 107.75	28°27'2.56"S	21°18'42.76"E
Culvert C1148 at Vaalkoppies river at km 108.60	28°27'11.05"S	21°18'12.97"E
Culvert C1149 at Vaalkoppies river at km 109.95	28°27'26.61"S	21°17'25.12"E
Culvert C1150 at Louisvale river at km 113.30	28°28'36.23"S	21°16'12.48"E
Bridge B0145 at Elmboogsloot river at km 34.99	28°40'17.08"S	21°47'40.87"E
Bridge B1018 at Gifkloof river at km 96.63	28°27'23.00"S	21°24'31.00"E
Bridge B1021 at Louisvale river at km 112.10	28°28'18.26"S	21°16'43.65"E
Bridge B1017 at Matjies River at km 93.25	28°26'16.89"S	21°26'06.31"E
Bridge B1013 at Swartkopsleegte river at km 66.18	28°26'32.34"S	21°39'44.63"E
Date placed	26 March 2015	

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

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Mr D Ngxanga	//Khara Hais Local Municipality Upington Municipal Manager	Tel: 054 338-7001 Fax: 054 338-7350 manager@kharahais.gov.za
Mrs H.T Scheepers	!Kheis Local Municipality Groblershoop Municipal Manager	Tel: 054 833- 9500 Tel: 054 833-9509 teresascheepers@vodamail.co.za
Councillor T Basson	//Khara Hais Local Municipality (Upington) Speaker	Tel: 054 338-7000 Fax: 054 338-7350 client@kharahais.gov.za
Mr Paul Vries	!Kheis Local Municipality Groblershoop Speaker	Tel: 054 833- 9500 Fax: 054 833-9509 koosswartmun@gmail.com

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

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

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Extensive public participation held. See issues and response report in Appendix E3.	Extensive public participation held. See issues and response report in Appendix E3.

4. COMMENTS AND RESPONSE REPORT

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

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Northern Cape Department of Environment & Nature Conservation	Ms Adelaide Makaudi	(053) 807-7430	(053) 723-2021	tmakaudi@ncpg.gov.za	Private Bag X6012, Kimberley 8301
Department of Water and Sanitation	Mr A Abrahams	(053) 830 8803 082 883 6741	(053) 831 4534	AbrahamsA@dwa.gov.za	Private Bag X6101 Kimberley 8300
South African Heritage Resources Agency	Mr Phillip Hine	021 462 4502	021 462 4509	phine@sahra.org.za (information to be posted on SAHRA website)	PO Box 4637 Cape Town 8000

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

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

6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

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

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

SECTION D: IMPACT ASSESSMENT

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

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

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

Activity	Impact summary	***Significance***	Proposed mitigation
Alternative A1 (preferred alternative)			
<u>Planning and design phase</u>	***Direct impacts:*** • Placement and access of construction site camp area. • Designs of bridges and culverts.	Medium Medium	• The establishment of a construction yard may only occur in an area that has previously been disturbed. This area must be approved by the Environmental Control Officer (ECO) and must be inspected regularly. • In designing bridges along the proposed route, it must be ensured that drainage systems are kept as natural as possible. Natural drainage should be retained, and normal flow ensured at all times.
	Indirect impacts: **<u>Planning and design phase</u>** Possible relocation of services	High	• Where service disruption is inevitable, the Contractor must advise

