



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:

DM/0068/2012
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):	
File reference number (Waste Management Licence):	

## 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:	<b>GIBB (Pty) Ltd</b>		
Physical address:	<b>2nd Floor, Greyville House, Cnr Greyville &amp; Cape Rd, Greenacres, Port Elizabeth 6001</b>		
Postal address:	<b>PO Box 63703, Greenacres</b>		
Postal code:	<b>6057</b>	Cell:	<b>0828546926</b>
Telephone:	<b>041 3927500</b>	Fax:	<b>041 3639300</b>
E-mail:	<a href="mailto:jjegels@gibb.co.za">jjegels@gibb.co.za</a>		

### 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)
<b>Mr J. Jegels</b>	<b>M.Sc</b>	<b>SACNASP</b>	<b>8</b>
<b>Ms K. de Jong</b>	<b>BSc Honours Geography and Environmental Management</b>	<b>IAIAsa</b>	<b>2.5</b>
<b>Ms G. Fechter</b>	<b>Bing(Chem Eng) UP</b>		<b>12</b>

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### 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
<b>Shamilla Pillay from CSIR Natural Resources and the Environmentek</b>	<b>B Sc. (Botany and Zoology)University of Durban Westville 1980 B Sc. (Hons Botany) University of Durban- Westville 1982</b>	<b>Biodiversity</b>	<b>Section C4 'Groundcover'.  Section E 'Impact Assessment'</b>	<b>Appendix D.1: Proposed flood control embankments for the lower Mgeni River at Springfield Park: Preliminary Biodiversity Assessment (The study was undertaken as part of the 2005 Scoping Study; updated in 2013)</b>
<b>Gavin Anderson from Umlando</b>		<b>Archaeology</b>	<b>Section C6 'Cultural/Historical Features'  Section E 'Impact Assessment'</b>	<b>Appendix D.2: The Archaeological Survey For The Proposed Umgeni River Canalisation (The study was undertaken as part of the 2005 Scoping Study)</b>
<b>Murray Sim &amp; James Morris From SRK</b>		<b>Hydrology &amp; Engineering</b>	<b>Section E 'Impact Assessment'</b>	<b>Appendix D.3 Umgeni Canal Assessment for flood levels (The study was undertaken in 2005 to evaluate the affect of alteration to the design to exclude the Islamic graveyard from the development footprint)</b>
<b>TE Francis, City Engineer's Department Material Section</b>		<b>Geology</b>	<b>Section C3 'Groundwater, Soil and Geological Stability of the Site</b>	<b>Appendix D:4 Umgeni Canal – Soils Investigation (13/12/1979)</b>

## SECTION B: ACTIVITY INFORMATION

### 1. PROJECT TITLE

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

**Basic Assessment for the Proposed Widening of the Lower Umgeni River**

### 2. PROJECT DESCRIPTION

Provide a detailed description of the project:

The Umgeni Business Park, which is located in the flood plains of the Umgeni River just inland of the river mouth, was developed during the past 20 years in what is known as the Springfield Flats. It contributed significantly to the expansion of industrial and business areas within eThekweni municipal area. (Note that the Umgeni River is also known as the Mgeni River)

The development of the Umgeni Business Park went ahead based on the understanding that a section of the Umgeni River would be widened through provision of flood protection works (which in technical terms is referred to as canalisation) to reduce the flooding risk to within acceptable levels.

The eThekweni Coastal, Stormwater & Catchment Management Department (hereafter referred to as eThekweni unless otherwise specified) phased in the widening when the southern embankment of the relevant section of the Umgeni River was 'trimmed' during the mid-1980s. The embankments were stabilised with vegetated gabion type structures for flood protection. A section of the Umhlangane River, a tributary to the Umgeni River, was also widened at the time.

eThekweni proposes to continue with the second phase of the project, by further widening the Umgeni River through work along an approximate 1 km section of its northern embankment, in order to further reduce the flooding risk of the Umgeni Business Park. The proposed site to be affected is located approximately 3 km inland of the river mouth.

The proposed second phase of the widening project (hereafter referred to as the Umgeni Project for the purposes of this document) constitutes the provision of flood protection works, in the form of a combination of vegetated reno – mattress and gabion type structures and vegetated slopes (opposed to concrete structures), for the northern river embankment at the desired river width. The normal flow regime channel will remain unaltered. In addition to the flood protection embankment works, the Umgeni Project includes relocation/replacement of affected services infrastructure (e.g. sewers, water pipelines and/or electricity cables), removal of soil and rubble for shaping of the river embankment

between these flood protection works and the inner embankment (closer to the normal flow regime channel), as well as the decommissioning, demolition and reuse and/or disposal of redundant material and service infrastructure.

Note that a positive Record of Decision (RoD) permitting the Umgeni Project was issued on the 4<sup>th</sup> April 2006 (EIA/6008) under the Environmental Conservation Act (Act No.73 of 1989). The proponent however did not proceed with construction and implementation of the development within the validity period for construction commencement (18 months) as stated in the RoD due to delays caused by land acquisition challenges. The validity period of the RoD therefore lapsed. eThekweni has now acquired all the land, including through expropriation; and all issues regarding lease agreements have been resolved.

This application is therefore submitted with the same development intent under the new NEMA Regulations (National Environmental Management Act, Act No. 107 of 1998).

**NOTE:**

- The motivation for the Umgeni Project remains essentially the same since the 2006 RoD was issued
- The studies undertaken during the Scoping Study that was done as part of the application for the mentioned 2006 RoD were used extensively to inform this Basic Assessment Report.
- The Environmental Management Plan that was submitted and approved through the 2006 RoD was adopted for the Environmental Management Programme (EMPr) but updated and amended were necessary (see Appendix F)
- For the Umgeni Project no alterations are required to the bridges that traverse the proposed site, as the spans of the bridges are sufficient.

### 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:

In terms of the National Environmental Management Act, 1998 (No.107 of 1998) [NEMA] and associated Environmental Impact Assessment (EIA) Regulations published in August 2010, an Environmental Authorisation must be obtained from the relevant decision-making authority, prior to the commencement of certain listed activities that may result in potential negative impacts on the environment. The proposed project involves, inter alia, the following listed activities, as per Government Notice No. R. 544 and R. 546 of NEMA:

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Government Notice	Activity Number	Activity Description
GNR 544, 18 June 2010	11	<p>“The construction of</p> <ul style="list-style-type: none"> <li>(i) canals;</li> <li>(ii) channels;</li> <li>(iii) bridges;</li> <li>(iv) dams</li> <li>(v) weirs;</li> <li>(vi) bulk storm water outlet structures;</li> <li>(vii) infrastructure or structures covering 50 square metres or more</li> </ul> <p>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.”</p> <p><i>The river is being widened along its north bank and a gabion will be constructed for flood protection.</i></p>
GNR 544, 18 June 2010	16	<p>“Construction or earth moving activities in the sea, an estuary, or within the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is greater, in respect of –</p> <ul style="list-style-type: none"> <li>(i) fixed or floating jetties and slipways</li> <li>(ii) tidal pools;</li> <li>(iii) embankments</li> <li>(iv) rock revetments or stabilising structures including stabilising walls</li> <li>(v) buildings of 50 square metres or more</li> <li>(vi) infrastructure covering 50 square metres or more -</li> </ul> <p>but excluding</p> <ul style="list-style-type: none"> <li>(a) if such construction or earth moving activities will occur behind a development setback line; or</li> <li>(b) where such construction or earth moving activities will occur within existing ports or harbours and the construction or earth moving activities will not increase the development footprint or throughput capacity of the port or harbour;</li> <li>(c) where such construction or earth moving activities is undertaken for purposes of maintenance of the facilities mentioned in (i)-(vi) above; or</li> <li>(d) where such construction or earth moving activities is related to the construction of a port or harbour, in which case activity 24 of Notice 545 of 2010 applies.” <p><i>Construction or earth moving activities in the Umgeni estuary, for embankments, and rock revetments or stabilising structures including stabilising walls.</i></p> </li></ul>

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<p>GNR 544, 18 June2010</p>	<p>18</p>	<p>“The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from (i) a watercourse ...”</p> <p><i>For the purpose of the Lower Umgeni River widening project, there will be infilling or depositing of material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from a watercourse (Lower Umgeni River).</i></p>
<p>GNR 544, 18 June2010</p>	<p>39</p>	<p>“The expansion of</p> <ul style="list-style-type: none"> <li>(i) canals;</li> <li>(ii) channels;</li> <li>(iii) bridges;</li> <li>(iv) dams</li> <li>(v) weirs;</li> <li>(vi) bulk storm water outlet structures;</li> </ul> <p>within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line”</p> <p><i>Refer to response for Activity 11 above, the widening (expansion) of the Lower Umgeni river channel; within a watercourse or within 32 metres of a watercourse.</i></p>
<p>GNR 546, 18 June2010</p>	<p>16</p>	<p>“The construction of:</p> <ul style="list-style-type: none"> <li>(i) jetties exceeding 10 square metres in size;</li> <li>(ii) slipways exceeding 10 square metres in size;</li> <li>(iii) buildings with a footprint exceeding 10 square metres in size; or</li> <li>(iv) infrastructure covering 10 square metres or more</li> </ul> <p>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.</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape:</p> <ul style="list-style-type: none"> <li>i. In an estuary;</li> <li>ii. Outside urban areas, in: <ul style="list-style-type: none"> <li>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</li> <li>(bb) National Protected Area Expansion Strategy Focus areas;</li> </ul> </li> </ul>

		<p>(cc) World Heritage Sites;</p> <p>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(ee) Sites or areas identified in terms of an International Convention;</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(gg) Core areas in biosphere reserves;</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</p> <p>(ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.</p> <p>iii. In urban areas:</p> <p>(aa) Areas zoned for use as public open space;</p> <p>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose; or</p> <p>(cc) Areas seawards of the development setback line.”</p> <p><i>The proposed project entails the construction of additional infrastructure (gabions, reno-mattresses) covering approximately 10 square metres or more within 32 metres of the Lower Umgeni.</i></p>
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#### 4. 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 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.

**In terms of the EIA regulations, attention needs be given to all possible alternatives. The assessment of alternatives allows different approaches and ways of meeting the need, purpose and objectives of a proposed activity. Alternatives may include location or route alternatives, design/layout alternatives, activity alternatives and processes or technology alternatives, etc.**

**The no-go alternative or option also needs to be considered, as it provides the baseline against which the impacts of other alternatives can be compared. The objective of presenting, evaluating and motivating the feasible alternatives, is to identify the preferred option.**

**This development proposal is very specific, i.e. dealing with the flooding of businesses in the Umgeni Business Park, and is the second phase of a two phased development that started in the 1980's. Since the proposed development in effect deals with addressing a narrow section of the river, the location of the proposal is essentially fixed and site alternatives are therefore not applicable.**

**Alternatives considered before the current proposal for the development was completed are not assessed as they were found to be either impractical, inappropriate and/or prohibitively expensive. These alternatives are therefore not subjected further to impact analysis. The following two alternatives are however worth mentioning:**

- **eThekwini has not considered making use of hard structures such as concrete for the construction of the canalisation (opposed to the proposed reno-matress and gabion structures), since this would most certainly have**

been more costly, pose more safety hazards to the public and would have been environmentally unacceptable.

- It should be noted that during the previous EIA Process (i.e. the Scoping Study that resulted in the 2006 RoD) Interested and Affected Parties (I&APs) raised a concern regarding Islamic graveyard at the inland side of the proposed embankment development. In response to this concern, eThekweni modified their design in such a way that the graveyard now falls outside the footprint of the proposed development. (Refer to Appendix D.3 for the SRK report on the flood level assessment that was done as part of the technical evaluation thereof.)

**No-Go Option**

Without an alternative strategy to address the flood attenuation challenges currently experienced, the flood risk of the Umgeni Business Park and surrounding area will remain unacceptably high.

Without further flood attenuation, properties adjacent to the proposed Umgeni Project site and upstream at the Umgeni Business Park will remain prone to unacceptable high and frequent flood risk, which could potentially include loss of life. (Refer to Section 11 below for further clarification.)

The “no go option” is therefore not a viable option.

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 were applicable.

**Alternative:**

- Alternative S1<sup>1</sup> (preferred or only site alternative)
- Alternative S2 (if any)
- Alternative S3 (if any)

**Latitude (S):**

**Longitude (E):**

N/A						
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**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
- Alternative S2 (if any)

**Latitude (S):**

**Longitude (E):**

29°	48'	40"	31°	00'	31"
29°	48'	40"	31°	00'	46"
29°	48'	34"	31°	01'	00"

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

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

N/A					

Alternative S3 (if any)

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

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

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

**Alternative:**

- Alternative A1<sup>2</sup> (preferred activity alternative)
  - Alternative A2 (if any)
  - Alternative A3 (if any)
- or, for linear activities:

**Size of the activity:**

	N/A
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**Alternative:**

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

**Length of the activity:**

	1000 m
	N/A
	N/A

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

**Alternative:**

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

**Size of the site/servitude:**

	N/A
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### 7. SITE ACCESS

Does ready access to the site exist?

