



## agriculture & environmental affairs

Department:  
Agriculture  
& Environmental Affairs  
**PROVINCE OF KWAZULU-NATAL**

(For official use only)

EIA File Reference Number:  
NEAS Reference Number:  
Waste Management Licence Number:  
(if applicable)  
Date Received:

DC/
KZN/EIA/

## BASIC ASSESSMENT REPORT

Submitted in terms of the Environmental Impact Assessment Regulations, 2010 promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

This template may be used for the following applications:

- **Environmental Authorization** subject to basic assessment for an activity that is listed in Listing Notices 1 or 3, 2010 (Government Notices No. R 544 or No. R 546 dated 18 June 2010); or
- **Waste Management Licence** for an activity that is listed in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) for which a basic assessment process as stipulated in the EIA Regulations must be conducted as part of the application (refer to the schedule of waste management activities in Category A of Government Notice No. 718 dated 03 July 2009).

**Kindly note that:**

1. This **basic assessment report** meets the requirements of the EIA Regulations, 2010 and is meant to streamline applications. This report is the format prescribed by the KZN Department of Agriculture & Environmental Affairs. Please make sure that this is the latest version.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not 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 text.
3. Where required, place a cross in the box you select.
4. An incomplete report will be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it will result in the rejection of the application as provided for in the regulations.
6. No faxed or e-mailed reports will be accepted.
7. The report must be compiled by an independent environmental assessment practitioner ("EAP").
8. 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.

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9. The KZN Department of Agriculture & Environmental Affairs may require that for specified types of activities in defined situations only parts of this report need to be completed.
10. The EAP must submit this basic assessment report for comment to all relevant State departments that administer a law relating to a matter affecting the environment. This provision is in accordance with Section 24 O (2) of the National Environmental Management Act 1998 (Act 107 of 1998) and such comments must be submitted within 40 days of such a request.
11. **Please note that this report must be handed in or posted to the District Office of the KZN Department of Agriculture & Environmental Affairs to which the application has been allocated (please refer to the details provided in the letter of acknowledgement for this application).**

**DEPARTMENTAL REFERENCE NUMBER(S)**

File reference number (EIA):	DC26/0005/2013: KZN/EIA/00147/2013
File reference number (Waste Management Licence):	N/A

**SECTION A: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER AND SPECIALISTS****1. NAME AND CONTACT DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)**

Name and contact details of the EAP who prepared this report:

Business name of EAP:	Green Door Environmental		
Physical address:	400 Old Howick Road, Hilton		
Postal address:	P.O. Box 11, Hilton		
Postal code:	3245	Cell:	072 181 4236
Telephone:	033 343 4176	Fax:	033 343 4201
E-mail:	rebecca@greendoorgroup.co.za		

**2. NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP**

Names and details of the expertise of each representative of the EAP involved in the preparation of this report:

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
Rebecca Bowd	MEnvDev, BA (Hons) Enviro Sci & Geog	EAPSA, IAIA, SAIEA, IWMSA	8 years
Liza Shuttleworth	BSS Eng & CCMS	IAIA, SAIEA	2 year

**3. NAMES AND EXPERTISE OF SPECIALISTS**

Names and details of the expertise of each specialist that has contributed to this report:

Name of specialist	Education qualifications	Field of expertise	Section/ s contributed to in this basic assessment report	Title of specialist report/ s as attached in Appendix D
N/A				

## SECTION B: ACTIVITY INFORMATION

### 1. PROJECT TITLE

Describe the project title as provided on the application form for environmental authorization:

Proposed Establishment of Three Bridges and the Expansion of an Existing Bridge along the P736 Road, Nongoma, KwaZulu-Natal.

### 2. PROJECT DESCRIPTION

Provide a detailed description of the project:

The Department of Transport proposes to establish three bridge structures, and expand an existing bridge structure, along the P736 Road, Nongoma, KwaZulu-Natal.

The four rivers crossing along this section of P736 are the:

- Mahambuma / Tatiyane River;
- Phenyane River;
- Phethu River; and
- Kwasitholane River.

The P736 Road was previously upgraded to a blacktop road; however, the river crossings were not upgraded. They have since degraded further and now need urgent attention to ensure safe and reliable means of crossing the rivers for both vehicles and pedestrians. Creating safe and reliable means of movement for local communities will promote economic growth in the area as well as make travelling for basic amenities, education and work feasible for the local community.

### 3. ACTIVITY DESCRIPTION

Describe each listed activity in Listing Notice 1 (GNR 544, 18 June 2010), Listing Notice 3 (GNR 546, 18 June 2010) or Category A of GN 718, 3 July 2009 (Waste Management Activities) which is being applied for as per the project description:

#### **GNR 544**

*Part 11: The construction of iii) bridges... where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse...*

**The construction of three bridges will be within 32 of a water course.**

*Part 18: The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand ... from i) a watercourse...*

**The construction of the proposed bridges will entail the movement of more than 5 m<sup>3</sup> of soil and sand from a watercourse.**

#### *Part 39:*

The expansion of iii) bridges... where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse...

**The expansion of the existing bridge will occur within 32 m of a watercourse.**

#### 4. FEASIBLE AND REASONABLE ALTERNATIVES

##### **Completed for all four proposed bridges**

**“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;

**The preferred crossing point for the Mahambuma / Tatiyane, Phenyane, Phethu and Kwasitholane bridges was chosen based on location. Each bridge is as close as possible to the current crossing structure and the existing alignment of the P736. As the realignment of roads is very costly, no other crossing points have been investigated.**

- (b) the type of activity to be undertaken;

**No alternate activities or development types have been investigated as the sites proposed for development are only suitable for vehicular bridges. It is not feasible to establish only walkways, as there is a high demand for vehicles to cross the respective rivers.**

- (c) the design or layout of the activity;

**No alternate bridge designs have been investigated as the proposed/preferred designs:**

1. **meet the demand (the need for vehicular bridges to cross the respective rivers);**
2. **is within the budget available from Department of Transport to establish vehicular bridges;**
3. **have limited impact on the ecological environment and will not impede the flow of the rivers.**

- (d) the technology to be used in the activity;

**No alternate technologies have been investigated as the proposed/preferred design:**

1. **meet the demand (the need for vehicular bridges to cross the respective rivers);**
2. **is within the budget available from Department of Transport to establish a vehicular bridge;**
3. **have limited impact on the ecological environment and will not impede the flow of the rivers (as culverts are proposed).**

- (e) the operational aspects of the activity; and

**No alternate operational aspects have been investigated, as the need to cross the respective Rivers is met by the implementation of the vehicular bridges; it is a simple and effective means of crossing a river.**

- (f) the option of not implementing the activity.