			the Engineer at least 7 days in advance, allowing enough time to inform affected parties. • Any complaints must be included in the complaints register maintained on site. • Updated information boards must be maintained on site and must include contact details for complaints by the public in accordance with details provided by the Engineer.
	Cumulative impacts: **<u>Planning and design phase</u>** There are no cumulative impacts associated with the design phase.	None	None
<u>Construction phase</u>	***Direct impacts:*** • Possible impacts to the streams; • Possible impact on mammals and snakes; • Possible erosion of soils and loss of topsoil; • Possible invasion of exotic species; • Possible pollution by solid waste; • Possible sewage pollution; • Possible pollution of fuels and gas as a result of inadequate storage; • Possible pollution by cement or concrete; • Possible noise pollution; • Possible dust pollution. • Possible impact on heritage sites.	High Medium Medium High Medium Medium Medium Medium Medium Medium High	• Construction to take place during the dry season (winter) when the watercourses are dry, if possible. This will prevent any impediment or diversion of water flow. • Silt and reeds within main channel can be removed. This will improve water flow and be a positive impact on the watercourse. • No temporary sites of any sort (storage, field office, accommodation) may be set up within 100m of the boundary edges of any watercourse. • No indigenous trees, shrubs or any other

			vegetation such as reeds outside of the immediate vicinity of the bridge/s to removed. • The footprint during the extension of the bridge, culverts, etc. within demarcated watercourses to be kept to an absolute minimum. • No vehicles to drive through watercourses except on existing bridges and roads. No new thoroughfares to be created. This applies even if streams are completely dry. • No cement or concrete is allowed to mixed directly on the bare soil in the veld and all excess mixed concrete and cement to be removed to a registered solid waste site. • No excess imported soils or stone (if used during the construction phase) may be left behind. These materials to be removed immediately after construction phase. • Disturbed surface areas in the construction phase to be rehabilitated immediately and seen as part of the construction phase. No open trenches to be left. No mounds of soils created during construction to be left. • Special attention must be given to stream banks. Effort must be made to limit impact on the banks. Movement outside of the construction areas must be limited, as well as movement of vehicles

			and people through the site itself. • Erosion of banks and siltation of stream channels can potentially be problems. A rehabilitation plan must be put in place and implemented. • All waste such as papers, plastics, etc. to be clean up on a daily basis and removed on a weekly basis. • Extreme care needs to be taken to avoid pollutants such as oils, fuels, etc. getting into the water system. • All hazardous materials such as but not limited to oils, diesel, paint, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the terrestrial and water environments; • All construction material, equipment and any foreign objects brought into the area by contractors and staff to be removed immediately after completion of construction. • Removal of all waste construction material to an approved waste disposal site. • No water for drinking or construction purposes of any kind may be extracted directly out of existing streams, drainage lines, etc. without the necessary prior authorisations, permits etc. • No water to be taken out

			of the stream to be used for any purpose of the project during the construction phase of the project. No water from the river / streams to be used as drinking water. • Only certified, chemical, portable toilets to be used. These are not to be situated within 100m of any watercourses or impoundments. These portable toilets to be administered and serviced by a certified, registered company. • Proper rubbish bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site. • No open fires to be made in the veld. • No wood for fires, etc. to be collected from out of the veld. • The bridges should be documented by a qualified heritage consultant with the necessary permitting from SAHRA. • It is requested that if heritage sites or graves are exposed during construction work, it should immediately be reported to a heritage consultant so that an investigation and evaluation of the finds can be made. • There is a high likelihood that several mammal species may inhabit the road reserve. These are limited to opportunistic, widespread species that

			are well adapted to the disturbed conditions. No animal species may be harmed in any way and no hunting or capturing of animals may be permitted. These animals will move out of the road reserve of their own accord. • In the event of poisonous snakes or other dangerous animals encountered on the site an experienced and certified snake handler or zoologist must remove these animals from the site and re-locate them to a suitable area.
	Indirect impacts: • Possible weed invaders as a result of disturbance of soil. • Possible erosion at stream banks	Medium High	• All alien vegetation in the road reserve should be removed upon completion of construction. • Bank vegetation cover should be monitored to ensure that sufficient vegetation is present to bind the bankside soils and prevent further bankside erosion.
	Cumulative impacts: • Possible additional traffic on the roads during construction; • Possible influx of people in the area during construction.	High Medium	• The additional traffic will be managed by the contractor through the traffic management as included in the tender document to the project. • A Public Liaison Officer (PLO) should be appointed to manage the employment opportunities on the project.