**The site is readily accessible from public roads and or municipal servitude corridors.**

If NO, what is the distance over which a new access road will be built  
Describe the type of access road planned:

YES X	NO
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.

<sup>2</sup> "Alternative A.." refer to activity, process, technology or other alternatives.

## 8. 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:

- 8.1. the scale of the plan which must be at least a scale of 1:500;
- 8.2. the property boundaries and numbers/ erf/ farm numbers of all adjoining properties of the site;
- 8.3. the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 8.4. the exact position of each element of the application as well as any other structures on the site;
- 8.5. 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;
- 8.6. walls and fencing including details of the height and construction material;
- 8.7. servitudes indicating the purpose of the servitude;
- 8.8. 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;
  - cultural and historical features;
  - areas with indigenous vegetation including protected plant species (even if it is degraded or infested with alien species);
- 8.9. 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
- 8.10. the positions from where photographs of the site were taken.

**A Site Plan is included in Appendix A**

## 9. 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.

**Plates / photographs of the proposed site are included in Appendix B. Photo's that were taken from various positions that overlook the site and surrounding areas are included to clearly illustrate the surrounding area. Other plates were included and illustrate the Flooding of 1987.**

## 10. 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.

**A Facility Illustration is included in Appendix C**

## 11. ACTIVITY MOTIVATION

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

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

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

Will the activity contribute to service infrastructure?

Is the activity a public amenity?

How many new employment opportunities will be created in the development phase of the activity?

What is the expected value of the employment opportunities during the development phase?

What percentage of this will accrue to previously disadvantaged individuals?

How many permanent new employment opportunities will be created during the operational phase of the activity?

What is the expected current value of the employment opportunities during the first 10 years?

What percentage of this will accrue to previously disadvantaged individuals?

R 25 mil	
R 0	
YES X	NO
YES	NO X
40	
R 10 mil	
20 %	
None	
R 0	
0%	

**11.3. Need and desirability of the activity**

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

**The Umgeni Project is motivated by the need to continue with the flood attenuation project that was initiated as part of eThekweni's development plans for the Umgeni Business Park and surrounding Springfield area.**

**The river channel is narrow in the vicinity of Connaught Bridge at the inland side of the estuary, and constrained as a result of historic reclamation of the flood plain and encroachment of developments into the river channel (as clearly evident on the aerial maps Appendix A). This causes a 'bottleneck' which backs stormwater up during extreme flood event which in turn poses an unacceptable high flooding risk to portions of the Umgeni Business Park. Refer to the aerial photographs of the 1987 flood in Appendix B as an example of such a flood.**

**The widening of a section of the lower Umgeni River provides for additional flood protection for the properties and infrastructure already established within the floodplains of the river. The proposed project is designed to in effect 'pull back' the floodline for extreme flood events. Although flooding may still occur in the Springfield area during extreme storm events, the area affected by the floods will be much reduced. In addition, the risk of flood damage in areas that will still be affected will be significantly reduced since the flood velocities would be much attenuated.**

**Without further flood attenuation, properties adjacent to the proposed Umgeni Project site and upstream at the Umgeni Business Park will remain prone to unacceptable high and frequent flood risk, which could potentially include loss of life.**

**Please refer to *Appendix D – Specialist Reports and Appendix B – Site Photographs* for further background to the 1987 flood event that serves as a motivation for the proposed development.**

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

**Greater protection from flooding events will reduce the risk to people's safety associated with flooding risk and relieve maintenance costs caused by flood damage.**

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

**Local industries and businesses will benefit from better protection from flooding events.**

## 12. 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:
<p><b>The Constitution of the Republic of South Africa, Section 24 (Environmental Right):</b>                      1) Everyone has the right :                      a) to an environment that is not harmful to their health or well-being; and                      b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:                          i) prevent pollution and ecological degradation;                          ii) promote conservation; and                          iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”</p>	<p><b>The Constitutional Assembly</b></p>	<p><b>1996</b></p>
<p><b>National Environmental Management Act 107 of 1998 (NEMA)</b></p>	<p><b>Department of Environmental Affairs</b></p>	<p><b>1998</b></p>
<p><b>National Water Act 36 of 1998 (NWA)</b></p>	<p><b>Department of Water Affairs</b></p>	<p><b>1998</b></p>
<p><b>National Environmental Management: Waste Act 59 of 2008</b></p>	<p><b>Department of Environmental Affairs</b></p>	<p><b>2008</b></p>
<p><b>National Environmental Management: Biodiversity Act 10 of 2004</b></p>	<p><b>Department of Environmental Affairs</b></p>	<p><b>2004</b></p>
<p><b>National Heritage Resources Act 25 of 1999</b></p>	<p><b>South African Heritage Resources Agency</b></p>	<p><b>1999</b></p>
<p><b>Occupational Health and Safety Act 85 of 1993</b></p>	<p><b>Department of Labour</b></p>	<p><b>1993</b></p>
<p><b>All relevant Provincial regulations and Municipal bylaws</b></p>	<p><b>eThekweni Municipality</b></p>	<p><b>As Updated</b></p>

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

#### 13.1. Solid waste management

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

YES	NO
X	

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

20 m <sup>3</sup>
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How will the construction solid waste be disposed of? (describe)

**The waste generated will result from two sources, namely:**

- **Waste that can be considered as ‘normal’ construction activities. Most of this waste will likely fall in the category of ‘general waste’ but small quantities of ‘hazardous waste’ (e.g. oil rags, sealants, fuels and lubricating oil from construction vehicles; contaminated soil from accidental spills) may also be generated.**
- **Waste and rubble associated with breaking up and removal of existing structures and hardstanding and any subsurface wastes that may have been dumped as part of historic land reclamation activities. Most of this waste will fall in the categories of ‘building’ rubble, but some quantities of ‘general waste’ and ‘hazardous’ waste may also be found.**

**Non-hazardous building rubble will be temporary stockpiled on site and then either disposed of to a licensed landfill site or used as infill material at off-site construction sites, which eThekweni Municipality has specifically designated for that purpose. Other solid construction waste will be placed in dedicated waste bins or skips, which will be located in strategic and convenient places at the construction camp. These bins will also be clearly marked so that the potential for mixed waste is eliminated. These bins or skips will be collected weekly for disposal at registered municipal landfill sites. This is specified as such in the Environmental Management Programme (EMPr).**

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

**The waste will be disposed of at the nearest suitably registered municipal landfill site.**

Will the activity produce solid waste during its operational phase? 

YES	NO
	X

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

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

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

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

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

YES	NO
-----	----

relevant legislation?

	X
--	---

**If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development 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?

YES	NO
	X

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

### 13.2. 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?

N/A	
-----	--

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

YES	NO
	X

**If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development 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
	X

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

### 13.3. Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES	NO
	X

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

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

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

**Construction Phase**

Dust and vehicle emissions will be generated during the construction phase as a result of trucks transporting materials and other earth moving machinery. The emissions will however have short term impacts on the immediate surrounding areas and thus the authorisation of such emissions will not be required. Dust control measures are specified in the EMPr Section 6.6.16 (e.g. regular spraying of working/exposed areas with water; avoidance of removal of vegetation until such time as clearance is required; re-vegetated or stabilised as soon as practically possible).

**Operational Phase**

None, apart from occasional vehicle emissions associated with embankment park maintenance.

**13.4. Generation of noise**

Will the activity generate noise?

YES	NO
	X
N/A	

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

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

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

**Construction Phase:**

Construction noise will result from the movement of construction vehicles, trucks and other associated construction noise. However the noise will be short term, localised and will only last during the construction activities/phase of the project.

**Operational Phase**

None, apart from occasional noise associated with embankment park maintenance.

#### 14. WATER USE

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

<b>municipal X (construction)</b>	<b>water board</b>	<b>groundwater</b>	<b>river, stream, dam or lake</b>	<b>other</b>	<b>the activity will not use water X (operation)</b>
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**Construction Phase:**

Relatively small quantities of water would be needed for ‘normal’ construction activities such as e.g. dust control and irrigation for establishing vegetation for embankment stabilisation/rehabilitation.

The EMPr Section 6.4.5 on ‘Water Supply’ places the responsibility on the contractor to prepare a Method Statement for water use and arranging for necessary approvals/permits; and also, no abstraction shall occur from any water course unless approval has been secured from the relevant authority.

**Operational Phase:**

The proposed activity will not use any water during the operational phase. This is apart from perhaps occasional watering of planted trees.

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

N/A	
<b>YES</b>	<b>NO</b>
<b>X</b>	

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

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

Subsequent to eThekwini receiving the 2006 RoD, eThekwini also received a Water Use Licence (WUL) for the Umgeni River Canalisation; i.e. Licence B191/2/1920/40 dated 22 June 2006 issued in terms of the National Water Act, 1998 (Act No. 36 of 1998). The WUL is for the water use defined as “altering the bed, banks, course or characteristics of a watercourse” in terms of section 21(i) of the Water Act. (Refer to Appendix G.3)

For the purposes of this Basic Assessment, it is assumed that this WUL is still valid and that eThekwini will implement and adhere to all the conditions of the WUL (or any amendments thereto formally agreed with the Department of Water Affairs). This is also reflected in the EMPr Section 6.3.3.

## 15. ENERGY EFFICIENCY

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

**None were considered.**

**However, energy is conserved indirectly due to:**

- **Making use of reno-matress, gabion structures and vegetation for embankment stabilisation, instead of concrete structures (which would have a larger carbon footprint)**
- **The reduction in need for repairs and rebuilding associated with flood damage; and need for implementing localised flood protection in upstream development areas.**

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

**None were considered, as it is not applicable.**

## 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.

#### Alternative S1:

<b>Flat</b>	1:50 —	1:20 —	1:15 — 1:10	1:10 —	1:7,5 — 1:5	Steeper than
<b>X</b>	1:20	1:15		1:7,5		1:5

#### Alternative S2 (if any):

#### Alternative S3 (if any):

## 2. LOCATION IN LANDSCAPE

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

**Alternative S1 (preferred site):**

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley X	Plain	Undulating plain/low hills	Dune	Sea-front
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**Alternative S2 (if any):**

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**Alternative S3 (if any):**

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

**Note:**

Due to the proposed widening and embankment stabilisation works effectively consisting of earth works and a combination of reno-matress, gabion structure and vegetation, the geological stability of the site will be protected.

The Umgeni Estuary sandy bed is “highly erodible with the result that it undergoes significant changes during major floods due to erosion and sedimentation. This changes the bed level. In its natural state, before the river was confined by canalisation and the various developments, the alignment of the river would thus probably have been altered after major floods.” (Arcus GIBB, FSR, 2005)

A report by the City Engineer’s Department Material Section dated 13 December 1979 with the title “Report on Umgeni Canal – Soils Investigation” is included as Appendix D.4.

Has a specialist been consulted for the completion of this section?

YES

NO X

If YES, please complete the following:

Name of the specialist:

Qualification(s) of the specialist:

Postal address:

Postal code:

Telephone:

E-mail:

Cell:

Fax:

Are any further specialist studies recommended by the specialist?

YES

NO

If YES, specify:

If YES, is such a report(s) attached in Appendix D?

YES

NO

Signature of specialist:

Date:

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

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

**Note:**

**Most of the site is disturbed containing hardstanding and vegetated areas (refer to the aerial photograph in Appendix A).**

***Vegetation Description (CSIR, 2005, Biodiversity Report):***

“The vegetation above the banks of the river consisted of a mixture of exotic weedy species (e.g. *Riccinus communis*, *Chromolaena odorata*, *Cardiospermum grandiflorum*) and few indigenous species generally characteristic of highly disturbed secondary habitats. This habitat may best be described as open scrub consisting of secondary grasses (e.g. *Cynodon nlemfuensis*, *Sporobolus africanus*, *Panicum maximum*), with shrubs (e.g. *Abutilon sonneratianum*, *R. communis*, *C. odorata*, *Lantana camara*, *Solanum mauritianum*) and occasional trees (e.g. *Erythina lysistemon*, *Trema orientalis*, *Ficus natalensis*, *Melia azedarach*). The exotic creepers, *Ipomoea purpurea* and *C. grandiflorum*, were also prolific in this habitat. At the lower section of the study area (Riverside Road end) part of this area had previously been developed into a grassed recreational area. Of the outer banks those that were vertical were essentially devoid of vegetation except for occasional tufts of grasses such as *S. Africanus*. Sloping banks were better vegetated with with taller grasses (e.g. *Phragmites mauritianus*, *Arundo donax*, *Digitaria eriantha*), weedy shrubs such as *C. odorata*

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and occasional trees (e.g. *F. natalensis*, *M. azedarach*, *P. guajava*, *T. orientalis*). The inner gently sloping banks were characterized by more hygrophilous vegetation. The landward section and raised islands within this habitat were characterized by tall stands of *P.mauritianus* and *A. donax*. Occasional trees such as *Ficus sur*, *T. orientalis* and *F. natalensis* had also colonized these areas since the last major flood. Closer to the channel *Phragmites australis* dominated while at the waters edges and on islands within the channel the grass *Echinochloa crusgalli* was the dominant species.”