**The no-go option would involve the one existing crossing not undergoing upgrade and continuing to be utilised in the manner in which it currently exists. The current conditions of this crossing are poor, and therefore represent a danger to road users. The other three, new, bridges would not be built and the people of that area would not be benefited by safe and reliable means to cross the water courses, on foot and by**

vehicle. This will impact upon their quality of life, access to amenities, education and work.

Describe alternatives that are considered in this report. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Sections B 5 – 15 below should be completed for each alternative.

## 5. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. List alternative sites where applicable.

### Mahambuma / Tatiyane River:

#### **Alternative:**

Alternative S1<sup>1</sup> (preferred or only site alternative)

Latitude (S):			Longitude (E):		
27°	59'	40.36"	31°	30'	39.32"

### Phenyane River:

#### **Alternative:**

Alternative S1<sup>2</sup> (preferred or only site alternative)

Latitude (S):			Longitude (E):		
27°	59'	22.66"	31°	30'	39.98"

### Phethu River:

#### **Alternative:**

Alternative S1<sup>3</sup> (preferred or only site alternative)

Latitude (S):			Longitude (E):		
27°	59'	11.52"	31°	30'	26.26"

### Kwasitholane River:

#### **Alternative:**

Alternative S1<sup>4</sup> (preferred or only site alternative)

Latitude (S):			Longitude (E):		
27°	58'	14.87"	31°	30'	20.85"

<sup>1</sup> "Alternative S.." refer to site alternatives.

<sup>2</sup> "Alternative S.." refer to site alternatives.

<sup>3</sup> "Alternative S.." refer to site alternatives.

<sup>4</sup> "Alternative S.." refer to site alternatives.

**In the case of linear activities:**

**Alternative:**

Alternative S1 (preferred or only route alternative)

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

**Latitude (S):**

**Longitude (E):**

N/A					
N/A					
N/A					

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

**6. PHYSICAL SIZE OF THE ACTIVITY**

7.

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

**Size of the activity:**

**Alternative:**

Mahambuma / Tatiyane River:

Phenyane River:

Phethu River:

Kwasitholane River:

Approximately 10m x 57m = 570 m <sup>2</sup>
Approximately 10m x 42m = 420 m <sup>2</sup>
Approximately 10m x 48m = 480 m <sup>2</sup>
Approximately 10m x 25.5m = 252 m <sup>2</sup>

**Alternative:**

Mahambuma / Tatiyane River:

Phenyane River:

Phethu River:

Kwasitholane River:

**Length of the activity:**

Approximately 57 m
Approximately 42 m
Approximately 48 m
Approximately 25.2 m

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

**Alternative:**

Mahambuma / Tatiyane River:

Phenyane River:

Phethu River:

Kwasitholane River:

**Size of the site/servitude:**

N/A
N/A
N/A
N/A

**8. SITE ACCESS**

Mahambuma / Tatiyane River:

Does ready access to the site exist?

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

Describe the type of access road planned:

YES	
N/A	

N/A

**Phenyane River:**

Does ready access to the site exist?

YES

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

N/A

Describe the type of access road planned:

N/A

**Phethu River:**

Does ready access to the site exist?

YES

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

N/A

Describe the type of access road planned:

N/A

**Kwasitholane River:**

Does ready access to the site exist?

YES

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

N/A

Describe the type of access road planned:

N/A

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

**9. SITE OR ROUTE PLAN**

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

The site or route plans must indicate the following:

- 9.1. the scale of the plan which must be at least a scale of 1:500;
- 9.2. the property boundaries and numbers/ erf/ farm numbers of all adjoining properties of the site;
- 9.3. the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 9.4. the exact position of each element of the application as well as any other structures on the site;
- 9.5. the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 9.6. walls and fencing including details of the height and construction material;
- 9.7. servitudes indicating the purpose of the servitude;
- 9.8. sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
  - rivers, streams, drainage lines or wetlands;
  - the 1:100 year flood line (where available or where it is required by DWA);
  - ridges;



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- cultural and historical features;
  - areas with indigenous vegetation including protected plant species (even if it is degraded or infested with alien species);
- 9.9. for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 9.10. the positions from where photographs of the site were taken.

### 10. 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.

### 11. FACILITY ILLUSTRATION

A detailed illustration of the facility must be provided at a scale of 1:200 and attached to this report as Appendix C. The illustrations must be to scale and must represent a realistic image of the planned activity/ies.

**Completed for all four bridges (four bridges combined)**

### 12. ACTIVITY MOTIVATION

#### 12.1. Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 25 Million
What is the expected yearly income that will be generated by or as a result of the activity?	N/A
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development phase of the activity?	70
What is the expected value of the employment opportunities during the development phase?	R9 Million
What percentage of this will accrue to previously disadvantaged individuals?	20%
How many permanent new employment opportunities will be created during the operational phase of the activity?	N/A
What is the expected current value of the employment opportunities during the first 10 years?	N/A
What percentage of this will accrue to previously disadvantaged individuals?	N/A

## 12.2. Need and desirability of the activity

### Completed for all four bridges

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

The construction of these three bridges is of great importance, as it will allow the safe crossing of vehicles and people over the Mahambuma/ Tatiyane, Phenyane and Phethu Rivers.

The existing river crossing over the Kwasitholane River is not of a high enough standard to cope with current and predicted traffic volumes and therefore needs to be upgraded.

The provision and improvement of basic infrastructure, such as roads and bridges, is a developmental priority within the area. The P736 was previously upgraded to a blacktop road; however, these structures were not upgraded at that time and have subsequently degraded to the extent that they pose a threat to the people who use them, the P736 road's structural integrity and to the environment. Upgrading these structures is therefore the only way forward and will benefit local communities for many years to come, as well as contribute to the development of basic and essential infrastructure in the area.