Operational phase (Maintenance phase)	**Direct impacts:** • Possible increase in alien vegetation; • Possible bank failure at aquatic systems present	Medium High	• The maintenance phase to be implemented in defect liability period for 1 year. • Mechanical control of alien plants around disturbed areas to be implemented within three months of completion of construction. Thereafter every six months. Mechanical control to be of such a nature as to allow local, indigenous grasses and other pioneers to colonise the previously disturbed areas, thereby keeping out alien invasives. • No chemical control (herbicides) of alien plants to be used. Herbicides could get into the water system and will have a detrimental effect on the environment. • Areas around foundations, culverts, gabions, etc. need to be check before and after the summer rainy season for signs of soil erosion due to stormwater run-off. Such sites need to be modified and rehabilitated to prevent ongoing erosion. These sites need to be monitored more closely than other sites which show no or minimal signs of erosion. • No inspection or other vehicles to drive through watercourses except where there are existing bridges, roads and other existing crossovers.
	Indirect impacts:		

	There is no indirect impacts associated with the maintenance phase	None	None
	Cumulative impacts: There is no cumulative impacts associated with the maintenance phase	None	None
<u>Decommissioning and closure phase.</u> This phase only pertains to the decommissioning of the construction camp site. The bridges itself will not be decommissioned in the foreseeable future.	***Direct impacts:*** • To ensure that disturbed areas and the construction site camp are rehabilitated after construction has been completed.	High	• It is preferred that natural vegetation be allowed to establish within the road reserve while weed eradication is constantly exercised. • After construction, the areas cleared of vegetation will be susceptible to infestation by invader weed species. The road reserve should be monitored for the presence of invader weed species • Areas that have become compacted due to construction activities should be ripped. • After cessation of activities on the site the area should be rehabilitated to acceptable standards. • After construction has ceased all construction materials should be removed from the road reserve.
	Indirect impacts: There is not indirect impacts associated with the decommissioning phase	None	None
	Cumulative impacts:		

	There is not indirect impacts associated with the decommissioning phase	None	None
Alternative A2			
<u>Planning and design phase</u>	***Direct impacts:*** • Placement and access of construction site camp area. • Designs of bridges and culverts.	Medium Medium Medium	• The establishment of a construction yard may only occur in an area that has previously been disturbed. This area must be approved by the Environmental Control Officer (ECO) and must be inspected regularly. • In designing the bridges along the proposed route, it must be ensured that drainage systems are kept as natural as possible. Natural drainage should be retained, and normal flow ensured at all times.
	Indirect impacts: **<u>Planning and design phase</u>** Possible relocation of services.	High	• Where service disruption is inevitable, the Contractor must advise the Engineer at least 7 days in advance, allowing enough time to inform affected parties. • Any complaints must be included in the complaints register maintained on site. • Updated information boards must be maintained on site and must include contact

			details for complaints by the public in accordance with details provided by the Engineer.
	Cumulative impacts: **Planning and design phase** There are no cumulative impacts associated with the design phase.	None	None
Construction phase	***Direct impacts:*** • Possible impacts to the streams; • Possible impact on mammals and snakes; • Possible erosion of soils and loss of topsoil; • Possible invasion of exotic species; • Possible pollution of solid waste; • Possible sewage pollution; • Possible pollution of fuels and gas as a result of inadequate storage; • Possible pollution by cement or concrete; • Possible noise pollution; • Possible dust pollution; • Possible impact on archaeological sites and graves	High Medium High Medium Medium Medium Medium Medium Medium Medium High High	• Construction to take place during the dry season (winter) when the watercourses are dry, if possible. This will prevent any impediment or diversion of water flow. • Silt and reeds within main channel can be removed. This will improve water flow and be a positive impact on the watercourse. • No temporary sites of any sort (storage, field office, accommodation) may be set up within 100m of the boundary edges of any watercourse. • No indigenous trees, shrubs or any other vegetation such as reeds outside of the immediate vicinity of the bridge/s to removed. • The footprint during the extension of the bridge, culverts, etc. within demarcated watercourses to be kept to an absolute minimum. • No vehicles to drive through watercourses except on existing