“During this survey the vegetation upstream and downstream of the affected area was also briefly surveyed and was found to have an essentially similar community structure and species composition to that of study area. The plant species list for the study area is recorded in the report.”

**Impact Assessment (CSIR, 2005, Biodiversity Report):**

“In general the loss of terrestrial species (including hygrophilous species on the inner banks) due to actual disturbance and bank reconfiguration is not considered to be of major significance due to the following:

- These were essentially disturbed secondary habitats and in terms of the vegetation there were many opportunistic alien species
- From this preliminary survey this habitat is not expected to contain any rare or endangered species
- The relatively small affected area was very similar in habitat to areas above and below this section and species composition (terrestrial and aquatic) are thus expected to be similar.

Has a specialist been consulted for the completion of this section?	YES X	NO
If YES, please complete the following:		
Name of the specialist:	Ms Shamilla Pillay, CSIR Natural Resources and the Environmentek	
Qualification(s) of the specialist:		
Postal address:	PO Box 17001, Congella	
Postal code:	4013	
Telephone:	+27 31 242 2300/04	Cell:
E-mail:	spillay@csir.co.za	Fax:
		+27 31 261 2509
Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?	YES	NO X
If YES, specify and explain:		
Are there any special or sensitive habitats or other natural features present on any of the alternative sites?	YES	NO X
If YES, specify and explain:		
Are any further specialist studies recommended by the specialist?	YES	NO X
If YES, specify:	<p><b>The Refer to the following report:</b>  <b>Proposed Flood Control Embankments for the Lower Mgeni River at Springfield Park – Preliminary Biodiversity Assessment – Revised CSIR Report. March 2013</b></p>	
If YES, is such a report(s) attached in Appendix D?	YES X	NO
Signature of specialist:	_____	Date: _____

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

If any of the boxes marked with an “<sup>E</sup>” 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:

Land use character			Description
Natural area	<b>YES</b> <b>X</b>	<b>NO</b>	This is a natural area as it is within the Lower Umgeni Flood Plain.
Low density residential	<b>YES</b>	<b>NO</b> <b>X</b>	
Medium density residential	<b>YES</b> <b>X</b>	<b>NO</b>	The residential area of Seacow Lake and Umgeni Park are located to the north at a distance of approximately 400m and 200m respectively from the affected riverbank. Visual impact during construction.
High density residential	<b>YES</b> <b>X</b>	<b>NO</b>	The residential area of Seacow Lake and Umgeni Park are located to the north at a distance of approximately 400m and 200m respectively from the affected riverbank. Visual impact during construction
Informal residential	<b>YES</b> <b>X</b>	<b>NO</b>	
Retail commercial & warehousing	<b>YES</b> <b>X</b>	<b>NO</b>	On the northern side of the site approximately ten business premises lie between the affected site and Inanda and Riverside Road. These are made up of a mix of retail, light industrial and medium industrial businesses. These premises are at a high risk of being flooded if the no-go option is preferred.
Light industrial	<b>YES</b> <b>X</b>	<b>NO</b>	
Medium industrial	<b>YES</b> <b>X</b>	<b>NO</b>	

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Heavy industrial	<b>YES X</b>	<b>NO</b>	The premises of the NCP Alcohols manufacturers lie immediately west of the proposed widened section.
Power station	YES	<b>NO X</b>	
Office/consulting room	YES	<b>NO X</b>	
Military or police base/station/compound	YES	<b>NO X</b>	
Spoil heap or slimes dam	YES	<b>NO X</b>	
Quarry, sand or borrow pit	<b>YES X</b>	<b>NO</b>	No longer in use. Replaced by an electrical substation. Therefore no impact is predicted.
Dam or reservoir	YES	<b>NO X</b>	
Hospital/medical centre	YES	<b>NO X</b>	
School/ creche	YES	<b>NO X</b>	
Tertiary education facility	YES	<b>NO X</b>	
Church	YES	<b>NO X</b>	
Old age home	YES	<b>NO X</b>	
Sewage treatment plant	YES	<b>NO X</b>	
Train station or shunting yard	YES	<b>NO X</b>	
Railway line	<b>YES X</b>	<b>NO</b>	No impact is predicted on the railway line.
Major road (4 lanes or more)	<b>YES X</b>	<b>NO</b>	The eastern (seaward) side of the proposed river widening starts just downstream of the Connaught Bridge. This bridge in effect forms a multilane intersection that connects northern Durban to central Durban. Note that the bridge was originally designed with a span that is sufficiently wide to accommodate the river widening and as such the bridge is not affected by the widening.
Airport	YES	<b>NO X</b>	
Harbour	YES	<b>NO X</b>	
Sport facilities	YES	<b>NO X</b>	
Golf course	<b>YES X</b>	<b>NO</b>	No impact is predicted on the golf course.
Polo fields	YES	<b>NO X</b>	

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Filling station	YES	NO X	
Landfill or waste treatment site	YES X	NO	No impact is predicted on the waste treatment site.
Plantation	YES	NO X	
Agriculture	YES	NO X	Some subsistence agriculture
River, stream or wetland	YES X	NO	Impacts are listed in the impact tables below (Section 2).
Nature conservation area	YES X	NO	Natural conservational areas will not be impacted on extensively.
Mountain, hill or ridge	YES	NO X	
Museum	YES	NO X	
Historical building		NO X	No historical buildings will be impacted on.
Protected Area	YES	NO X	
Graveyard	YES X	NO	Within a relatively close proximity to the proposed development is an Islamic graveyard. This will not be affected as the canalisation will be rerouted to avoid the graveyard.
Archaeological site	YES	NO X	
Other land uses (describe)	YES X	NO	A number of service infrastructure traverse the site or are close to the site, e.g: <ul style="list-style-type: none"> <li>• A municipal 132kV overhead line from the Durban North Substation to the Parkhill Substation traverse the site, but are not directly affected.</li> </ul>

## 6. CULTURAL/ HISTORICAL FEATURES

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

<del>YES</del>	<b>NO</b> <b>X</b>
----------------	-----------------------

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:

**Umlando was contracted by GIBB to undertake the archaeological survey of a selected area of the Umgeni River upon request from Amafa aKwaZulu-Natali during the 2005 Scoping Study.**

**The specialist observed that industrial activity and informal small-scale agriculture have heavily disturbed much of the affected area. Those parts of the lower embankment have been affected by previous flooding and are thus not archaeologically sensitive. No archaeological sites were observed along the proposed development route. The Islamic graveyard close by will not be affected as the canalisation alignment had been specifically adjusted to avoid**

**The specialist concluded that no further mitigation would be required for this development.**

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

<del>YES</del>	<b>NO</b> <b>X</b>
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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)?

<del>YES</del>	<b>NO</b> <b>X</b>
----------------	-----------------------

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

## SECTION D: PUBLIC PARTICIPATION

GIBB conducted a Public Participation Process (PPP) with the following key features and associated milestones:

- An Interested and Affected Parties (I&APs) Register/ Database was initiated and progressively populated as I&APs were identified or registered. (Refer to Appendix E1.)
- Media notices which informed readers on the application to DAEA and the proposed Umgeni River Widening Project invited I&APs to register as an I&APs and/or provide comment was placed in (refer to Appendix E2):
  - o 7 December 2012 – Metro ezaseGagasini
  - o 11 December 2012 – The Mercury (article by Tony Carnie)
  - o 16 January 2012 – The Mercury.
- Notice boards were designed based on the specification of the NEMA EIA Regulations GNR 543, Section 54 (2) and (4), and displayed at conspicuous places on 6 December 2012. (Refer to Appendix E3.)
- A Background Information Document (BID), which provides background to the proposed Lower Umgeni River Widening project and an overview of the Basic Assessment Process and associated Public Participation Process was compiled. The BID also included an invitation for I&APs to comment and raise any issues and concerns they may have. (Refer to Appendix E4.)
- Copies of the BID were hand-delivered to businesses and residential houses within the area. Copies of the BID were also made available with the fruit seller opposite the Bird Park (who offered to avail them to customers).
- A Public Meeting was held on 12 December 2012 and 29 January 2013. The second meeting was held following in response to a request by I&APs for another meeting. (Refer to Appendix E5.)
- The Draft Basic Assessment Report (BAR) was made available for a public comments period and everyone registered on the I&AP Database were either notified of the availability of the report at certain venues or provided with an electronic and/or paper copy of the report.
- A Comments and Response Register was compiled to capture all comments received on the BID and Draft BAR and the GIBB responses to these comments. The Comments and Response Register will be circulated to all registered I&APs and included in the Final BAR. (Refer to Appendix E6.)
- All Correspondence with I&APs is included in Appendix E7.

## 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;

**GIBB attached two site notices boards, one at the parking lot opposite the Umgeni Bird Park (along Riverside Road) and one at the entrance to the site (adjacent to NCP Alcohols) along Sea Cow Lake Road. These notices were also visible by motorists using these roads.**

- (b) giving written notice to—
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the 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;

**eThekwini (the applicant) owns the properties on which the proposed Lower Umgeni River Widening Project is located, and the eThekwini Property division is fully aware of the project.**

- (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;

**Refer to Appendix E2**

- (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.

**Considering the industrial and urban nature of the area, it was assumed that most I&APs would be able to read and understand the public participation communications that were used. There was no indication during the consultation processes that additional requirements were needed.**

## **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 and Rural Development 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.

**GIBB adhered to these content requirements.**

## **3. PLACEMENT OF ADVERTISEMENTS AND NOTICES**

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

Advertisements and notices must make provision for all alternatives.

**N/A**

#### 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 and Rural Development 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.

**GIBB followed procedures in keeping with the NEMA EIA Regulation GNR 543 and associated PPP Guidelines.**

#### 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.

**All comments received from I&APs during the PPP for the proposed Project and associated GIBB or client responses are incorporated in the Comments and Response Register (Appendix E6) and key issues are summarised below.**

#### 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
X	

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

As an metropolitan city, eThekweni Municipality (the applicant) is effectively a district municipality. The Municipality is therefore in full support of the proposed development.

Has any comment been received from the local municipality?

YES	NO
X	

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

Environmental Planning & Climate Protection Department Development Planning, Environment and Management Unit eThekweni Municipality raised three issues:

- The biodiversity specialist studies was to be reviewed

*GIBB and Ms Shamilla Pillay of the CSIR met with Mr Greg Mullins and Mr Cameron McLean on 5 March 2013 to discuss their specific requirements. Ms Pillay considered these requirements in finalising the 2013 CSIR Biodiversity Report (refer to Appendix D.1). GIBB sent Mr Mullins and McLean a copy of the 2013 CSIR report on 22 March 2013.*

- Listed Activities to be updated.

*The listed activities were amended and re-submitted to DAEA on the 28th March 2013.*

- Consideration of other projects taking place in close proximity to the site.

*This was noted and discussed in the Comments and Response Report (Appendix E6) under Table 2, GIBB Response No 2.*

Has any comment been received from a traditional authority?

YES	NO X
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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):



## 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 X	NO
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If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):



**Some of the main issues and concerns raised by I&APs include the following:**

- Concerns that project received environmental authorisation in 2006 but it then lapsed. Since the authorisation lapsed, it leads I&APs to question the need for the project.
- Cumulative effect on the Umgeni River of current and future developments in the vicinity.
- Dated specialist studies – need to be updated
- Estuarine health impacts
- Impacts on fauna and flora (nesting birds, swamp fig etc.)
- Impact on the flow regime of the river
- Soil erosion control measures
- Measures to prevent siltation/sedimentation
- Storm water management
- Drainage and managing contaminated water
- Involvement and inclusion of I&APs in the project – particularly environmental groups and specialists
- I&APs stress that information relevant to the system in its current state is not provided and seemingly not considered in assessing the proposed project
- Impact of climate change

**Please refer to Appendix E6 for detailed I&AP Comments and GIBB/client responses.**

## 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

Please refer to Appendix E6 – Comments and Response Report and the public meeting notes - Appendix E5 for the main issues raised by I&APs.