Indicate any benefits that the activity will have for society in general:

The proposed infrastructure will facilitate safe access to basic amenities, allowing better access to schools, work, medical facilities and shops. This will improve the quality of life for the local community. In addition, the four bridges will provide a safer means for vehicles and pedestrians to cross the Rivers, especially during periods of heavy rainfall, as the existing structures are not in a good condition at all. This will also aid adequate access to the community for emergency personnel such as fire fighters or ambulances in case of emergencies.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The P736 road has previously been upgraded and the crossing structures along this road need to be upgraded to an appropriate standard, in order for the road to be utilised fully. If the road is of a certain standard and the crossing structures are not, it negates the positive impact of the road and reduces the whole route to the standard of the crossing structures. The chosen locations have been chosen to be as close as possible to the existing structures, thereby negating any need for the road to be realigned which is both expensive and time consuming.

This infrastructure will help enable local people to travel safely to opposite sides of the rivers. This has the potential to enable the community to find work more easily. Improved network links could encourage businesses to become established in the area, and also possibly encourage school attendance due to the improved ease of movement, thus raising education levels and the standard of living for people in these rural areas.

## 13. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline:	Administering authority:	Date:
National Environmental Management Act (Act 107 of 1998) – for its potential to cause degradation of the environment (Section 28).	Dept of Environmental Affairs and Tourism	1998
National Water Act (Act 36 of 1998) – for potential to	Dept of Water Affairs and	1998

cause pollution of water resources defined under the Act (Section 19).	Forestry	
Conservation of Agricultural Resources Act (Act 43 of 1983) — for control and removal of alien invasive plants (Regulations 14 & 15).	Dept of Agriculture	1983

**14. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT**  
**Completed for all four bridges**

**14.1. Solid waste management**

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

YES	<input type="checkbox"/>
Impossible to predict	<input type="checkbox"/>

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

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

Any leftover material will be disposed of by the contractor. All hazardous waste (e.g. concrete spills or diesel spills) must be disposed of at an appropriate Hazardous Waste Disposal Facility (H:h Facility). All general waste must be disposed of at a permitted landfill site. It is recommended that construction waste be separated on site - usable materials should be donated to the local community or recycled, as far as possible, in order to minimize the impact on existing landfill sites. No burning of waste will be permitted on site.

Where will the construction solid waste be disposed of? (provide details of landfill site)

Solid waste will be recycled where possible. Any leftover solid waste will either be disposed of at a registered landfill site or donated to local communities.

Will the activity produce solid waste during its operational phase?

<input type="checkbox"/>	NO
<input type="checkbox"/>	N/A

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

How will the solid waste be disposed of? (provide details of landfill site)

N/A

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

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine the further requirements of the application.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

<input type="checkbox"/>	NO
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**If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.**

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

<input type="checkbox"/>	NO
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**If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.**

**14.2. Liquid effluent**

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

<input type="checkbox"/>	NO
<input type="checkbox"/>	N/A

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

Will the activity produce any effluent that will be treated and/or disposed of on site?  YES  NO

**If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.**

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

If yes, provide the particulars of the facility:

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

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

N/A

### 14.3. Emissions into the atmosphere

**Completed for all four bridges**

Will the activity release emissions into the atmosphere?  YES  NO

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

**If yes, contact the KZN Department of Agriculture & Environmental Affairs to obtain clarity regarding the process requirements for your application.**

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

Dust from machinery, construction vehicles and personnel will be created during the construction phase.

### 14.4. Generation of noise

**Completed for all four bridges**

Will the activity generate noise?  YES  NO

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

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

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

Noise from machinery, construction vehicles and personnel will be created during the construction phase.

**15. WATER USE**

**Completed for all four proposed bridges**

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	river, stream, dam or lake	<input type="checkbox"/>
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Impossible to predict. If required, the Application will make the necessary applications.

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

See above

If YES, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this report.

**16. ENERGY EFFICIENCY**

**Completed for all four proposed bridges**

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

N/A

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

N/A

**SECTION C: SITE/ AREA/ PROPERTY DESCRIPTION**

**Important notes:**

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

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

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

### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

**Mahambuma / Tatiyane River:**

Flat		1:20	–			
		1:15				

**Phenyane River:**

Flat		1:10	–	1:7,5 – 1:5	Steeper than 1:5
		1:7,5			

**Phethu River:**

Flat		1:10	–	1:7,5 – 1:5	Steeper than 1:5
		1:7,5			

**Kwasitholane River:**

Flat		1:10	–	1:7,5 – 1:5	Steeper than 1:5
		1:7,5			

### 2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (Please cross the appropriate box)

**Mahambuma / Tatiyane River:**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front	

**Phenyane River:**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front	

**Phethu River:**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front	

**Kwasitholane River:**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front	

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

Completed for all four proposed bridges

<input type="checkbox"/>	NO
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Has a specialist been consulted for the completion of this section?

If YES, please complete the following:

Name of the specialist:	N/A		
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?

<input type="checkbox"/>	NO
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If YES, specify and explain:

N/A
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Are there any special or sensitive habitats or other natural features present on any of the alternative sites? YES

If YES, specify and explain: NO

The proposed activity is the establishment of three bridge structures and the extension of an existing bridge structure. All the bridges cross water courses. Although a water course is a sensitive habitat, there is no rare or endangered vegetation in the vicinity of the proposed crossing points. Alien vegetation dominates the banks of these rivers. Provided that erosion control measures are implemented during both the construction and operational phases, that construction takes place during the drier months (so the flow of water is not impeded), and that alien vegetation control programmes are implemented, the proposed development should not negatively impact on the riverine system. The proper implementation of the EMP will further minimise the possibility of detrimental impacts occurring.

Are any further specialist studies recommended by the specialist? NO

If YES, specify: NO

N/A

If YES, is such a report(s) attached in Appendix D? NO

Signature of specialist: \_\_\_\_\_ Date: \_\_\_\_\_

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

**Mahambuma /  
Tatiyane River,  
Phenyane River  
and Phethu River:**      **Kwasitholane  
River:**

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

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

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**4. GROUNDCOVER**

Has a specialist been consulted for the completion of this section?  NO

If YES, please complete the following:

Name of the specialist:

Qualification(s) of the specialist:

Postal address:

Postal code:

Telephone:  Cell:

E-mail:  Fax:

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?  NO

If YES, specify and explain:

Are there any special or sensitive habitats or other natural features present on any of the alternative sites?  NO

If YES, specify and explain:

Are any further specialist studies recommended by the specialist?  NO

If YES, specify:

If YES, is such a report(s) attached in Appendix D?  NO

Signature of specialist: \_\_\_\_\_ Date:

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

**Mahambuma / Tatiyane River:**

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

**Phenyane River:**

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

**Phethu River:**

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

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

### 5. LAND USE CHARACTER OF SURROUNDING AREA

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

#### Completed for all four sites

Land use character			Description
Natural area	YES		The natural areas surrounding the proposed development sites do not contain any species of high conservation importance, but are rather heavily infested with alien vegetation. It is likely that, through the implementation of the EMPr and the recommended Alien Vegetation Control Programme, the proposed development may have a positive impact on the natural areas surrounding the proposed development sites.
Low density residential	YES		It is likely that the residents living in the surrounding areas will be negatively impacted by the proposed development through the generation of dust and noise by construction activities, as well as increased traffic as a result of construction vehicles. In the long term, however, the local communities will benefit from having improved structures for crossing the rivers, even during and after heavy rain events.
Medium density residential		NO	
High density residential		NO	
Informal residential	YES		It is likely that the residents living in the surrounding areas will be negatively impacted by the proposed development through the generation of dust and noise by construction activities, as well as increased traffic as a result of construction vehicles. In the long term, however, the local

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			communities will benefit from having improved structures for crossing the rivers, even during and after heavy rain events.
Retail commercial & warehousing		NO	
Light industrial		NO	
Medium industrial		NO	
Heavy industrial		NO	
Power station		NO	
Office/consulting room		NO	
Military or police base/station/compound		NO	
Spoil heap or slimes dam		NO	
Quarry, sand or borrow pit		NO	
Dam or reservoir		NO	
Hospital/medical centre		NO	
School/ crèche	YES		The establishment of improved crossing points will provide school children and teachers with a more reliable and safer access to schools, within the immediate area as well as ones located further away.
Tertiary education facility		NO	
Church	YES		The establishment of improved crossing points will provide church goers with a more reliable and safer access to Churches/religious gatherings both within the immediate area as well as those further away.
Old age home		NO	
Sewage treatment plant		NO	
Train station or shunting yard		NO	
Railway line		NO	
Major road (4 lanes or more)		NO	
Airport		NO	
Harbour		NO	
Sport facilities		NO	
Golf course		NO	
Polo fields		NO	
Filling station		NO	
Landfill or waste treatment site		NO	
Plantation		NO	
Agriculture		NO	
River, stream or wetland	YES		The rivers will be impacted upon by construction activities. Provided the EMPr is properly implemented, impacts can be minimised and mitigated during decommissioning (of the existing structure) construction, and rehabilitated post construction. It is likely that the current structure is contributing to erosion, and thus downstream sedimentation, as well as flow obstruction. Thus implementation of the proposed structure, and the decommissioning of the current structure,

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			will halt these current negative impacts.
Nature conservation area		NO	
Mountain, hill or ridge		NO	
Museum		NO	
Historical building		NO	
Protected Area		NO	
Graveyard		NO	
Archaeological site		NO	
Other land uses (describe)		NO	

### 6. CULTURAL/ HISTORICAL FEATURES

#### Completed for all four proposed bridges

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or within 20m of the site?

	NO
--	----

If YES, contact a specialist recommended by AMAFA to conduct a heritage impact assessment. The heritage impact assessment must be attached as an appendix to this report.

Briefly explain the recommendations of the specialist:

There is no evidence of any heritage features at any of the site.
---

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

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

	NO
--	----

If YES, please submit the necessary application to AMAFA and attach proof thereof to this report.

## SECTION D: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT

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

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  - (i) the site where the activity to which the application relates is or is to be undertaken; and
  - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;

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- (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
- (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
- (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
- (v) the local and district municipality which has jurisdiction in the area;
- (vi) any organ of state having jurisdiction in respect of any aspect of the activity (as identified in the application form for the environmental authorization of this project); and
- (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
  - (i) one local newspaper; or
  - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  - (i) illiteracy;
  - (ii) disability; or
  - (iii) any other disadvantage.

## 2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
  - (i) that an application for environmental authorization has been submitted to the KZN Department of Agriculture & Environmental Affairs in terms of the EIA Regulations, 2010;(ii)
  - (iii) a brief project description that includes the nature and location of the activity to which the application relates;
  - (iv) where further information on the application can be obtained; and
  - (iv) the manner in which and the person to whom representations in respect of the application may be made.

## 3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper,

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indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

### 4. DETERMINATION OF APPROPRIATE PROCESS

The EAP must ensure that the public participation process is according to that prescribed in regulation 54 of the EIA Regulations, 2010, but may deviate from the requirements of subregulation 54(2) in the manner agreed by the KZN Department of Agriculture & Environmental Affairs as appropriate for this application. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate.

Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

### 5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before this application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations (regulation 57 in the EIA Regulations, 2010) and be attached as Appendix E to this report.

### 6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES

District, local and traditional authorities (where applicable) are all key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of this application and provided with an opportunity to comment.

Has any comment been received from the district municipality?

YES  NO

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

**Comment will be included in the Final Basic Assessment Report.**

Has any comment been received from the local municipality?

YES  NO

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

**Comment will be included in the Final Basic Assessment Report.**

Has any comment been received from a traditional authority?

YES  NO

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If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

**A signed landowner's consent form has been provided by the Ingonyama Trust.**

### 7. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

YES

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

**BID:**

**Carolyn Schwegman, WESSA, 18 February 2013:**

- Thank you for notifying WESSA of the DoT project. WESSA does not wish to register as an I&AP and we do not require further information.
- We trust that site specific EMP's, with method statements, for each bridge will be developed to ensure damage and water pollution is avoided, and in places where plants, such as Aloes are present, plant rescue and relocation will be undertaken.

**Nompumelelo Mdlalose, DWA, 14 January 2013:**

- Are all the causeways existing, or is the establishment of new ones planned?
- Where will water for construction be sourced from?
- The Department awaits further documentation to comment.

**Roy Ryan, Department of Transport, 22 April 2013:**

- In connection with the abovementioned proposed causeways and the expansion of an existing causeway, I have to inform you that the Minister as the Controlling Authority as defined in the KZN Roads Act No. 4 of 2001, has in terms of Section 13 of the said Act, has no objections to the Background Information Document as follows.
- All structures and services are to be approved and placed in consultation with and to the satisfaction of this Cost Centre Manger, Pietermaritzburg Tel: 033 387 2320.
- In view of the proposed causeways development shown on figure 1 this Department requires the applicant to consult with our Bridge Office, Chief Engineer, Mr D. Bryan Tel: 033 355 0542.
- All costs incurred, as a result of these requirements shall be borne entirely by the developer.
- This approval shall not exempt the applicant from the provisions of any other law.