			bridges and roads. No new thoroughfares to be created. This applies even if streams are completely dry. • No cement or concrete is allowed to mixed directly on the bare soil in the veld and all excess mixed concrete and cement to be removed to a registered solid waste site. • No excess imported soils or stone (if used during the construction phase) may be left behind. These materials to be removed immediately after construction phase. • Disturbed surface areas in the construction phase to be rehabilitated immediately and seen as part of the construction phase. No open trenches to be left. No mounds of soils created during construction to be left. • Special attention must be given to stream banks. Effort must be made to limit impact on the banks. Movement outside of the construction areas must be limited, as well as movement of vehicles and people through the site itself. • Erosion of banks and siltation of stream channels can potentially be problems. A rehabilitation plan must be put in place and implemented. • All waste such as papers, plastics, etc. to be clean up on a daily basis and removed on a weekly

			basis. • Extreme care needs to be taken to avoid pollutants such as oils, fuels, etc. getting into the water system. • All hazardous materials such as but not limited to oils, diesel, paint, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the terrestrial and water environments; • All construction material, equipment and any foreign objects brought into the area by contractors and staff to be removed immediately after completion of construction. • Removal of all waste construction material to an approved waste disposal site. • No water for drinking or construction purposes of any kind may be extracted directly out of existing streams, drainage lines, etc. without the necessary prior authorisations, permits etc. • No water to be taken out of the stream to be used for any purpose of the project during the construction phase of the project. No water from the river / streams to be used as drinking water. • Only certified, chemical, portable toilets to be used. These are not to be situated within 100m of any watercourses or impoundments. These

			portable toilets to be administered and serviced by a certified, registered company. • Proper rubbish bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site. • No open fires to be made in the veld. • No wood for fires, etc. to be collected from out of the veld. • The bridges should be documented by a qualified heritage consultant with the necessary permitting from SAHRA. • It is requested that if heritage sites or graves are exposed during construction work, it should immediately be reported to a heritage consultant so that an investigation and evaluation of the finds can be made. • There is a high likelihood that several mammal species may inhabit the road reserve. These are limited to opportunistic, widespread species that are well adapted to the disturbed conditions. No animal species may be harmed in any way and no hunting or capturing of animals may be permitted. These animals will move out of the road reserve of their own accord. • In the event of poisonous snakes or other dangerous animals

			encountered on the site an experienced and certified snake handler or zoologist must remove these animals from the site and re-locate them to a suitable area.
	Indirect impacts: • Possible weed invaders as a result of disturbance of soil. • Possible erosion at stream banks	Medium High	• All alien vegetation in the road reserve should be removed upon completion of construction. • Bank vegetation cover should be monitored to ensure that sufficient vegetation is present to bind the bankside soils and prevent further bankside erosion.
	Cumulative impacts: • Possible additional traffic on the roads during construction; • Possible influx of people in the area during construction.	High Medium	• The additional traffic will be managed by the contractor through the traffic management as included in the tender document to the project. • A Public Liaison Officer (PLO) should be appointed to manage the employment opportunities on the project.
Operational phase (Maintenance phase)	**Direct impacts:** • Possible increase in alien vegetation; • Possible bank failure at aquatic systems present	Medium High	• The maintenance phase to be implemented in defect liability period for 1 year. • Mechanical control of alien plants around disturbed areas to be implemented within three months of completion of construction. Thereafter every six months. Mechanical control to be

			of such a nature as to allow local, indigenous grasses and other pioneers to colonise the previously disturbed areas, thereby keeping out alien invasives. • No chemical control (herbicides) of alien plants to be used. Herbicides could get into the water system and will have a detrimental effect on the environment. • Areas around foundations, culverts, gabions, etc. need to be check before and after the summer rainy season for signs of soil erosion due to stormwater run-off. Such sites need to be modified and rehabilitated to prevent ongoing erosion. These sites need to be monitored more closely than other sites which show no or minimal signs of erosion. • No inspection or other vehicles to drive through watercourses except where there are existing bridges, roads and other existing crossovers.
	Indirect impacts: There is no indirect impacts associated with the maintenance phase	None	None
	Cumulative impacts: There is no cumulative impacts associated with the maintenance phase	None	None