<p>List the main issues raised by interested and affected parties.</p>	<p>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):</p>
<p>Concerns that project received environmental authorisation in 2006 but it then lapsed. Since the authorisation lapsed, it leads I&amp;APs to question the need for the project.</p>	<p><u>GIBB Response No 1:</u></p> <p>The Umgeni Project is motivated by the need to continue with the flood attenuation project that was initiated as part of eThekweni's development plans for the Umgeni Business Park and surrounding area.</p> <p>The river channel is narrow in the vicinity of Connaught Bridge at the inland side of the estuary, and constrained as a result of historic reclamation of the flood plain and encroachment of developments into the river channel. This causes a 'bottleneck' which backs stormwater up during extreme flood event which in turn poses an unacceptable high flooding risk to portions of the Umgeni Business Park. Refer to the aerial photographs of the 1987 flood in Appendix B of the BAR as an example of such a flood.</p> <p>The widening of a section of the lower Umgeni River provides for additional flood protection for the properties and infrastructure already established within the floodplains of the river. The proposed project is designed to effectively 'pull back' the floodline for extreme flood events. Although flooding of the Springfield area may still occur during extreme storm events, the area affected by the floods will be much reduced. In addition, the risk of flood damage in areas that will still be affected will be significantly reduced since the flood velocities would be much attenuated in such areas. The proposed flood protection measures may become even more critical should predictions of more frequent extreme flood events as a result of climate change hold true.</p> <p>Without further flood attenuation, properties adjacent to the proposed Umgeni Project site and upstream at the Umgeni Business Park will remain prone to unacceptable high and frequent flood risk, which could potentially include loss of life.</p> <p>Therefore, essentially the proposed project concerns the completion of a widening project that had started in the 1980's. The first phase consisted of the canalisation of the southern embankment. A positive Record of Decision for the canalisation of the northern embankment was issued on the 4th April 2006 (EIA/6008) under the Environmental Conservation Act 73 of 1989. The proponent however failed to proceed with construction and to implement the development within the validity period for construction commencement (18 months) as stated in the RoD and the validity period of the RoD therefore lapsed. The canalisation of the northern embankment was delayed for various reasons, mainly as a result of land acquisition challenges. eThekweni has now acquired all the land, including through expropriation; and all issues regarding lease agreements have been resolved. It is for this reason that this Basic</p>

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	<p>Assessment process is now undertaken in terms of the latest EIA Regulations.</p> <p>NOTE: The description of the motivation in the Basic Assessment Report (BAR) Section B 11.2 was amended to provide more clarity on the motivation.</p>
<p>Cumulative effect on the Umgeni River of current and future developments in the vicinity.</p>	<p><u>GIBB Response No 2:</u></p> <p>The flood risk of the Umgeni Business Park will be significantly lowered with the proposed widening/canalisation of the Umgeni river. As explained in GIBB Response 1, the project effectively addresses the 'bottleneck' of the river channel at the inland side of the estuary – therefore essentially at the furthest point downstream to the Umgeni Business Park. As such the proposed flood attenuation for the Umgeni Business Park will be the most effective and benefit the largest surrounding area.</p> <p>Additional more localised flood protection measures may need to be incorporated by developers upstream, dependent on their requirements. In doing so developers could potentially benefit from the floodline adjustment for extreme flood events that will result on completion of the proposed project.</p> <p>Note that flood attenuation more upstream, would not benefit the portions of the Umgeni Business Park closest to the estuary (in fact it could even marginally increase the flood risk).</p> <p>It is important to note that since the proposed development affects the upper portion of the river embankment higher up from the 'normal' flow channel of the river, it will only affect river flow during extreme flood events. The river channel for normal flow and less severe floods will not at all be affected by the proposed project.</p> <p>The query on whether other developers are aware of the proposed developments should be raised with the relevant Environmental Assessment Practitioners (EAPs) for projects in the vicinity of the lower Umgeni River, as the municipality cannot comment on the applicant's view of the flood risk and the process that they have followed.</p> <p>However, in response to the I&amp;APs concern, GIBB has made an attempt to identify other projects within close proximity (2km radius) of the site as indicated in the summary below. GIBB has registered the respective EAPs on the I&amp;AP register and as such they will be included in future correspondence to I&amp;APs.</p>
<p>Dated Specialist Reports</p>	<p><u>GIBB Response No 3:</u></p> <p>The GIBB team had observed during a site inspection that the affected site had been virtually unchanged since the 2005 Scoping Report and associated 2006 EMP were prepared. In a nutshell, while the site had clearly remained disturbed it retained some valuable habitat resources.</p> <p>Nevertheless, based on the request received from I&amp;APs, GIBB appointed Ms Shamilla Pillay, a biodiversity specialist from the CSIR who had compiled the 2005 Biodiversity Report, to undertake a site inspection and comment on the validity and update of the 2005 Biodiversity Report. Note that the 2005 Biodiversity Report had informed and was attached to the 2005 Scoping Report. Ms Pillay presented her biodiversity assessment in a recent report (Refer to BAR Appendix D.1)</p> <p>The findings of the re-assessment of the proposed development site are detailed in the 2013 report. In addition, the recently completed Resource Directed Measures (RDM) for the estuary has been reviewed in order to determine if there could be any new information that may present fatal flaws to the proposed development."</p>
<p>Impact on the Flow Regime and Water Quality of the Groundwater, River and</p>	<p><u>GIBB Response No 4:</u></p> <p>While the CSIR has reviewed the recently completed Resource Directed Measures (RDM) for the estuary (see GIBB Response No 3 above), no detailed river or estuarine health study was commissioned as part of the Basic Assessment. This is since the impact of the proposed project on the 'normal' flow regime and river and estuarine health (and associated</p>

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<p>Estuarine Health</p>	<p>habitats – including mangroves) will be insignificant; provided mitigation measures specified in the EMP for erosion and sedimentation, stormwater management and hazardous substances management are effectively implemented and adhered to.</p> <p>The proposed development affects the upper portion of the river embankment much higher up from the 'normal' flow regime channel of the river. No in-stream activities will take place in the 'normal' flow regime channel and the normal flow regime will not be altered. Also, the water table will only reach the proposed affected area during a major flood.</p> <p><b>Operational Phase</b></p> <p>The proposed embankment stabilisation in the form of a vegetated renomatress along the lower portion of the 'new' canalised embankment, the gabion basket structure running along the upper edge of this renomatress and the vegetation of the upper portion of the 'new' embankment will provide effective erosion protection during the operational phase of the project. Effectively, through the widening a small portion of land which has historically been reclaimed from the river course is returned to the river channel.</p> <p>No groundwater contamination risk is associated with the operational phase of the project.</p> <p><b>Construction Phase</b></p> <p>During the construction phase only relatively small quantities of hazardous substances will be used or handled on site, and therefore the potential for groundwater and surface water contamination is very low. The project will not result in any significant increase in E. Coli, nitrogen or phosphates within the river or estuary. This is apart from potential accidental spillage from porter loos and during the decommissioning and replacement of sewer lines (if any).</p> <p>Due to the embankment excavation and cut activities a potential for erosion of exposed surfaces and handling of stockpiles may potentially result in increased turbidity of the water environments.</p> <p>A number of key mitigation measures that would protect the water quality, riverine and estuarine health effectively are listed in the response.</p>
<p>Impact on the Swamp Fig (ficus trichopoda)</p>	<p><u>GIBB Response No 5:</u></p> <p>GIBB received a photograph of the Swamp Fig (ficus trichopoda), which was located in close proximity to the site. The photograph was subsequently sent to the Ms Shamilla Pillay, Biodiversity Specialist, who during the site visit of the area found the specific specimen and confirmed it as ficus trichopoda. However, she noted that the concern from a stakeholder is not relevant to this project as this specimen was located on the river embankment next to NCP Alcohols which is just outside the development footprint. Ms Pillay advised that the tree was probably planted as the natural distribution for this species is along the north coast.</p>
<p>Water Monitoring</p>	<p><u>GIBB Response No 6:</u></p> <p>With reference to GIBB Response 4, GIBB considers it unlikely that in-stream water quality analysis (pH, Electrical conductivity (mS/M), suspended solids (mg/l), E-coli) would be appropriate and effective to measure any potential impact of this project on the in-stream water quality; and would therefore be unnecessarily onerous. Also, since it is unlikely that any significant groundwater contamination would result from the proposed project, groundwater monitoring is considered to be unnecessary.</p> <p>Even should small quantities of hazardous substances associated with the construction activities accidentally spill into the environment, it is highly unlikely that such events would be measurable through in-stream sampling and analysis, considering the background variables and variability of a large river that passes through urban areas upstream of the proposed development. GIBB proposes that such events should rather be monitored and controlled through regular site inspections by the contractor, Resident Engineer and Environmental Control Officer; and any</p>

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	<p>issues addressed and spills cleaned up immediately.</p> <p>Through the appropriate erosion and sediment control measures, which are stipulated in the EMP, the impact on turbidity of the river and estuary during construction would be effectively controlled. This is with the exception of a major flood, in which case such mitigation might prove ineffective. However, during a major flood the background turbidity would be typically high. Since it is anticipated that the construction activities will take place outside the normal flow regime of the river, thus 'in the dry', spillage and erosion channels towards the river will be clearly evident. Therefore, again regular site inspections and observations of the site and surrounding area and ongoing control of erosion and sediment control measure would be effective.</p> <p>Due to the variability of the turbidity in the river, turbidity measurements would also unlikely provide meaningful results. Also turbidity impact may be effectively identifiable through visual observation. Nevertheless, it may be prudent to measure the turbidity upstream and downstream of the proposed site on a two weekly basis and keep record of such measurements.</p>
<p>Stormwater Management and Soil and Stockpiling Erosion Control to Prevent siltation/sedimentation</p>	<p><u>GIBB Response No 7:</u></p> <p>Erosion is an expected event in all rivers as it is a natural process. By nature the lower Umgeni River bed is continually altering through erosion and sedimentation which causes sandbanks to build up and eroded. The rate at which such changes occur is dependent on inter alia the water flow rate (therefor seasonal and strongly influenced by storm events) and stabilisation of the embankments (e.g. through vegetation cover). Apart from the normal flow regime channel and more recently formed sand banks, most of the channel of the lower Umgeni River is vegetated which provides valuable protection of the water quality of the estuary. However, through building of dams, ingress of developments into the flood plain and canalisation the Umgeni River is no longer in a natural state, which has a bearing on the erosion and sedimentation processes.</p> <p>Nevertheless, effective stormwater management and soil erosion control is necessary at all phases of the project and is vital in terms of protecting the site as well as ensuring that environmental degradation is prevented / mitigated.</p> <p><b>Operational Phase</b></p> <p>The project design provides for effective flood protection of the Umgeni Business Park during extreme storm events. Therefore the entire project is effectively a storm water management project and has been designed accordingly in terms of widening of the river channel and embankment slope and stabilisation works. By design the proposed embankment will include soil erosion control measures in the form of a reno-mattress, gabion structure and vegetation. Once vegetation has been established erosion will be effectively controlled (as is evident on the southern embankment that has been canalised before).</p> <p><b>Construction Phase</b></p> <p>Due to the embankment areas that will be cleared of vegetation and exposure of soils/sand/debris during excavations, as well as stockpiling of materials and soil/sand stockpiles, stormwater and erosion control is important. Key stormwater management and erosion control mitigation included in the EMP are as follows:</p> <ul style="list-style-type: none"> <li>• Construction during dry season (within reason)</li> <li>• No-go areas - confine the area of impact to a reasonable minimum and to retain areas outside of this impact area as 'No-go' areas.</li> <li>• Minimise clearing</li> <li>• Retain the existing outer embankment to serve as a flood protection measure during construction of the embankment works</li> <li>• Start with the embankment workface downstream and proceed upstream</li> <li>• Contrary to the DWA requirements, in according to the recommendation from the eThekweni engineers, construction will need</li> </ul>