## SECTION E: IMPACT ASSESSMENT

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

## 1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

### Completed for all four proposed bridges

List the main issues raised by interested and affected parties.

1. Site specific Environmental Management Program to be developed.
2. Plant rescue and relocation
3. Are all the causeways existing, or is the establishment of new ones planned?
4. Where will water for construction be sourced from?
5. Minister of the Department of Transport has no objections.
6. All structures and services are to be approved and placed in consultation with and to the satisfaction of this Cost Centre Manger, Pietermaritzburg Tel: 033 387 2320.
7. In view of the proposed causeways development shown on figure 1 this Department requires the applicant to consult with our Bridge Office, Chief Engineer, Mr D. Bryan Tel: 033 355 0542.
8. All costs incurred, as a result of these requirements shall be borne entirely by the developer.

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

1. An Environmental Management Program (EMPr) has been developed to ensure that environmental damage is kept to an absolute minimum throughout the various phases of the development.
2. As a part of the EMPr, all plants will be stockpiled for use in the rehabilitation of the site. The sites are all degraded and infected with Alien vegetation, however, should any valuable indigenous plants be found, they will be relocated to a suitable location.
3. Three are new and one is existing.
4. Water will be sourced from the river.
5. Noted.
6. The Applicant and Engineers have been informed of this.
7. This has been communicated to the Applicant and Engineers.
8. This has been communicated to the Applicant and Engineers.

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

### Completed for all four proposed bridges

#### 2.1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

##### a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the planning and design phase:

##### Alternative S1 (preferred alternative)

##### **Direct impacts:**

- The construction of the bridges will enable people to access the various amenities located on

either side of the Mahambuma / Tatiyane, Phenyane, Phethu and Kwasitholane Rivers safely and reliably.

**Indirect impacts:**

- People will be able to get to school, medical facilities, shops and work more easily and safely.

**Cumulative impacts:**

- Local enterprises will benefit from being able to be permanently accessed.
- A more reliable and safe link will encourage a greater number of people to travel to and from, which will increase business potential in the local area.
- Emergency vehicles (police, fire engines, ambulances, doctors) and access to medical facilities will enable people to get medical assistance more easily.
- Children will be able to access schools, increasing the educational levels of the community which will in turn encourage/facilitate a better quality of life.

**No-go alternative (compulsory)**

**Direct impacts:**

- Local enterprises will not benefit from being able to be permanently accessed.
- No reliable and safe road link will be created.
- Emergency vehicles will have difficulty accessing the area.
- Children will be unable to access schools during and after high rains.
- People will have difficulty in crossing the four rivers, especially during the rainy season.
- Vehicles will continue to drive on the existing structures, endangering drivers, passengers and pedestrians.

**Indirect impacts:**

- Children will continue to struggle to attend school.
- People will continue to struggle to get to work.
- Community will continue to struggle to access shops and medical facilities.

**Cumulative impacts:**

- Children will not be able to receive a good education.
- People will lose their jobs if they cannot get to work timeously, and dependent families will suffer.
- Local enterprises will suffer financially if clients cannot reach them.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative S1**

- The proposed bridges must be able to withstand elevated water levels from high rainfall events.
- The bridge design and materials must be able to withstand heavy vehicles through the use of quality building materials.

**b. Process, technology, layout or other alternatives**

List the impacts associated with any process, technology, layout or other alternatives that are likely to occur during the planning and design phase (please list impacts associated with each alternative separately):

**Alternative A1 (preferred alternative)**

**Direct impacts:**

- If not properly constructed, the proposed bridges could cause bank and bed instability.
- If not properly investigated, the structures could impact on the community's water use, property and land.



- If not properly constructed, the bridges could cause erosion.
- If the bridges' drainage is not properly considered, rutting may occur.

**Indirect impacts:**

- Bank and bed instability could result in increased erosion.
- Rutting of the bridges will lead to degradation of the road structure.
- The planning and design phase will create employment for highly skilled personal (consulting engineers).

**Cumulative impacts:**

- Increased erosion could result in increased sedimentation which could impact on ecological processes downstream.

**No-go alternative (compulsory)**

**Direct impacts:**

- Vehicles will continue to be damaged by degraded structures.
- Communities will remain inaccessible during and after heavy rains.
- People and vehicles will be unable to cross the rivers during and after high rainfall events.
- People's lives could be lost if swept away by the water.
- Emergency vehicles (police, fire engines, ambulances, doctors) will not be able to get to people in need of assistance quickly.
- The South African Constitution, Bill of Rights states that it is a child's right to a basic education, therefore by not establishing the bridges; it is directly hindering and preventing children from accessing their basic human rights.

**Indirect impacts:**

- Children will continue to struggle to attend school. People will continue to struggle to get to work.
- The upgrade of the P736 Road to a blacktop will be negatively affected by not also upgrading the river crossings. As those degrade further, they will impact on the road's integrity through erosion, rutting etc.
- If the river crossings become unusable, the road itself will become obsolete.

**Cumulative impacts:**

- Children will not be able to receive a good education.
- People will lose their jobs if they cannot get to work timeously, and dependent families will suffer.
- Local enterprises will suffer financially if clients cannot reach them.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1:**

- The design of the proposed structures must feature appropriate surface water / stormwater management and erosion control measures.
- It must be ensured that the bridges designs do not impede the flow of water in the river.
- Construction should take place during the dry season.
- If required, suitable alternative access routes must be established before construction commences. These alternative routes must ensure that vegetation clearing is kept to a minimum.

## 2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

### a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the construction phase:

#### Alternative S1 (preferred site)

##### **Direct impacts:**

- Indigenous vegetation could be lost, from machinery, equipment and personnel moving around the construction sites.
- Potential for pollution of the sites and surrounding areas (oil spills from machinery, litter from personnel on site, packaging from materials).
- Dust and noise for neighbouring residents.
- Potential for trespassing onto neighbouring properties.
- Erosion of the site may occur due to inappropriate surface water management.

##### **Indirect impacts:**

- Ecological processes (both terrestrial and aquatic) could be negatively impacted on.
- Provision of temporary job opportunities (for engineers, labours etc).
- Revenue for local sand and stone suppliers (Ulundi / Nongoma).