Decommissioning and closure phase This phase only pertains to the decommissioning of the construction camp site. The bridges itself will not be decommissioned in the foreseeable future.	***Direct impacts:*** • To ensure that disturbed areas, the construction site camp and borrow pits/quarries are rehabilitated after construction has been completed.	High	• It is preferred that natural vegetation be allowed to establish within the road reserve while weed eradication is constantly exercised. • After construction the areas cleared of vegetation will be susceptible to infestation by invader weed species. The road reserve should be monitored for the presence of invader weed species. • Areas that have become compacted due to construction activities should be ripped. • After cessation of activities on the site the area should be rehabilitated to acceptable standards. • After construction has ceased all construction materials should be removed from the road reserve.
	Indirect impacts: There is not indirect impacts associated with the decommissioning phase	None	None
	Cumulative impacts: There is not indirect impacts associated with the decommissioning phase	None	None
No-go option			
	Direct impacts: • Increase in unsafe driving conditions; • Increase in traffic accidents; • Increase in loss of lives.	High	Rehabilitation of the bridges and culverts.
	Indirect impacts:		

	Possible traffic accidents. Possible injury and death of travelling public.	High	Rehabilitation of the bridges and culverts.
	Cumulative impacts: High health care costs as a result of traffic accidents.	High	None

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

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

Alternative A 1 (preferred alternative)

a. Introduction

This project is situated on National Road 10, Sections 11 between the towns of Groblershoop and Upington.

The project will entail the widening of the following bridges and culverts:

STRUCTURE NUMBER	**NAME**	**CHAINAGE (KM)**	
N010-11N-IDB0145	Elmboogsloot River Bridge	34.99	35.005
N010-11N-B1017	Matjies River Bridge	93.25	93.280
N010-11N-B1018	Gifkloof River Bridge	96.63	96.659
N010-11N-B1013	Swartkopsleegte River Bridge	66.18	66.202
N010-11N-B1021	Louisvale River Bridge	112.1	112.139
CULVERT NUMBER:	**NAME**	**CHAINAGE (KM)**	
N010-11N-C1130	Boegoeberg Stream	61.9	61.908
N010-11N-C1147	Vaalkoppies Stream 1	107.75	107.757
N010-11N-C1150	Louisvale Stream 1	113.3	113.308
N010-11N-C1148	Vaalkoppies Stream 2	108.6	108.603
N010-11N-C1149	Vaalkoppies Stream 3	109.95	109.952

The current 10 structures are all in the region between 8.0- and 9.0 m wide and do not comply with the

required abnormal load width requirements of 12.4m. The purpose of this project is to widen the structure to a cross section with of 12.4m that will enable safely and securely accommodate the current traffic and future abnormal loads. The current envisaged scope of work will include the following:

- Break down and remove current bridge balustrades and a portion of the decking.
- Excavate pier and abutment foundations in river bed.
- Extend piers and abutment walls by 1.8m-2.2m on both sides
- Widen existing concrete decks by 1.8m - 2.2m.
- New asphalt to bridge approaches and decks.
- Clearing of riverbed.
- Reshaping of riverbed.
- Installation of erosion protection.
- Concrete batching and mixing may be required on site.

b. Description of alternative A1

This option will comprise of removing the existing bridge decks and replacing them with a new continuous spanning deck of lesser depth resulting in a higher soffit level. The top of concrete of the deck will however remain as previous. Together with this the parapets will also be replaced with the latest required type. The construction will have to be done in such a way that one lane always remains open to traffic, with a stop-and-go traffic system in place throughout the construction period.