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	<p>to start downstream and proceed upstream. This is to allow for the site along the workface to be self-draining. GIBB agrees with this approach as it will also allow for the upstream outer embankment to remain intact and as such 'shield' the site from the force of floodwater coming down the river should a flood event occur. Also, access to the workface at the downstream side of the proposed site is easier due to the adjacent public road.</p> <ul style="list-style-type: none"> <li>• Construction site soil erosion stabilisation measures</li> <li>• Appropriate soil stockpile location and management</li> </ul>
<p>Species movement and protection</p>	<p><u>GIBB Response No 8:</u></p> <p><b><i>Aquatic species</i></b></p> <p>The proposed project takes place on the outer embankment, well away from the normal flow regime channel of the river and will therefore not impede the movement or habitats of aquatic species. Management of potential impact of the construction activities on water quality are explained in GIBB Response No 4 and 7.</p> <p><b><i>Terrestrial habitat corridors</i></b></p> <p>Note that much of the area affected by the construction consists of sites previously used for industrial purposes and is thus completely disturbed. Once the Umgeni Project is complete these areas will effectively be greened and thereby widen the habitat corridor along a 1km stretch of the northern embankment of the lower Umgeni River. Impact on the affected green areas will be temporary since after the embankment stabilisation works are implemented the embankments will be vegetated.</p> <p>As explained in GIBB Response No 3 the CSIR has undertaken a biodiversity investigation in 2005 which was updated in March 2013. The 2013 CSIR report states the following:</p> <p>"As previously stated there was no in-depth survey of fauna undertaken. Most terrestrial fauna are likely to move out of the area once the development disturbance commences. This is especially true for the more mobile fauna such as birds, small mammals and insects. The development area is also relatively small leaving sufficient (similar) adjacent environment for fauna to recruit to. There was some concern from stakeholders that the area may have one or more resident crocodiles but these are likely to move to adjacent less disturbed areas. This is also true for the Nile monitor (<i>Varanus niloticus</i>) which is likely to occur in habitats adjacent to water. The other concern was that the dwarf chameleon may be present in the area. This was not observed during the field study so its presence cannot be confirmed or refuted."</p> <ul style="list-style-type: none"> <li>• Retain the lower unaffected portion of the river embankment (close to the 'normal' flow channel) as No-go area (EMP Section 6.4.2 – as amended). This will retain a terrestrial habitat corridor between the construction site and the normal flow regime channel.</li> <li>• EMP Section 6.6.17 (as amended) covers the 'Protection of Sensitive Environments and Conservation of Vegetation and Wildlife'. E.g. this section includes recommendations from the mentioned CSIR reports</li> </ul> <p><b><i>Estuarine</i></b></p> <p>The 2013 CSIR report states the following:</p> <p>"The proposed bank widening development is not envisaged to impact on the important estuarine habitats as long as the mitigation measures (as detailed in the previous report- Appendix 1) are implemented. One of the more important of these is obviously to avoid any sediment input into the stream by removing all excess sand that is excavated when the new banks are constructed. It is extremely important to avoid exacerbation of the siltation problem in the estuary as this would lead to overall loss of certain estuarine habitats."</p>

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<p>Involvement of I&amp;APs in the project – particularly environmental groups and specialists</p>	<p><u>GIBB Response No 9:</u></p> <p><b>Operational Phase</b></p> <p>The eThekweni Project Engineers advised that the area will be handed over to the eThekweni Parks Department once the embankment stabilisation works and associated rehabilitation of the area has been completed. An eThekweni Parks Department's landscaper or vegetation specialist will also be involved to render advice on the Rehabilitation Plan.</p> <p><b>Construction Phase</b></p> <p>EMP Section 6.6.23 covers 'Community Relations and Control of Community Disruption'.</p> <p>The EMP provides for specialist assistance as follows:</p> <ul style="list-style-type: none"><li>• The Contractor shall notify the ECO of any site clearing at least one week prior to such clearing commencing. The ECO shall investigate/search the site prior to the commencement of clearing to identify any species that may need to be rescued. Where appropriate the ECO will arrange for specialist assistance. (EMP Section 6.5.1 on 'Site Clearance')</li><li>• The Contractor shall notify the Resident Engineer if any previously unidentified graves or artefacts of archaeological or cultural significance are unearthed during site clearance. Work shall be stopped and the relevant heritage authorities notified (e.g. Amafa or an Amafa approved archaeologist/specialist). Works shall commence, upon instruction from the Resident Engineer, once confirmation has been received from the heritage authority that they have inspected the site and documented the findings. (EMP Section 6.5.1 on 'Site Clearance')</li><li>• Should fauna and indigenous flora show signs of deterioration or death as a result of construction activities, e.g. due to water pollution, specialist hydrological or ecological advice shall be sought for the appropriate treatment and remedial procedures to be followed by the Contractor. The requirements for such input shall be agreed with the engineer. If liability is found to rest with the contractor, the costs of containment and rehabilitation shall be on the contractor's account, including the costs of specialist input. (EMP Section 6.6.17 on 'Protection of Sensitive Environments and Conservation of Vegetation and Wildlife')</li><li>• Planting of indigenous trees in accordance with the specifications of the CSIR Report "Proposed Flood Control Embankments for the Lower Mgeni River at Springfield Park. Preliminary Biodiversity Assessment. Revised CSIR Report. March 2013" as well as advice from the eThekweni Parks Department. (EMP Section 6.8.1 on the Rehabilitation Plan)</li><li>• Incompatible hazardous substances shall not be mixed unless required under supervision of suitably qualified specialist and shall be stored and handled in separated areas. (EMP Section 6.5.1 on 'General Materials Handling, Use and Storage')</li></ul>
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## 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

### 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:**  
No impacts are envisaged during the planning stages.  
**Indirect impacts:**  
No impacts are envisaged during the planning stages.  
**Cumulative impacts:**  
No impacts are envisaged during the planning stages.

##### Alternative S2 (if any)

**Direct impacts:**  
No alternative technologies/layout was considered.  
**Indirect impacts:**  
No alternative technologies/layout was considered.  
**Cumulative impacts:**  
No alternative technologies/layout was considered.

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

**Direct impacts:**  
The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.  
**Indirect impacts:**  
No impacts identified.  
**Cumulative impacts:**  
This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1	Alternative S2
Not applicable	Not applicable

#### 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:**  
No alternative technologies/layout was considered.  
**Indirect impacts:**  
No alternative technologies/layout was considered.  
**Cumulative impacts:**  
No alternative technologies/layout was considered.

##### Alternative A2 (if any)

**Direct impacts:**  
No alternative technologies/layout was considered.  
**Indirect impacts:**  
No alternative technologies/layout was considered.  
**Cumulative impacts:**  
No alternative technologies/layout was considered.

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

**Direct impacts:**  
The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be

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at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.

**Indirect impacts:**

No impacts identified.

**Cumulative impacts:**

This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1:**

Not applicable

**Alternative A2:**

Not applicable

## 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:**

*Interruption of services:*

- The Umgeni Project will affect a number of existing services infrastructure such as sewer and water pipelines and storm water outlets.

*Disturbance or damage to cultural and heritage features:*

- The affected site neighbours the Islamic graveyard. Although the proposed canalisation is not expected to impact upon the graveyard, the potential impacts from construction must still be considered due to the sensitivity of this cultural and heritage feature and any such impacts must be strictly avoided.

**Indirect impacts:**

*Traffic and traffic infrastructure impacts:*

- Construction traffic required for transporting equipment, construction material, building rubble, waste and sand from and to the site could potentially have a significant impact on the local public road traffic. This is particularly due to the site's close proximity to a major traffic node, which is already known to experience significant congestion during peak hours.

*Water quality impacts:*

- The proximity of the proposed development potentiates water quality issues as silt, construction waste and potential pollution from the construction plant enters the water, channel or estuary.

*Community safety impacts:*

- Public members may potentially access the construction site due to its close proximity to a large recreational area and due to its allure to bikers and off-road vehicle drivers. Construction sites are however potentially unsafe for public members to access and use. Steep embankments, excavations and dangerous equipment and plant could result in accidents.

**Cumulative impacts:**

*Social impacts associated with local migrations – influx of temporary construction workers:*

- It is unavoidable that there will be an influx of temporary construction workers for the entire construction period. This could potentially lead to disputes with local communities and businesses.

*Impacts on recreation and tourism:*

- The potential impact on water quality and litter could in turn impact on recreational activities within the estuary.

**Alternative S2 (if any)**

**Direct impacts:**

No alternative sites were identified

**Indirect impacts:**

No alternative sites were identified

**Cumulative impacts:**

No alternative sites were identified

**No-go alternative (compulsory)**

**Direct impacts:**

The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.

**Indirect impacts:**

No impacts identified.

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**Cumulative impacts:**

This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

<b>Alternative S1</b>	<b>Alternative S2</b>
<p><i>Interruption of services:</i></p> <ul style="list-style-type: none"> <li>• Ensuring that all sewer and water pipelines, storm water outlets and any other service infrastructure are adequately incorporated in the engineering designs.</li> <li>• Ensuring that contractors are provided with all the relevant information on existing services, including the survey results and maps and clearance requirements.</li> <li>• Ensuring adequate planning for commissioning and switch-over of new services.</li> <li>• Notification of affected service users of dates and duration of any planned services interruptions during switch-over.</li> <li>• Quick response to accidental damage to any existing services during construction</li> <li>• Obtaining formal written approval from a professional civil engineer and eThekweni Electricity for any construction activity such as excavations within 20m of the overhead transmission line tower. This is to ensure that the tower foundations are not undermined.</li> <li>• Maintaining a 35 m wide servitude for the overhead transmission line i.e. 17.5 m on either side of the centre line. Ground levels within the servitude/ wayleave area may not be changed.</li> <li>• Strictly adhering to safety clearances of the Occupational Health and Safety Act at all times when working in or crossing an overhead transmission line servitude. This implies that nothing may approach within 3.8 m of the 132 kV conductors, even for assessing the height of conductors.</li> </ul> <p><i>Disturbance or damage to cultural and heritage features:</i></p> <ul style="list-style-type: none"> <li>• Prevention of access to and any impact on the Islamic graveyard by construction activities, e.g. through appropriate fencing off of this sensitive site.</li> <li>• Treating the graveyard and any community activity at the graveyard with due respect.</li> <li>• Immediately stopping excavations and reporting to Amafa any potential cultural or heritage features uncovered during the construction activities.</li> <li>• Appointment a professional Archaeologist to undertake a formal investigation if Amafa give instructions to do so.</li> </ul> <p><i>Traffic and traffic infrastructure impacts:</i></p> <ul style="list-style-type: none"> <li>• Liaison with the eThekweni Traffic and Transportation Department on any envisaged traffic impacts.</li> <li>• Adhere to all traffic regulations.</li> <li>• Minimisation of congestion and traffic obstruction e.g. by effective route planning, keeping lanes open and introducing traffic control measures.</li> <li>• Make arrangements with property owners for use of road infrastructure prior to commencement of construction.</li> <li>• Minimising of construction activities in and use of public roads during peak hours.</li> </ul> <p><i>Water quality impacts:</i></p> <ul style="list-style-type: none"> <li>• Ensuring good management practices are implemented concerning use and disposal of any hazardous substances, which includes but not</li> </ul>	<p>No alternatives were identified.</p>

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<p>limited to:</p> <ul style="list-style-type: none"> <li>• Ensuring excavation and safe disposal to an appropriate landfill site of any uncovered hazardous substances or contaminated soil that may have resulted from adjacent industrial activity.</li> <li>• Ensuring that no waste is stored at the construction site for longer than 14 days.</li> <li>• Carrying out routine vehicle maintenance and washing at a maintenance workshop instead of at the construction site or camps.</li> <li>• Utilisation of drip trays to prevent oil or fuel spills in case of on-site emergency maintenance.</li> <li>• Minimisation of quantities of fuel, paints and other hazardous material kept at the construction site.</li> <li>• Safe-guarding of hazardous substances from being stolen, vandalised, catching fire or spilling on open ground.</li> <li>• Provision of bunding for bulk fuel, oil and any other hazardous liquid temporary storage facility in accordance with relevant legislation.</li> <li>• Introduction of appropriate waste and sewage collection and disposal procedures and facilities during construction.</li> <li>• Controlling drainage to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to properties further down from the site.</li> <li>• Erection of any temporary latrines shall be above (higher up) and outside the area for the proposed embankment works.</li> <li>• Monitoring of suspended solids in the watercourse just downstream of the affected site on a frequent basis, to detect any impact caused by the proposed activities. The results of such monitoring must be submitted to the DWA office.</li> </ul> <p><i>Community safety impacts:</i></p> <ul style="list-style-type: none"> <li>• Fence off the site where practically possible.</li> <li>• Control access to the site.</li> <li>• Ensuring regular patrolling of the construction site.</li> <li>• Display of danger warning signs and no public access sign at all potential access roads and paths.</li> <li>• Prevention of access to any excavations and steep areas.</li> <li>• Appropriate security of all construction plant, equipment, material or substance when not supervised or in use.</li> </ul> <p><i>Social impacts associated with local migrations:</i></p> <ul style="list-style-type: none"> <li>• Use local labourers as much as possible.</li> <li>• Training construction workers to respect the property and needs of the affected communities.</li> <li>• Ensure that adequate lines of communication are implemented to deal with any public grievances.</li> </ul>	
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### 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:**

##### *Erosion of immediate site:*

- During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.

##### *Water quality impacts:*

- Large amounts of suspended silt from the excavation activities could potentially wash into the river, which could have a negative impact on water turbidity and aquatic fauna.
- It might also impact on the appearance (turbidity) of the water, which could in turn impact on aesthetics and

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therefore recreational use and tourism.

### *Interruption of services:*

- Construction activities may potentially affect existing services such as storm water and other bulk water services.
- Impacts on recreation and tourism.
- The impact on water quality could have an impact on recreational and tourism activities downstream to the proposed development.

### *Impact on air quality:*

- Dust impact on neighbouring business premises and nearby residents could result from exposure of sand and soil due to site clearance, excavation, demolition, cement mixing as well as through construction traffic on unpaved roads.
- Other sources of air pollution and odours which could potentially have a local impact would be as a result of construction vehicles and equipment exhaust fumes, poor maintenance of latrines, poor waste management procedures, waste burning, potential runaway fires and poor management of temporary latrines.