##### **Cumulative impacts:**

- None.

#### No-go alternative (compulsory)

##### **Direct impacts:**

- Vehicles and pedestrians will not be able to access opposite sides of the Rivers safely, especially during the rainy season.
- No damage to indigenous fauna and flora will occur.
- No potential for pollution from construction activities.
- No dust and noise nuisance will occur for neighbouring residents.

##### **Indirect impacts:**

- People will continue to struggle to get to their destinations safely.
- Ecological processes (both terrestrial and aquatic) would not be negatively impacted on. However it is likely that the degraded crossing structures are currently causing erosion and thus downstream sedimentation.
- No job opportunities would be created.
- No additional revenue for local building material suppliers.

##### **Cumulative impacts:**

- Children's education could be hampered if they are unable to cross the Rivers safely.
- People will lose their jobs if they cannot get to work timeously, and dependent families will suffer.
- Local enterprises will suffer financially if clients cannot reach them.

Indicate mitigation measures to manage the potential impacts listed above:

#### Alternative S1

- Vegetation clearing must be kept to a minimum during site preparation and construction.
- Site personnel must be educated on keeping any vegetation disturbance to a minimum, and on the correct disposal of different types of waste.
- All machinery and equipment must be regularly serviced and maintained to keep noise, dust

- and possible leaks to a minimum.
- Sewage from any temporary ablution facility must be properly disposed of.
- Any leftover material must be appropriately disposed of (i.e. at a registered landfill site, recycled, used by the community).
- Personnel must not be allowed to trespass onto neighbouring properties.
- Appropriate stormwater / surface water management measures must be put in place before construction commences.
- If or when necessary, erosion control measures must be installed during construction.
- Local people should be employed where possible.

**b. Process, technology, layout or other alternatives**

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the construction phase (please list impacts associated with each alternative separately):

**Alternative A1 (preferred alternative)**

**Direct impacts:**

- Temporary interruption of stream flow whilst construction is taking place.

**Indirect impacts:**

- The streams may be difficult to cross during construction.
- An alternative route may need to be used during construction.

**Cumulative impacts:**

- People (school children, workers and emergency services) may have difficulties crossing the rivers during construction. This could result in people losing their jobs, children not attending school and people's safety being jeopardised.

**No-go alternative (compulsory)**

**Direct impacts:**

- Vehicles and pedestrians will not be able to access opposite sides of the four rivers, especially during the rainy season.
- No damage to indigenous fauna and flora will occur.
- No potential for pollution from construction activities.
- No dust and noise nuisance will occur for neighbouring residents.

**Indirect impacts:**

- People will continue to struggle to get to their destinations safely.
- Ecological processes (both terrestrial and aquatic) would not be negatively impacted on. However it is likely that the degraded structures are currently causing erosion and thus downstream sedimentation.
- No job opportunities would be created.
- No additional revenue for local building material suppliers.
- Emergency vehicles and personnel will not be able to access the communities living across the four rivers.

**Cumulative impacts:**

- Children's education could be hampered if they are unable to cross the Rivers safely.
- People will lose their jobs if they cannot get to work timeously, and dependent families will suffer.
- Local enterprises will suffer financially if clients cannot reach them.

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Indicate mitigation measures to manage the potential impacts listed above:

### **Alternative A1:**

- It must be ensured that stream disturbance is kept to a minimum.
- Construction should take place during the dry season.
- All construction must be sensitive to the natural vegetation. Where indigenous vegetation removal is unavoidable, it is recommended that a plant rescue operation is implemented, and the rescued plants are replanted following completion of construction.
- Rehabilitation must take place directly after construction, and only indigenous species from the local area must be planted.

### **2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE**

#### **a. Site alternatives**

List the potential impacts associated with site alternatives that are likely to occur during the operational phase:

#### **Alternative S1 (preferred alternative)**

##### **Direct impacts:**

- Access across the rivers will be more reliable and safer for vehicles and pedestrians alike.
- The access route will allow safer, easier access to the areas it services.

##### **Indirect impacts:**

- The more frequent usage of the bridges could facilitate the spread of alien vegetation.

##### **Cumulative impacts:**

- Those communities accessed via the bridges will have improved infrastructure. Thus, people will be able to commute more safely and reliably and it is likely that local businesses will benefit.
- Emergency services will be able to access these rural areas more efficiently.

#### **No-go alternative (compulsory)**

##### **Direct impacts:**

- Vehicles will to be damaged due to the poor condition of the existing structures.
- Communities will remain inaccessible.
- Emergency vehicles (police, fire engines, ambulances, doctors) will not be able to get to people in need of assistance.

##### **Indirect impacts:**

- Children will be unable to attend school during and after high rain events.
- People will be unable to get to work during and after high rain events.

##### **Cumulative impacts:**

- Children will not be able to receive a good education.
- People will lose their jobs if they cannot get to work, and dependent families will suffer.

Indicate mitigation measures to manage the potential impacts listed above:

### **Alternative S1**

- The bridges must be regularly monitored and properly maintained.
- The area should be regularly checked for the establishment of alien vegetation, and if found, should be promptly and correctly removed.

**b. Process, technology, layout or other alternatives**

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the operational phase (please list impacts associated with each alternative separately):

**Alternative A1 (preferred alternative)**

**Direct impacts:**

- Erosion may occur around the bridges if they are not properly maintained.
- Ongoing maintenance of the infrastructure will be necessary.

**Indirect impacts:**

- None.

**Cumulative impacts:**

If erosion occurs, it may result in the sedimentation of the channel further downstream.

**No-go alternative (compulsory)**

**Direct impacts:**

- Vehicles and pedestrians will not be able to access opposite sides of the four rivers safely, especially during the rainy season.
- No damage to indigenous fauna and flora will occur.
- No potential for pollution from construction activities.
- No dust and noise nuisance will occur for neighbouring residents.

**Indirect impacts:**

- People will continue to struggle to get to their destinations safely.
- Ecological processes (both terrestrial and aquatic) would not be negatively impacted on. However it is likely that the dilapidated structures are currently causing erosion and thus downstream sedimentation.
- No job opportunities would be created.
- No additional revenue for local building material suppliers.