c. Possible Environmental Impacts

The main possible environmental impacts associated with the construction of this alternative is the following:

- Possible impacts to the streams;
- Possible impact on mammals and snakes;
- Possible erosion of soils and loss of topsoil;
- Possible invasion of exotic species;
- Possible pollution of solid waste;
- Possible sewage pollution;
- Possible pollution of fuels and gas as a result of inadequate storage;
- Possible pollution by cement or concrete;
- Possible noise pollution;
- Possible dust pollution;
- Possible impact on heritage sites and graves.

Should the mitigation measures as included in the EMPr for the project are adhered to, the possible impacts related to this project will be low.

d. Specialist Studies Undertaken

A specialist aquatic assessment was undertaken for this project i.e.

- Widening of Bridges and culverts along National Route 10 undertaken by Flori Horticultural Services, May 2015.

e. Recommendations by Specialist Report

The following recommendations were included in the specialist report and included in the EMPr for the project:

(i) Aquatic Assessment

The following mitigation measures are recommended by this study (Appendix D):

Construction Phase

- All mitigating measures put forward in this report and other specialist reports need to be adhered to.
- Construction to take place during the dry season (winter) when the watercourses are dry, if possible. This will prevent any impediment or diversion of water flow.
- Silt and reeds within main channel can be removed. This will improve water flow and be a positive impact on the watercourse.
- No temporary sites of any sort (storage, field office, accommodation) may be set up within 100m of the boundary edges of any watercourse.
- No indigenous trees, shrubs or any other vegetation such as reeds outside of the immediate vicinity of the bridge/s to removed.
- The footprint during the extension of the bridge, culverts, etc. within demarcated watercourses to be kept to an absolute minimum.
- No vehicles to drive through watercourses except on existing bridges and roads. No new thoroughfares to be created. This applies even if streams are completely dry.
- No cement or concrete is allowed to mixed directly on the bare soil in the veld and all excess mixed concrete and cement to be removed to a registered solid waste site.
- No excess imported soils or stone (if used during the construction phase) may be left behind. These materials to be removed immediately after construction phase.
- Disturbed surface areas in the construction phase to be rehabilitated immediately and seen as part of the construction phase. No open trenches to be left. No mounds of soils created during construction to be left.
- Special attention must be given to stream banks. Effort must be made to limit impact on the banks. Movement outside of the construction areas must be limited, as well as movement of vehicles and people through the site itself.
- Erosion of banks and siltation of stream channels can potentially be problems. A rehabilitation plan must be put in place and implemented.
- All waste such as papers, plastics, etc. to be clean up on a daily basis and removed on a weekly basis.
- Extreme care needs to be taken to avoid pollutants such as oils, fuels, etc. getting into the water system.
- All hazardous materials such as but not limited to oils, diesel, paint, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the terrestrial and water environments;
- All construction material, equipment and any foreign objects brought into the area by contractors and staff to be removed immediately after completion of construction.
- Removal of all waste construction material to an approved waste disposal site.
- No water for drinking or construction purposes of any kind may be extracted directly out of existing streams, drainage lines, etc. without the necessary prior authorisations, permits etc.
- No water to be taken out of the stream to be used for any purpose of the project during the

construction phase of the project. No water from the river / streams to be used as drinking water.

- Only certified, chemical, portable toilets to be used. These are not to be situated within 100m of any watercourses or impoundments. These portable toilets to be administered and serviced by a certified, registered company.
- Proper rubbish bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site.
- No open fires to be made in the veld.
- No wood for fires, etc. to be collected from out of the veld.