### *Noise impacts:*

- Ambient noise levels are expected to rise during the construction phase of the Umgeni Project. The noise may be emitted from construction plant that is not properly maintained.

### *Visual/Aesthetic Impacts:*

- Visual and aesthetic impacts will also result from the construction activities such as excavation, stockpiling of construction material, waste and rubble handling of materials. Poor planning, housekeeping and management of the construction site, site camp and activities may exacerbate such impacts.

### *Indirect impacts:*

#### *Water quality:*

- Apart from turbidity caused by siltation, water quality could be compromised by spillage of hazardous substances and spillage from latrines. Although no evidence of any spills or dumping of hazardous material were observed during site inspections, there is a potential for uncovering hazardous waste and contaminated soil during excavation activities, due to the current and historic industrial activities at the site. In addition any hazardous substances (e.g. fuel, paints and oils) used during construction could potentially result in water contamination unless good management practices are adhered to.

#### *Traffic and traffic infrastructure impacts:*

- Without proper care construction activities could potentially cause damage to road infrastructure. Spillage of wet concrete on roads could damage roads. Excavations close to and heavy construction vehicles colliding with overhead power line and road bridge pylons could potentially result in damage to these structures, which must be prevented.

#### *Social impacts associated with local migrations – influx of temporary construction workers:*

- It is unavoidable that there will be an influx of temporary construction workers for the entire construction period. This could potentially lead to disputes with local communities and businesses.

#### *Economic impacts:*

- Without proper planning and care, certain construction activities could also have a negative impact on neighbouring and surrounding business and industrial sites and economic activities. These could potentially include impacts such as damage to property or services that supply the businesses, requiring access through properties, restricting access to sites, construction traffic, dust, fume and noise generation.

### **Cumulative impacts:**

No impacts were identified.

### **Alternative A2**

#### **Direct impacts:**

No alternatives were identified.

#### **Indirect impacts:**

No alternatives were identified.

#### **Cumulative impacts:**

No alternatives were identified.

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

#### **Direct impacts:**

The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.

#### **Indirect impacts:**

No impacts identified.

#### **Cumulative impacts:**

This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

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Indicate mitigation measures to manage the potential impacts listed above:

### Alternative A1:

#### *Erosion and water quality impacts:*

- If at all possible, construction should occur during the dry season when risk of heavy rains is low.
- Advise relevant stakeholders responsible for the control of water flow from the upstream dams of the imminent construction phase.
- No construction activities must be allowed within the normal 'non-flood' river channel and inner bank of the Umgeni River that could result in any disturbance thereof.
- Grading of the site is required after construction to ensure free flow of runoff and to prevent ponding of water.
- Clearance of vegetation should be appropriately minimised and delayed to minimise exposed areas that might be prone to erosion during heavy rains.
- Implement measures to protect the construction site from erosion by storm water.
- Implement measures to effectively contain and allow settling prior to its discharge of any storm water arising at the construction site, which could potentially be laden with sand and silt.
- Construction of anti-erosion berms on access tracks.
- Ripping of compacted soil to promote re-vegetation of tracks and other areas surrounding the gabion structure that have been compacted.
- Appropriate grassing and maintenance thereof of gabion structure and the top of the embankment.
- Ensuring that no waste is stored at the construction site for longer than 14 days.
- Carry out routine vehicle maintenance and washing at a maintenance workshop instead of at the construction site or camps.
- Utilisation of drip trays to prevent oil or fuel spills in case of on-site emergency maintenance.
- Minimise quantities of fuel, paints and other hazardous material kept at the construction site.
- Safe-guard hazardous substances from being stolen vandalised, catching fire or spilling on open ground.
- Provision of bunding for bulk fuel, oil and any other hazardous liquid temporary storage facility in accordance with relevant legislation.
- Introduction of appropriate waste and sewage collection and disposal procedures and facilities during construction.
- Controlling drainage to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to infrastructure or erosion further down from the site.
- Erection of any temporary latrines at least 100 m from the river bank.
- Monitoring of suspended solids in the watercourse just downstream of the affected site on a frequent basis, to detect any impact caused by the proposed activities. The results of such monitoring must be submitted to DWAF office.

#### *Interruption of services:*

- Ensuring that all sewer and water pipelines, stormwater outlets and any other service infrastructure are adequately incorporated in the engineering designs.
- Ensuring that contractors are provided with all the relevant information on existing services, including the survey results and maps.
- Avoidance of unplanned damage to any existing services during construction.

### Alternative A2:

No alternatives were identified.

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- Notification of affected service users of dates and duration of any planned services interruptions during switch-over.

Ensuring adequate planning for commissioning and switch-over of new services.

### *Impacts on recreation and tourism:*

- Minimisation of the construction footprint to the affected river section.
- Prevention construction litter.
- Controlling of alien vegetation after the removal of grass.
- Covering or partial covering of soil over the gabions to promote the establishment of plant cover, for which indigenous, endemic species should be used.
- Planting of indigenous trees on the top of the embankment to enhance the landscape features.

### *Impacts on air quality:*

- Minimisation of the surface area exposed to wind erosion.
- Wetting of roads during construction on windy days.
- Maintenance of vehicles and other driven machinery in use to ensure that no smoke is emitted from exhausts.
- Prevention of burning of cleared vegetation and wastes/refuse.
- Planting of grass immediately after construction where soil has been exposed.
- Regular emptying and appropriate disposal of latrine content.

### *Noise impacts:*

- Restriction of noisy construction activities to daytime hours.
- Ensuring that all vehicles and where possible noisy equipment are fitted with silencers that are properly maintained.

### *Visual/aesthetic impacts:*

- Ensuring that the Umgeni Project design features are aesthetically well designed and implemented. A landscaping plan must be developed in consultation with eThekweni Environmental Management Department and must be included in the project specifications.
- Planning of appropriate site layout, materials stockpiling and waste disposal management ahead of construction.
- Investigate opportunities for material re-use, e.g. filling for embankments.
- Adhering to good housekeeping during the construction phase to ensure that construction camps and sites are well organised, material is neatly stacked and waste is regularly removed.
- Prevention of construction litter.
- Implementing appropriate waste and rubble management and disposal procedures to ensure waste and rubble is not disposed in the river or any other illegal disposal site.
- Ensuring that appropriate vegetation is selected for vegetating gabion structures and that this vegetation is adequately established.
- Planting of suitable indigenous trees may provide for a visual shielding of industrial sites and be considered to improve the visual appearance.
- eThekweni should ensure that an EMP is implemented that covers good management and housekeeping of the construction site on topics such as stockpiling of material, waste management, litter, ablutions, etc.

## 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:**

Reduction in flooding risk (see project motivation).

*Loss of small portion of land previously used for industries/businesses:*

- The Umgeni Project will bring into effect a permanent change in land use for the sections currently zoned for industrial development, as these will then become part of the river servitude.
- The small loss of industrial land at the affected site is insignificant in comparison to the protection of land use affected through the flood attenuation for the Umgeni Business Park at large.

*Visual and aesthetic impacts:*

- Once in place, the Umgeni Project site will have an aesthetic/visual impact due to the change from the current disturbed secondary vegetated habitat on the embankment to an engineered vegetated gabion structure.

**Indirect impacts:**

*Ingress of squatters, vagrants and criminals:*

- As a result security for surrounding residential areas, businesses, recreational users as well as the aesthetics of the area might potentially be negatively impacted should such ingress occur. Current occupation of the area surrounding and below the bridges reduces the risk of such ingress.
- For the Umgeni Project to provide for effective flood attenuation, the area below the bridges must be included in the widened section of the river and cleared of any structures that could cause blockage to floodwaters. This might indeed encourage ingress of informal settling and sheltering of people below the bridges.

**Cumulative impacts:**

No impacts were identified.

#### Alternative S2 (if any)

**Direct impacts:**

No alternatives were identified.

**Indirect impacts:**

No alternatives were identified.

**Cumulative impacts:**

No alternatives were identified.

#### No-go alternative (compulsory)

**Direct impacts:**

The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.

**Indirect impacts:**

No impacts identified.

**Cumulative impacts:**

This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

#### Alternative S1

*Loss of industrial land:*

- Ensuring that land is appropriately rezoned.

*Visual and aesthetic impacts:*

- Minimisation of the construction footprint to the affected river section.
- Clear all construction litter.
- Controlling of alien vegetation after the removal of grass.
- Covering or partial covering of soil over the gabions to promote the establishment of plant cover, for which indigenous, endemic species should be used.
- Planting of indigenous trees on the top of the embankment to enhance the landscape features.
- Ensuring that the Umgeni Project design features

#### Alternative S2

No alternatives were identified.

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<p>are aesthetically well designed and implemented.</p> <ul style="list-style-type: none"> <li>• A landscaping plan must be developed in consultation with eThekweni Environmental Management Department and must be included in the project specifications.</li> <li>• Ensuring that appropriate vegetation is selected for vegetating gabion structures and that this vegetation is adequately established.</li> <li>• Planting of suitable indigenous trees may provide for a visual shielding of industrial sites and be considered to improve the visual appearance.</li> </ul> <p><i>Ingress of squatters and vagrants:</i></p> <ul style="list-style-type: none"> <li>• Fencing off and blocking off uncontrolled access to the site.</li> <li>• Incorporating the embankment into a formal park area which links to the existing Umgeni Nature Trail and the Bird Park establishment.</li> <li>• Ensuring that the site is regularly and adequately maintained.</li> </ul>	
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### 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:**

*Impacts on topography and natural drainage:*

- The modifications to the northern embankment of the Umgeni River will impact the local topography of a very small area.
- The Umgeni Project is motivated by the need for flood attenuation and will certainly therefore impact on drainage aspects of the lower Umgeni River system. Widening of the 1km section of the Umgeni River will significantly reduce the 'bottle neck' and thus upstream flood levels during major flood events. This will allow for releasing a greater flow rate through the affected section of the river during major floods and thus reduce the risk of flooding of the Umgeni Business Park. Some lower lying properties adjacent to the project site might still experience ingress of floodwater during major floods, but the risk of flood damage will probably also be reduced due to the protection provided by the flood protection works of the embankment.

*Impacts on geology and soil:*

- The geological impacts will consist of excavation of soil and sand from the affected embankment to provide for the widening. There will be no impact on any geological structures below the alluvium.
- The Umgeni Project will substantially reduce the erosion depth of the riverbed in the vicinity of Connaught Bridge during major floods.

**Indirect impacts:**

None were identified.

**Cumulative impacts:**

*Impacts on topography and natural drainage:*

- Floodline studies indicate that the Umgeni Project would result in only a slight increase of flood levels in the Umgeni Estuary downstream of the proposed site between Connaught Bridge and Athlone Bridges during major flood events.

#### Alternative A2

**Direct impacts:**

No alternatives were identified.

**Indirect impacts:**

No alternatives were identified.

**Cumulative impacts:**

No alternatives were identified.

#### No-go alternative (compulsory)

**Direct impacts:**

The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.

**Indirect impacts:**

No impacts identified.

**Cumulative impacts:**

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This could potentially have disastrous implications in terms of long term viability of the Umgeni Business Park and as such could have significant impacts on the local and even regional economy.

Indicate mitigation measures to manage the potential impacts listed above:

### Alternative A1

### Alternative A2

<p><i>Impacts on topography and natural drainage:</i></p> <ul style="list-style-type: none"> <li>If at all possible, construction should occur during the dry season when risk of heavy rains are low.</li> <li>No construction activities must be allowed within the normal 'non-flood' river channel and inner bank of the Umgeni River that could result in any disturbance thereof.</li> <li>Grading of the site is required after construction to ensure free flow of runoff and to prevent ponding of water.</li> <li>Implement measures to protect the site from erosion by storm water.</li> </ul> <p><i>Impacts on geology and soil:</i></p> <ul style="list-style-type: none"> <li>A detail geological investigation is required prior to detailed design and construction to provide further information on water table, extent and composition of fill, potential methane gas emissions from refuse, settlement on canal berms and stability of canal linings. The results of the investigation must be submitted to the eThekweni Geotechnical Engineering Department.</li> <li>Implement measures to effectively contain and allow settling prior to its discharge of any stormwater arising at the construction site, which could potentially be laden with sand and silt</li> </ul>	<p>No alternatives were identified.</p>
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## 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:

#### Alternative S1 (preferred alternative)

**NOTE: The river widening and associated embankment and stabilisation is considered to be a permanent structure that will remain and be maintained for the foreseeable future. Decommissioning and closure is therefore unlikely.**

#### **Direct impacts:**

##### *Interruption of services:*

- The decommissioning of the Umgeni Project will affect a number of existing services infrastructure such as sewer and water pipelines and storm water outlets.
- Disturbance or damage to cultural and heritage features.
- The affected site neighbours the Islamic graveyard and as a result without due respect and consideration, deconstruction activities may potentially impact on the graveyard.