**Cumulative impacts:**

- Children will not be able to receive a good education.
- People will lose their jobs if they cannot get to work timeously, and dependent families will suffer.
- Local enterprises will suffer financially if clients cannot reach them.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1**

- The structures must be regularly checked for damage, and properly maintained when required.
- The area surrounding the structures must be regularly checked for signs of erosion. If erosion is evident, corrective action must be taken.
- If there is evidence of erosion, the channel downstream must be checked for sedimentation. If increased sedimentation is observed, corrective action must be taken.

## 2.4. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE

### a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the decommissioning or closure phase:

#### Completed for all four bridges

##### Alternative S1 (preferred alternative)

###### **Direct impacts:**

- The removal of the existing structures could obstruct the flow of the rivers, and thus cause erosion, if not properly conducted.
- Dust and noise impacts for the surrounding community.
- If the waste material (i.e. building rubble) is not appropriately disposed of, this material could pollute the environment, and be a danger for surrounding residents (e.g. children could play on the material and hurt themselves).

###### **Indirect impacts:**

- If erosion occurs, this could result in sedimentation downstream.

###### **Cumulative impacts:**

- Increased downstream sedimentation over time.

#### Completed for all four proposed bridges

##### No-go alternative (compulsory)

###### **Direct impacts:**

- Vehicles and pedestrians will not be able to access opposite sides of the four rivers safely, especially during the rainy season.
- Emergency vehicles and personnel will not be able to reach communities on the other side of the four rivers.
- No damage to indigenous fauna and flora will occur.
- No potential for pollution from construction activities.
- No dust and noise nuisance will occur for neighbouring residents.

###### **Indirect impacts:**

- People will continue to struggle to get to their destinations safely.

###### **Cumulative impacts:**

- Children will not be able to receive a good education.
- People will lose their jobs if they cannot get to work timeously, and dependent families will suffer.
- Local enterprises will suffer financially if clients cannot reach them.

Indicate mitigation measures to manage the potential impacts listed above:

##### Alternative S1

Only decommission the bridges if they are no longer needed (i.e. if the route is no longer used, or an alternative route has been established), or if the structures are required to be replaced with a similar or improved structure.

**b. Process, technology, layout or other alternatives**

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the decommissioning or closure phase (please list impacts associated with each alternative separately):

**Alternative A1 (preferred alternative)**

**Direct impacts:**

- If not properly dismantled, leftover materials could pollute or accelerate erosion within the water courses.

**Indirect impacts:**

- None.

**Cumulative impacts:**

- None.

**No-go alternative (compulsory)**

**Direct impacts:**

- Vehicles and pedestrians will not be able to access opposite sides of four rivers safely, especially during the rainy season.
- No damage to indigenous fauna and flora will occur.
- No potential for pollution from construction activities.
- No dust and noise nuisance will occur for neighbouring residents.

**Indirect impacts:**

- People will continue to struggle to get to their destinations safely.

**Cumulative impacts:**

- Children will not be able to receive a good education.
- People will lose their jobs if they cannot get to work timeously, and dependent families will suffer.
- Local enterprises will suffer financially if clients cannot reach them.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1**

- When decommissioning, all materials must be appropriately disposed of (i.e. at a registered landfill site, recycled, used by the community).
- During decommissioning, vegetation and stream disturbance must be kept to a minimum.
- Site personnel must be educated on keeping any vegetation disturbance to a minimum.
- Sewage from any temporary ablution facility must be properly disposed of.
- Personnel must not be allowed to trespass onto neighbouring properties.
- Local people should be employed where possible.

**2.5. PROPOSED MONITORING AND AUDITING**

For each phase of the project and for each alternative, please indicate how identified impacts and mitigation will be monitored and/or audited.

**Alternative S1 (preferred site)**

It is recommended that the Environmental Management Programme (EMPr) be implemented. This document should form part of the contractor's tender documents. Independent EMPr monitoring should be conducted by an external Environmental Control Officer (ECO).

**Alternative A1 (preferred alternative)**

It is recommended that the Environmental Management Programme (EMPr) be implemented.

This document should form part of the contractor's tender documents. Independent EMP monitoring should be conducted by an external Environmental Control Officer (ECO).

### 3. ENVIRONMENTAL IMPACT STATEMENT

#### Completed for all four bridges

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 S1 (preferred site)

##### **Land and Water Pollution:** *(temporary, high probability, high impact)*

- As construction sites will be in close proximity to the watercourses there is the potential for accidental spills of fuel or oil to enter the watercourse. Accidental spills of cement, sand and other building materials could be equally detrimental to the rivers in question. As would the permeation of groundwater from incorrectly stored building materials and fuels, run off from ablution facilities and sewage or chemicals from chemical toilets. Recommendations contained in this report and in the EMP must be adhered to as a matter of high importance.

##### **Air Pollution – Dust during construction:** *(temporary, high probability, medium impact)*

- Dust will be created during the construction phase by construction vehicles and any cut and fill activities. This is considered a medium impact. However, this will be temporary and can be mitigated by using the dust suppression methods contained in this report and the EMP.

##### **Erosion:** *(permanent, medium probability, high impact)*

- During both construction and operation, possible erosion could occur. Erosion could affect bank integrity; result in sedimentation and cause detrimental changes to the flow of the rivers affected. However, provided that the construction phase erosion mitigations, contained in this report and in the EMP, are implemented and provided that the operational bridges are regularly inspected and erosion control measures are repaired where necessary, erosion can be controlled and avoided. It should be noted that the current, degraded structures are likely to be causing erosion and sedimentation at present which means that upgrading the structures will be environmentally beneficial.

##### **Construction Noise:** *(temporary, high probability, low impact)*

- Throughout the construction phase there will be noise from machinery, vehicles and construction workers. This will be temporary and will only be within specified working times. The impact is considered low as the construction sites are not located in densely populated areas where residential establishments are very near to the sites.

##### **Traffic Impact:** *(permanent, high probability, positive impact)*

- While traffic may increase, the proposed development will have a positive impact on traffic in the area. This is because vehicles will have better means to travel along the P736 without fear of damage from the degraded structures. The area is not a busy one in terms of vehicular traffic and the increase in traffic will not have any detrimental impacts on local residents. Upgrading the crossing structures is essential to the upgrade of the P736 Road as it will be rendered redundant if traffic travelling along it is unable to cross the rivers with ease.