Maintenance phase

- The maintenance phase to be implemented in defect liability period for 1 year.
- Mechanical control of alien plants around disturbed areas to be implemented within three months of completion of construction. Thereafter every six months. Mechanical control to be of such a nature as to allow local, indigenous grasses and other pioneers to colonise the previously disturbed areas, thereby keeping out alien invasives.
- No chemical control (herbicides) of alien plants to be used. Herbicides could get into the water system and will have a detrimental effect on the environment.
- Areas around foundations, culverts, gabions, etc. need to be check before and after the summer rainy season for signs of soil erosion due to stormwater run-off. Such sites need to be modified and rehabilitated to prevent ongoing erosion. These sites need to be monitored more closely than other sites which show no or minimal signs of erosion.
- No inspection or other vehicles to drive through watercourses except where there are existing bridges, roads and other existing crossovers.

f. Heritage Issues

The age of the bridges seems to exceed 60 years. It is a recommendation that a heritage specialist should investigate the bridges and document the bridges should they be older than 60 years of age. The necessary permitting from SAHRA should also be in place.

g. Advantages and Disadvantages of the Preferred Alternative

(i) Advantages for this alternative

- The decks will be designed and constructed to the current loading codes;
- The deck with lesser depth will be more economical;
- The number of joints will be half than for the simply supported option;
- The hydraulic capacity of the bridges will be increased;
- The carriageway width of 12.4m will be achieved;
- Minimal roadworks will be required as the top of concrete level remains as is;
- The safety to the traveling public will be significantly improved;
- This option meets the required traffic bearing capacities;
- No additional borrow pits is expected to be opened.
- It is anticipated that the widening of the bridges and culverts will cater for future traffic demand and will support economic growth. This will benefit the communities in the area including local residents, motorists, the road freight industry and its customers. The rehabilitation of the bridges will, therefore, ensure safer driving conditions for the traveling public.

(ii) Disadvantages for this alternative

- The construction period will be long;
- Traffic will be temporarily interrupted during the construction period.

h. Sustainable Development

It will be attempted to implement the following:

i. Compact fluorescent lights will be installed in the site offices;
ii. All solid waste will be separated in different containers to make recycling possible;
iii. Where new toilets will be installed dual flush device toilets will be installed;
iv. Storm water will be managed and improved to reduce erosion by installing gabion boxes;
v. Where new grassing is done, it will be done by using locally indigenous vegetation;
vi. Training of staff will be done to implement good housekeeping. This will be done during toolbox talks.
vii. A Designated Environmental Officer will address the staff on good housekeeping actions.

i. Final Conclusion

This is the preferred alternative for the widening of the bridges and culverts and will increase the safety to the traveling public to acceptable standards for the long term. The impacts related to the widening of the bridges and culverts is not anticipated to have any long term impact as the flow dynamics will not be altered.

The vegetation that is currently in the road reserve is regarded as degraded and heavily invaded by alien plants. The impact related to the clearing of vegetation in the road reserve, is therefore, considered low.

The traffic disruption during the 36 month construction period is considered high but is a short term impact. The construction related impacts are also considered to be short terms and with mitigation measures, to be of low impact.

The primary findings for the rehabilitation of the bridges on the N14 would probably result in:

- No negative environmental impacts of high significance with mitigation;
- Positive impacts related to improved safety for the traveling public;
- Potential positive impacts due to increased economic activity, employment and training and capacity building.

Therefore, alternative 1 (preferred alternative) presents a better option than the alternative 2 for the proposed project in terms of the parameters investigated. The essence of the Basic Assessment process is aimed at ensuring informed decision-making and environmental accountability, and to assist in achieving environmentally sound and sustainable development. No long-term environmental impact should arise with this alternative.

In conclusion, it is believed the information contained in this report and the documentation attached hereto is sufficient to make a decision in respect of the activity applied for. This report covers the full

suite of potential environmental issues related to the proposed development, and that sufficient information regarding the identification, assessment and potential mitigation of impacts has been presented to facilitate informed decision making by the appropriate authorities. Based on the specialist studies undertaken within this BA, both benefits and negative impacts are anticipated as a result of the proposed project. The findings of this BAR have highlighted these impacts and prioritised them in terms of high, medium or low significance. It is therefore recommended that this project be authorized by the authorities with the condition that the mitigation measures as stipulated in the EMPr should be adhered to. The authorities need to use this document to aid the decision- making process with respect to the future outcome of this proposal.