##### *Flood risks:*

- The Umgeni Industrial park and other areas in close proximity would once again be exposed to heavy flood damage.

#### **Indirect impacts:**

##### *Traffic and traffic infrastructure impacts:*

- Construction traffic required for transporting equipment, construction waste, building rubble and sand from the site could potentially have a significant impact on the local public road traffic. This is particularly due to the site's close proximity to a major traffic node, which is already known to experience significant congestion during peak hours.

##### *Water quality impacts:*

- The proximity of the deconstruction site potentiates water quality issues as silt, construction waste and potential

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pollution from the construction plant enters the water or channel.

**Cumulative impacts:**

No impacts were identified.

**Alternative S2**

**Direct impacts:**

No alternatives were identified.

**Indirect impacts:**

No alternatives were identified.

**Cumulative impacts:**

No alternatives were identified.

**No-go alternative (compulsory)**

**Direct impacts:**

The Umgeni Business Park would continue to enjoy the benefits of extra protection from floods.

**Indirect impacts:**

No impacts were identified.

**Cumulative impacts:**

No impacts were identified.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative S1**

*Interruption of services:*

- Ensuring that all sewer and water pipelines, storm water outlets and any other service infrastructure are adequately incorporated into the decommissioning phase.
- Ensuring that contractors are provided with all the relevant information on existing services, including the survey results and maps.
- Ensuring adequate planning for commissioning and switch-over of new services.
- Notification of affected service users of dates and duration of any planned services interruptions during switch-over.
- Quick response to accidental damage to any existing services during construction
- Obtaining formal written approval from a professional civil engineer and eThekweni Electricity for any construction activity such as excavations within 20m of the overhead transmission line tower. This is to ensure that the tower foundations are not undermined.

*Disturbance or damage to cultural and heritage features:*

- Prevention of access to and any impact on the Islamic graveyard by construction activities, e.g. through appropriate fencing off of this sensitive site.
- Treating the graveyard and any community activity at the graveyard with due respect.

*Traffic and traffic infrastructure impacts:*

- Liaison with the eThekweni Traffic and Transportation Department on any envisaged traffic impacts.
- Adhere to all traffic regulations.
- Minimisation of congestion and traffic obstruction e.g. by effective route planning, keeping lanes open and introducing traffic control measures.
- Make arrangements with property owners for use of road infrastructure prior to commencement of construction.
- Minimising of construction activities in roads during peak hours.

*Water quality impacts:*

- Ensuring good management practices are implemented concerning use and disposal of any hazardous substances, which includes but not limited to:

**Alternative S2**

No alternatives were identified.

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<ul style="list-style-type: none"> <li>• Ensuring that no waste is stored at the construction site for longer than 14 days.</li> <li>• Carrying out routine vehicle maintenance and washing at a maintenance workshop instead of at the construction site or camps.</li> <li>• Utilisation of drip trays to prevent oil or fuel spills in case of on-site emergency maintenance.</li> <li>• Minimisation of quantities of fuel, paints and other hazardous material kept at the construction site.</li> <li>• Safe-guarding of hazardous substances from being stolen, vandalised, catching fire or spilling on open ground.</li> <li>• Provision of bunding for bulk fuel, oil and any other hazardous liquid temporary storage facility in accordance with relevant legislation.</li> <li>• Introduction of appropriate waste and sewage collection and disposal procedures and facilities during construction.</li> <li>• Controlling drainage to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to properties further down from the site.</li> <li>• Erection of any temporary latrines at least 100 m from the edge of the river.</li> <li>• Monitoring of suspended solids in the watercourse just downstream of the affected site on a frequent basis, to detect any impact caused by the proposed activities.</li> </ul>	
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### 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:**

##### *Erosion of immediate site:*

- During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.

##### *Water quality impacts:*

- Large amounts of suspended silt from the decommissioning activities could potentially wash into the river, which could have a negative impact on water turbidity and aquatic fauna.
- It might also impact on the appearance of the water, which could in turn impact on aesthetics and therefore recreational use and tourism.

##### *Interruption of services:*

- Deconstruction activities may potentially affect existing services such as storm water and other bulk water services.

##### *Impacts on recreation and tourism:*

- The impact on water quality could have an impact on recreational and tourism activities downstream to the proposed development.

##### *Impact on air quality:*

- Dust impact on neighbouring business premises and nearby residents could result from exposure of sand and soil due to site clearance, excavation, and demolition.
- Other sources of air pollution and odours which could potentially have a local impact would be as a result of construction vehicles and equipment exhaust fumes, poor maintenance of latrines, poor waste management procedures, waste burning, potential runaway fires and poor management of temporary latrines.

##### *Noise impacts:*

- Ambient noise levels are expected to rise during the deconstruction phase of the Umgeni Project. The noise may be emitted from construction plant that is not properly maintained and general deconstruction activities.

##### *Visual/Aesthetic Impacts:*

- Visual and aesthetic impacts will also result from the construction activities such as excavation, stockpiling of construction material, waste and rubble handling of materials. Poor planning, housekeeping and management of the construction site, site camp and activities may exacerbate such impacts.

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

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**Water quality:**

- Apart from turbidity caused by siltation, water quality could be compromised by spillage of hazardous substances and spillage from latrines.

**Traffic and traffic infrastructure impacts:**

- Without proper care deconstruction activities could potentially cause damage to road infrastructure. Excavations close to and heavy construction vehicles colliding with rail and road bridge pylons could potentially result in damage to these structures, which must be prevented.

**Economic impacts:**

- Without proper planning and care, certain deconstruction activities could also have a negative impact on neighbouring and surrounding business and industrial sites and economic activities. These could potentially include impacts such as damage to property or services that supply the businesses, requiring access through properties, restricting access to sites, construction traffic, dust, fume and noise generation.

**Cumulative impacts:**

No impacts were identified.

**Alternative A2**

**Direct impacts:**

No alternatives were identified.

**Indirect impacts:**

No alternatives were identified.

**Cumulative impacts:**

No alternatives were identified.

**No-go alternative (compulsory)**

**Direct impacts:**

The Umngeni Business Park would continue to enjoy the benefits of extra protection from floods.

**Indirect impacts:**

No impacts were identified.

**Cumulative impacts:**

No impacts were identified.

Indicate mitigation measures to manage the potential impacts listed above:

**Alternative A1**

**Interruption of services:**

- Ensuring that all sewer and water pipelines, storm water outlets and any other service infrastructure are adequately incorporated into the decommissioning phase.
- Ensuring that contractors are provided with all the relevant information on existing services, including the survey results and maps.
- Ensuring adequate planning for commissioning and switch-over of new services.
- Notification of affected service users of dates and duration of any planned services interruptions during switch-over.
- Quick response to accidental damage to any existing services during construction
- Obtaining formal written approval from a professional civil engineer and eThekweni Electricity for any construction activity such as excavations within 20m of the overhead transmission line tower. This is to ensure that the tower foundations are not undermined.

**Disturbance or damage to cultural and heritage features:**

- Prevention of access to and any impact on the Islamic graveyard by construction activities, e.g. through appropriate fencing off of this sensitive site.
- Treating the graveyard and any community activity at the graveyard with due respect.

**Traffic and traffic infrastructure impacts:**

- Liaison with the eThekweni Traffic and Transportation Department on any envisaged traffic impacts.
- Adhere to all traffic regulations.
- Minimisation of congestion and traffic obstruction e.g. by effective route planning, keeping lanes open and introducing traffic control measures.

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<ul style="list-style-type: none"> <li>Make arrangements with property owners for use of road infrastructure prior to commencement of construction.</li> <li>Minimising of construction activities in roads during peak hours.</li> </ul> <p><i>Water quality impacts:</i></p> <ul style="list-style-type: none"> <li>Ensuring good management practices are implemented concerning use and disposal of any hazardous substances, which includes but not limited to:</li> <li>Ensuring excavation and safe disposal to an appropriate landfill site of any uncovered hazardous substances or contaminated soil, that may have resulted from adjacent industrial activity.</li> <li>Ensuring that no waste is stored at the construction site for longer than 14 days.</li> <li>Carrying out routine vehicle maintenance and washing at a maintenance workshop instead of at the construction site or camps.</li> <li>Utilisation of drip trays to prevent oil or fuel spills in case of on-site emergency maintenance.</li> <li>Minimisation of quantities of fuel, paints and other hazardous material kept at the construction site.</li> <li>Safe-guarding of hazardous substances from being stolen, vandalised, catching fire or spilling on open ground.</li> <li>Provision of bunding for bulk fuel, oil and any other hazardous liquid temporary storage facility in accordance with relevant legislation.</li> <li>Introduction of appropriate waste and sewage collection and disposal procedures and facilities during construction.</li> <li>Controlling drainage to ensure that runoff from the site will not culminate in off-site pollution or cause water damage to properties further down from the site.</li> <li>Erection of any temporary latrines at least 100 m from the edge of the river.</li> <li>Monitoring of suspended solids in the watercourse just downstream of the affected site on a frequent basis, to detect any impact caused by the proposed activities.</li> </ul>	
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### 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.

<b>Alternative S1 (preferred site)</b>	<b>Alternative S2</b>
Please refer to attached EMPr – e.g. section 5.4 (ECO), 6.6.17 (surface water monitoring programme) and, 6.9.1 (General Inspection Monitoring and Reporting).	
<b>Alternative A1 (preferred alternative)</b>	<b>Alternative A2</b>
Please refer to attached EMPr (see above)	

### 3. ENVIRONMENTAL IMPACT STATEMENT

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

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taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

**Table 1: Criteria used to determine the significance ratings**

Criteria	Description
Spatial extent	The extent of impact describes the region in which the impact will be experienced: <ul style="list-style-type: none"> <li>• Site specific</li> <li>• Local (&lt; 2km from site)</li> <li>• Regional (within 30km of the site)</li> <li>• National</li> </ul>
Intensity or Magnitude of impact	The intensity describes the magnitude or size of the impact: <ul style="list-style-type: none"> <li>• High: Natural and/or social functions and/or processes are severely altered</li> <li>• Medium: Natural and/or social functions and/or processes are notably altered</li> <li>• Low: Natural and/or social functions and/or processes are negligibly altered</li> </ul>
Duration	The duration is the time frame in which the impact will be experienced: <ul style="list-style-type: none"> <li>• Temporary (&lt;1 year)</li> <li>• Short term (1 to 6 years)</li> <li>• Medium term (6 to 15 years)</li> <li>• Long term (15 - 30 years)</li> <li>• Permanent</li> </ul>
Probability	The probability of the impact occurring: <ul style="list-style-type: none"> <li>• Improbable (little or no chance of occurring)</li> <li>• Probable (&lt; 50% chance of occurring)</li> <li>• Highly probable (50% - 90% chance of occurring)</li> <li>• Definite (&gt;90% chance of occurring)</li> </ul>

The impacts are assessed (rated) in terms of their significance (high, medium, low), status and confidence through a synthesis of the criteria in Table 1. The rating system is outlined in the Table 2 below.