##### **Socio-Economic Impact:** *(permanent, high probability, positive impact)*

- More reliable access links will encourage a greater number of people to travel to and through the rural areas, which will increase business potential in the rural areas.
- People will be able to travel more safely and reliably to work / school.
- Improved access infrastructure can help people travel further to find work and thus improving the local economy and standard of living.
- The improved infrastructure in the area will facilitate better access to essential services, such as medical



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- services, as well access for emergency vehicles and personnel, such as paramedics and ambulances.
- The construction phase will create temporary jobs for the local community as well as the skilled and unskilled employees of related industries which provide the services, materials and transportation necessary for the development to take place.

### Conclusion:

The Socio-economic benefits of the proposed development are significant. The Construction Phase will be of short duration and the Operational Phase will have limited environmental impacts, provided that the conditions set out in this report are adhered to and the Environmental Management Programme is properly implemented and the project managed accordingly. The proposed project will also have some positive impacts on the environment in terms of erosion control. The proposed development is, therefore, supported from an environmental perspective.

### No-go alternative (compulsory)

Should the proposed development not take place, the following impacts would/would not occur:

#### Land and Water Pollution: (*occasional, medium probability, high impact*)

- Potential land and water pollution from the Construction Phase would not occur. However, as the structures degraded further, there would be the increased potential for vehicle accidents and breakdowns in close proximity to the rivers which would increase the potential for the rivers to become contaminated by fuel and oil from the damaged vehicles. As these would happen ad hoc and outside a controlled and monitored construction context, it is unlikely that they would be reported or any mitigation measures would be taken. Thus it can be considered to be in the river's best interest to have the structures upgraded.

#### Air Pollution – Dust during construction: (*N/A*)

- There would be no construction and thus no construction related dust.

#### Erosion: (*permanent, high probability, high impact*)

- There would be no construction related erosion. However, if the degraded structures were left as they are to continue to degrade, the high likelihood of current erosion would become a certainty and would become worse over time. This would negatively impact on the rivers' bank integrity, sedimentation levels and possibly cause detrimental changes to the flow of the rivers affected. This, in turn, would negatively impact on the ecology of the watercourses and surrounding riparian areas.

#### Construction Noise: (*N/A*)

- There would be no construction related noise.

#### Traffic Impact: (*permanent, high probability, positive impact*)

- Vehicular traffic would remain at low levels and decrease over time as the structures degraded further. This would effectively negate the positive impacts of upgrading the P736 Road and render the upgrade redundant.

#### Socio-Economic Impact: (*permanent, high probability, positive impact*)

- Increasingly unreliable access links will discourage people from travelling to and from the rural areas, which will decrease business and earning potential.
- People travelling to work / school will not benefit from improved infrastructure and they will be increasingly negatively impacted upon as the structures continue to degrade.
- Improved access infrastructure can help people travel further to find work and thus improving the local economy and standard of living.
- Access to essential services, such as medical services, as well access for emergency vehicles and personnel, such as paramedics and ambulances will remain the same and worsen over time as the structures degrade further.
- There will be no jobs created as a result of the construction phase.

### Conclusion:

The Socio-economic benefits of the proposed development are significant. The Construction Phase will be of short duration and the Operational Phase will have limited environmental impacts. The proposed project will also have positive impacts on the environment in terms of erosion control. The proposed development is, therefore, supported from an environmental perspective. Furthermore, if the development is not implemented the

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environmental and socio-economic impacts will not merely remain as they are, but will in fact worsen over time.

The no-go alternative would be to continue to let vehicles and pedestrians cross the rivers at their own risk. This will likely result in emergency vehicles not being able to get to people in need of assistance, lives being lost due people being swept away during and after high rainfall events; people not being able to arrive at work timeously and thus provide a sustainable income for their family, children not being able to received a full education, and vehicles continuing to be damaged. The local economy will not benefit if these bridges are not established.

### SECTION F. RECOMMENDATION OF EAP

Is the information contained in this report and the documentation attached hereto in the view of the EAPr sufficient to make a decision in respect of this report?

If "NO", please contact the KZN Department of Agriculture & Environmental Affairs regarding the further requirements for your report.

YES	

If "YES", please attach the draft EMPr as Appendix F to this report and 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:

- It is recommended that the EMPr be implemented. This document should form part of the contractor's tender documents. Independent EMPr monitoring should take place by an external environmental control officer (ECO).
- No sanitary system shall be located within 100m of a watercourse or within the floodlines or whichever is the greatest.
- Sewage from any temporary ablution facility must be properly disposed of.
- Any pollution problems arising from the activity must addressed immediately by the Applicant and/or Contractor.
- Local suppliers must be used where possible.
- Local labour must be used where possible.
- The contractor must notify DWA of the quantity of water being used during construction.
- Alien vegetation must be removed from the site before construction commences (to reduce alien seed dispersal).
- Any leftover material or solid waste must be appropriately disposed of (i.e. at a registered landfill site, recycled, used by the community).
- Where possible, waste must be recycled.
- Vegetation clearing and physical disturbance during construction must be kept to a minimum.
- Site personnel must be educated on keeping any vegetation disturbance to a minimum, and on the correct disposal of different types of waste.
- If a construction camp is required, it must be located away from any natural vegetation and outside the 1:100 year floodline.
- All machinery and equipment must be regularly serviced and maintained to keep noise, dust and possible leaks to a minimum.
- Any contaminants (i.e. fuel) must not be stored in a temporary structure, but kept mobile.
- Personnel must not be allowed to trespass onto neighbouring properties.
- Construction should take place during the dry season.
- If or when necessary, erosion control measures must be installed during construction.
- If there is evidence of erosion, the channel downstream must be checked for sedimentation. If increased sedimentation is observed, corrective action must be taken.
- All construction must be sensitive to the natural vegetation. Where indigenous vegetation

removal is unavoidable, it is recommended that a plant rescue operation is implemented, and the rescued plants are replanted following completion of construction.

- The structures must be regularly checked for damage during operation, and properly maintained when required.
- Rehabilitation must take place directly after construction, and only indigenous species from the local area must be replanted. Aloes must be retained for use in the rehabilitation phase.
- The banks of the rivers must be stabilised and re-vegetated as part of the rehabilitation phase.
- During operation, the area surrounding the structures must be regularly checked for signs of erosion. If erosion is evident, corrective action must be taken.
- If required, suitable alternative access routes must be established before construction commences. These alternative routes must ensure that vegetation clearing is kept to a minimum.
- An annual habitat assessment should be conducted on the site to assess the sustainability of the proposed development.
- If any heritage items are found, construction must stop immediately and Amafa must be contacted.

## SECTION G: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information