An Environmental Management Programme is included detailing the management of the environmental aspects during the design, construction and decommissioning period.

Alternative 2

This alternative for bridges B4835 and B4836 entails the widening of the bridges by means of adding a concrete overlay to the tops of the decks.

Advantages and Disadvantages of Alternative B

i) Advantages

- The time of traffic interruption will be less;
- Construction period will be less with associated financial savings;
- Parapet will be as per latest SANRAL standard details.

(ii) Disadvantages

- Approaches to the bridge will have to be re-aligned to meet the higher bridge level,
- which will be more expensive;
- Carbon-fibre strengthening is very expensive;
- Bonding of new concrete to old concrete needs special attention and if not done correctly and may lead to delamination of the new concrete;
- Repairing an already suspect structure is not deemed the best solution as a margin of risk will always remain. The workmanship quality, cover variation etc. all indicate that the construction quality is not what would be desired.

From information received from the consulting engineers and potential environmental impacts that were identified during the Basic Assessment process that are associated with this alternative, the construction of this alternative is, therefore, not recommended.

There were no design drawings compiled for this alternative design due to the added additional cost associated with the compilation of the drawings.

Alternative 3

None

No-go alternative (compulsory)

Should the widening of the bridges and culverts not be undertaken, the traffic on the N10 could experience increasingly unsafe driving conditions. Investigations and analyses of bridge data of the bridges indicate that the bridge decks have several transverse cracks at the soffit, with void formers

having floated resulting in the bottom reinforcing being in the wrong position. The parapets are outdated and their steel top rail is missing.

The proposed widening of the bridges and culverts is therefore necessary to ensure the safety of the traveling public. This will also accommodate the predicted increase in traffic volume and avoid high driver frustration.

The volume of heavy vehicles is expected to increase significantly over the next 20 years. Traffic volumes and design principals determine that the bridge structures of the road need to be maintained to ensure the safety of the traveling public. If this is not done, the bridges could pose a severe safety hazard to the traveling public in future.

Indirect impacts:
Possible traffic accidents as a result of poor driving conditions.
Possible injury and death of travelling public.

Cumulative impacts:
High health care costs as a result of traffic accidents.

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 x	NO

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

Not applicable

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

- The mitigation measures included in the EMPr should be adhered to;
- A Designated Environmental Officer should be appointed during the construction period. The DEO will be responsible for the monitoring, reviewing and verifying of compliance with the EMPr by the applicant.
- Regular environmental audits should be undertaken, both internal and external by an independent auditor.
- During the construction phase, the premises and the works site must be maintained by the contractor in a reasonably neat and orderly condition and free from accumulation of waste materials and rubbish during the entire construction period.

Is an EMPr attached?	YES x	NO

The EMPr must be attached as Appendix G.

Preparation of Basic Assessment Report

This Basic Assessment Report was prepared by Dr Jenine Bothma of Chameleon Environmental Consultants:

PO Box 11788
Silver Lakes
0054
15 Els Street, Silver Lakes, Pretoria
Tel: 012 809-1704
Cell: 082 571 6920
Fax: 086 6855 080
E-Mail:ce.j@mwebbiz.co.za

Dr Bothma is certified as an Environmental Assessment Practitioner with the Interim Certification Board for Environmental Assessment Practitioners of South Africa.

Assumptions and Limitations

a. The following assumptions have been made for the purposes of this report:

- All information received from sources contributing to this project is correct;
- That the SANRAL would consider the recommendations derived from this study, and
- The Department of Environmental Affairs would be the decision making authority with regard to this application.

b. Limitations

- None.

c. Knowledge Gaps

None

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

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

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

_Dr J Bothma_____
NAME OF EAP

_____ __2015-05-12_____
SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information