**Table 2: Method for Rating of Impacts**

Class	Description
Significance	<ul style="list-style-type: none"> <li>• High: impacts of high magnitude locally for longer than 6 years and/or regionally and beyond. The impact results in major alterations to the environment even if effective mitigation measures are implemented and will have an influence on decision-making.</li> <li>• Medium: impacts of moderate magnitude locally to regionally in the short term. The impact results in medium alterations to the environment and can be reduced or eliminated by the implementation of effective mitigation measures.</li> <li>• Low to very low: impacts will be localised and temporary. Impacts result in minor alterations to the environment and can easily be alleviated by the implementation of effective mitigation measures.</li> <li>• No impact: a potential concern or impact, which, upon evaluation, is found to have no significant impact at all.</li> </ul>
Status	The status is the overall effect on the environment: <ul style="list-style-type: none"> <li>• Positive - a 'benefit'</li> <li>• Negative - a 'cost'</li> <li>• Neutral</li> </ul>
Confidence	The degree of confidence in predictions based on available information and specialist knowledge: <ul style="list-style-type: none"> <li>• Low</li> <li>• Medium</li> <li>• High</li> </ul>

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### Alternative S1 (preferred site)

Phase	Impact	Extent	Duration	Intensity	Probability	Significance	Status	Confidence
Construction	Interruption of services: The Umgeni Project may affect a number of existing services infrastructure such as sewer and water pipelines and storm water outlets.	Site	Temporary	Low	Probable	Very low	Negative	High
Construction	Disturbance or damage to cultural and heritage features: The affected site neighbours the Islamic graveyard and as a result without due respect and consideration, construction activities may potentially impact on the graveyard.	Site	Temporary	Low	Improbable	No impact	Negative	High
Construction	Traffic and traffic infrastructure impacts: Construction traffic required for transporting equipment, construction material, building rubble, waste and sand from and to the site could potentially have a significant impact on the local public road traffic.	Local	Temporary	Low	Probable	Very low	Negative	High
Construction	Water quality impacts: The proximity of the proposed development potentiates water quality issues as silt, construction waste and potential pollution from the construction plant enters the water or channel.	Local	Temporary	Low	Probable	Very low	Negative	High
Construction	Community safety impacts: Public members may potentially access the construction site due to its close proximity to a large recreational area and due to its allure to bikers and off-road vehicle drivers. Steep embankments, excavations and dangerous equipment and plant could result in accidents.	Site	Temporary	Low	Improbable	Very low	Negative	High
Construction	Social impacts associated with local migrations – influx of temporary construction workers: It is unavoidable that there will be an influx of temporary construction workers for the entire construction period. This could potentially lead to disputes with local communities and businesses.	Local	Temporary	Low	Probable	Very low	Negative	High
Construction	Impacts on recreation and tourism: The potential impact on water quality and litter could in turn impact on recreational activities within the estuary.	Local	Temporary	Low	Improbable	No impact	Negative	High
Operational	Loss of industrial land: The Umgeni Project will bring into affect a permanent change in land use for the sections currently zoned for industrial development, as these will then become part of the river servitude.	Site	Permanent	Low	Probable	Very low	Negative	High
Operational	Visual and aesthetic impacts: Once in place, the Umgeni Project site will have an aesthetic/visual impact due to the change from the current disturbed secondary vegetated habitat on the embankment to an engineered vegetated gabion structure.	Site	Long term	Low	Probable	Very low	Negative	High

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Operational	Ingress of squatters, vagrants and criminals: As a result security for surrounding residential areas, businesses, recreational users as well as the aesthetics of the area might potentially be negatively impacted should such ingress occur.	Site	Long term	Low	Probable	Very low	Negative	High
Decommission	Interruption of services: The decommissioning of the Umgeni Project will affect a number of existing services infrastructure such as sewer and water pipelines and storm water outlets.	Regional	Temporary	Low	Probable	Very low	Negative	Low
Decommission	Disturbance or damage to cultural and heritage features: The affected site neighbours the Islamic graveyard and as a result without due respect and consideration, deconstruction activities may potentially impact on the graveyard.	Local	Temporary	Low	Probable	Very low	Negative	Low
Decommission	Flood risks: The Umgeni Industrial park and other areas in close proximity would once again be exposed to heavy flood damage.	Regional	Long term	High	Highly probable	Very low	Negative	Low
Decommission	Traffic and traffic infrastructure impacts: Construction traffic required for transporting equipment, construction waste, building rubble and sand from the site could potentially have a significant impact on the local public road traffic. This is particularly due to the site's close proximity to a major traffic node, which is already known to experience significant congestion during peak hours.	Local	Temporary	Low	Probable	Very low	Negative	Low
Decommission	Water quality impacts: The proximity of the deconstruction site potentiates water quality issues as silt, construction waste and potential pollution from the construction plant enters the water or channel.	Regional	Long term	High	Highly probable	Very low	Negative	Low

### Alternative S2

Alternatives considered before the development proposal was completed are not considered as they were found to be either impractical and/or expensive. These alternatives are therefore not subjected to impact analysis.

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### Alternative A1 (preferred alternative)

Phase	Impact	Extent	Duration	Intensity	Probability	Significance	Status	Confidence
Construction	Erosion of immediate site: During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.	Local	Temporary	Low	Probable	Very low	Negative	High
Construction	Water quality impacts: Large amounts of suspended silt from the excavation activities could potentially wash into the river, which could have a negative impact on water turbidity and aquatic fauna. It might also impact on the appearance of the water, which could in turn impact on aesthetics and therefore recreational use and tourism.	Regional	Temporary	Low	Probable	Very low	Negative	High
Construction	Interruption of services: Construction activities may potentially affect existing services such as storm water and other bulk water services.	Regional	Temporary	Low	Probable	Very low	Negative	High
Construction	Impacts on recreation and tourism: The impact on water quality could have an impact on recreational and tourism activities downstream to the proposed development.	Regional	Temporary	Low	Improbable	Very low	Negative	High
Construction	Impact on air quality: Dust impact on neighbouring business premises and nearby residents could result from exposure of sand and soil due to site clearance, excavation, demolition, cement mixing as well as through construction traffic on unpaved roads. Other sources of air pollution and odours which could potentially have a local impact would be as a result of construction vehicles and equipment exhaust fumes, poor maintenance of latrines, poor waste management procedures, waste burning, potential runaway fires and poor management of temporary latrines.	Regional	Temporary	Low	Improbable	Very low	Negative	High
Construction	Noise impacts: Ambient noise levels are expected to rise during the construction phase of the Umgeni Project. The noise may be emitted from construction plant that is not properly maintained.	Local	Temporary	Low	Probable	Very low	Negative	High
Construction	Visual/Aesthetic Impacts: Visual and aesthetic impacts will also result from the construction activities such as excavation, stockpiling of construction material, waste and rubble handling of materials. Poor planning, housekeeping and management of the construction site, site camp and activities may exacerbate such impacts.	Site	Temporary	Low	Probable	Very low	Negative	High

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Construction	Water quality Apart from turbidity caused by siltation, water quality could be compromised by spillage of hazardous substances and spillage from latrines. Although no evidence of any spills or dumping of hazardous material were observed during site inspections, there is a potential for uncovering hazardous waste and contaminated soil during excavation activities, due to the current and historic industrial activities at the site. In addition any hazardous substances (e.g. fuel, paints and oils) used during construction could potentially result in water contamination unless good management practices are adhered to.	Regional	Temporary	Low	Probable	Very low	Negative	High
Construction	Traffic and traffic infrastructure impacts: Without proper care construction activities could potentially cause damage to road infrastructure. Spillage of wet concrete on roads could damage roads. Excavations close to and heavy construction vehicles colliding with rail and road bridge pylons could potentially result in damage to these structures, which must be prevented.	Local	Temporary	Low	Probable	Very low	Negative	High
Construction	Social impacts associated with local migrations – influx of temporary construction workers: It is unavoidable that there will be an influx of temporary construction workers for the entire construction period. This could potentially lead to disputes with local communities and businesses.	Local	Temporary	Low	Probable	Very low	Negative	High
Construction	Economic impacts: Without proper planning and care, certain construction activities could also have a negative impact on neighbouring and surrounding business and industrial sites and economic activities. These could potentially include impacts such as damage to property or services that supply the businesses, requiring access through properties, restricting access to sites, construction traffic, dust, fume and noise generation.	Regional	Temporary	Low	Improbable	Very low	Negative	High
Operational	Impacts on topography and natural drainage: The modifications to the northern embankment of the Umgeni River will impact the local topography of a very small area. The Umgeni Project is motivated by the need for flood attenuation and will certainly therefore impact on drainage aspects of the lower Umgeni River system. Widening of the 1km section of the Umgeni River will significantly reduce the 'bottle neck' and thus upstream flood levels during major flood events. This will allow for releasing a greater flow rate through the affected section of the river during major floods and thus reduce the risk of flooding of the Umgeni Business Park. Some lower lying properties adjacent to the project site might still experience ingress of floodwater during major floods, but the risk of flood damage will probably also be reduced due to the protection provided by the flood protection works of the embankment.	Regional	Long term	Low	Probable	Medium to High	Positive	High
Operational	Impacts on geology and soil: The geological impacts will consist of excavation of soil and sand from the affected embankment to provide for the widening. There will be no impact on any geological structures below the alluvium. The Umgeni Project will substantially reduce the erosion depth of the riverbed in the vicinity of Connaught Bridge during major floods.	Regional	Long term	Low	Probable	Low	Negative	High

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Operational	Impacts on topography and natural drainage: Floodline studies indicate that the Umgeni Project would result in only a slight increase of flood levels in the Umgeni Estuary downstream of the proposed site between Connaught Bridge and Athlone Bridges during major flood events.	Regional	Long term	Low	Probable	Low	Negative	High
Decommissioning	Erosion of immediate site: During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.	Local	Temporary	Low	Probable	Very low	Negative	Low
Decommissioning	Traffic and traffic infrastructure impacts: Without proper care deconstruction activities could potentially cause damage to road infrastructure. Excavations close to and heavy construction vehicles colliding with rail and road bridge pylons could potentially result in damage to these structures, which must be prevented.	Local	Temporary	Low	Probable	Very low	Negative	Low
Decommissioning	Economic impacts: Without proper planning and care, certain deconstruction activities could also have a negative impact on neighbouring and surrounding business and industrial sites and economic activities. These could potentially include impacts such as damage to property or services that supply the businesses, requiring access through properties, restricting access to sites, construction traffic, dust, fume and noise generation.	Regional	Temporary	Low	Probable	Very low	Negative	Low
Decommissioning	Erosion of immediate site: During construction, clearance of vegetation, excavation and earth grading may expose fairly large areas of soil and sand that will be prone to erosion if left unprotected during heavy rains. Erosion may result in sedimentation and siltation of the Umgeni Estuary.	Regional	Medium	Medium	Probable	Medium	Negative	Low
Decommissioning	Water quality impacts: Large amounts of suspended silt from the decommissioning activities could potentially wash into the river, which could have a negative impact on water turbidity and aquatic fauna. It might also impact on the appearance of the water, which could in turn impact on aesthetics and therefore recreational use and tourism.	Regional	Long term	Medium	Probable	Medium	Negative	Low
Decommissioning	Interruption of services: Deconstruction activities may potentially affect existing services such as storm water and other bulk water services.	Site	Temporary	Low	Probable	Low	Negative	Low
Decommissioning	Impacts on recreation and tourism: The impact on water quality could have an impact on recreational and tourism activities downstream to the proposed development.	Regional	Long term	Low	Probable	Low	Negative	Low

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Decommissioning	Impact on air quality: Dust impact on neighbouring business premises and nearby residents could result from exposure of sand and soil due to site clearance, excavation, and demolition. Other sources of air pollution and odours which could potentially have a local impact would be as a result of construction vehicles and equipment exhaust fumes, poor maintenance of latrines, poor waste management procedures, waste burning, potential runaway fires and poor management of temporary latrines.	Regional	Temporary	Low	Probable	Very low	Negative	Low
Decommissioning	Noise impacts: Ambient noise levels are expected to rise during the deconstruction phase of the Umgeni Project. The noise may be emitted from construction plant that is not properly maintained and general deconstruction activities.	Local	Temporary	Low	Probable	Very low	Negative	Low

### Alternative A2

Alternatives considered before the development proposal was completed are not considered as they were found to be either impractical and/or expensive. These alternatives are therefore not subjected to impact analysis.

### No-go alternative (compulsory)

Phase	Impact	Extent	Duration	Intensity	Probability	Significance	Status	Confidence
All phases	The status quo is maintained and the Umgeni Project will not be implemented. The Umgeni Business Park would continue to be at a fairly high risk of being flooded. Property owners adjacent to the affected site would continue to be at high risk of floodwater destruction and safety hazard, which could potentially include serious injuries and even loss of life.	Site	Permanent	High	Highly probable	High	Negative	High

Most of the impacts described above received a low to very low significance rating after mitigation. The predictions are made with high confidence except for the decommissioning phase impacts that are difficult to gauge at this stage of the propose development. Should the No-go option be chosen, the status quo for the site and region would remain, i.e. regular flooding and damage to high value industrial property.

## 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?

YES X	NO
N/A	

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

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:

The development of the Umgeni Business Park went ahead based on the understanding that a section of the Umgeni River would be widened through provision of flood protection works (canalisation) to reduce the flooding risk to within acceptable levels. The river channel is narrow in the vicinity of Connaught Bridge at the inland side of the estuary, which in effect causes a 'bottleneck' which backs stormwater up during extreme floods (e.g. the 1987 flood) and thereby an unacceptable high flooding risk to portions of the Umgeni Business Park.

This proposed development has previously received a positive environmental authorisation previously (4 April 2006, EIA No: EIA/ 6008). The proposed development was then placed on hold while eThekweni as a result of the land acquisition process. The development proposal has not changed in terms of technical and site application since 2006, apart from further refinement of the design of the embankment stabilisation works.

The conclusion drawn from the Basic Assessment Process and associated Public Participation Process is that all negative environmental impacts can be mitigated to a low significance, through implementation of the identified mitigation measures.

It is therefore recommended that the Environmental Authorisation be granted for the proposed development with conditions as highlighted in the mitigation measures of this report and the accompanying EMPr.

## 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 D.1: Biodiversity (2005 & 2013)

Appendix D.2: Heritage (2005)

Appendix D.3: Flood Levels (2005)

Appendix D.4: Umgeni Canal Soils Investigation (1897)

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information

Appendix G.1: Previous Scoping Report (2005)

Appendix G.2: Record of Decision (2006)

Appendix G.3: Water Use License (2006)

Appendix G.4: Exemption from Mining Permit (2008)